Development Consent

Section 4.38 of the Environmental Planning and Assessment Act 1979

As delegate of the Minister for Planning and Public Spaces under delegation executed on 9 March 2022, I approve the Development Application referred to in Schedule 1, subject to the conditions specified in Schedule 2.

These conditions are required to:

- prevent, minimise, or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the development.



Karen Harragon
Director
Social Infrastructure Assessments

Sydney 17 December 2025

SCHEDULE 1

Application Number:	SSD-57838709
Applicant:	The University of Sydney
Consent Authority:	Minister for Planning and Public Spaces
Site:	The University of Sydney, Parramatta Road, Camperdown (Lot 101 in DP 1270568)
Development:	Construction of a new five level multi-disciplinary general teaching space building.

DEFINITIONS

Aboriginal object	Has the same meaning as the definition of the term in section 5 of the *National Parks and Wildlife Act 1974*
Aboriginal place	Has the same meaning as the definition of the term in section 5 of the *National Parks and Wildlife Act 1974*
Accredited Certifier	Means the holder of accreditation as an accredited certifier under the *Building Professionals Act 2005* acting in relation to matters to which the accreditation applies.
Advisory Notes	Advisory information relating to the consent but do not form a part of this consent
Applicant	The University of Sydney or any other person carrying out any development to which this consent applies
Approved disturbance area	The area identified as such on the development layout
BCA	Building Code of Australia
BC Act	*Biodiversity Conservation Act 2016*
BCD	Biodiversity and Conservation Division of the NSW Department of Climate Change, Energy, the Environment and Water
CEMP	Construction Environmental Management Plan
Certification of Crown building work	Certification under section 6.28(2) of the EP&A Act
Certified Contaminated Land Consultant	A person certified in accordance with the requirements of the Contaminated Land Consultant Certification Policy Version 2 (EPA November 2017) or any subsequent policies as in force from time to time
Certifier	Means a council or accredited certifier or in the case of Crown development, a person qualified to conduct a Certification of Crown Building work
Conditions of this consent	The conditions contained in Schedule 2 of this document
Construction	All physical work to enable operation including (unless specifically excluded by a condition) but not limited to the demolition and removal of buildings, the carrying out of works for the purposes of the development, including bulk earthworks, and erection of buildings and other infrastructure permitted by this consent, but excluding the following: • building and road dilapidation surveys; • investigative drilling or investigative excavation; • Archaeological Salvage; • establishing temporary site offices (in locations identified by the conditions of this consent); • installation of environmental impact mitigation measures, fencing, enabling works; and • minor adjustments to services or utilities However, where heritage items, or threatened species or threatened ecological communities (within the meaning of the *Biodiversity Conservation Act 2016* are affected or potentially affected by any physical work, that work is construction, unless otherwise determined by the Planning Secretary in consultation with relevant NSW government agencies
Council	City of Sydney
Day	The period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays
Demolition	The deconstruction and removal of buildings, sheds and other structures on the site

Department	NSW Department of Planning, Housing and Infrastructure
Development	The development described in the EIS and Response to Submissions, including the works and activities comprising construction of tertiary facilities, as modified by the conditions of this consent
DIP	Design Integrity Panel
Earthworks	Bulk earthworks, site levelling, import and compaction of fill material, excavation for installation of drainage and services
EIS	The Environmental Impact Statement titled A01 Ross Street Teaching and Learning Hub, prepared by MG Planning dated February 2025, submitted with the application for consent for the development, including any additional information provided by the Applicant in support of the application
ENM	Excavated Natural Material
Environment	Includes all aspects of the surroundings of humans, whether affecting any human as an individual or in his or her social groupings
EPA	NSW Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	Environmental Planning and Assessment Regulation 2021
Evening	The period from 6pm to 10pm
Feasible	Means what is possible and practical in the circumstances
Heritage	Encompasses both Aboriginal and historic heritage including sites that predate European settlement, and a shared history since European settlement
Heritage NSW	Heritage NSW, the NSW Department of Climate Change, Energy, the Environment and Water
Heritage Item	An item as defined under the *Heritage Act 1977,* and assessed as being of local, State and/ or National heritage significance*,* and/or an Aboriginal Object or Aboriginal Place as defined under the *National Parks and Wildlife Act 1974'*, the World Heritage List, or the National Heritage List or Commonwealth Heritage List under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth), or anything identified as a heritage item under the conditions of this consent
Incident	An occurrence or set of circumstances that causes, or threatens to cause, material harm and which may or may not be, or cause, a non-compliance *Note: "material harm" is defined in this consent*
Independent Audit Post Approval Requirements	Independent Audit Post Approval Requirements 2020 (or other updated version as available on the Department's website)
Land	Has the same meaning as the definition of the term in section 1.4 of the EP&A Act
EMP	Environmental Management Plan
Management and mitigation measures	The management and mitigation measures set out in Appendix R of the Response to Submissions.
Material harm	Is harm that: a) involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial; or b) results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment) Note: For the purposes of this definition, material harm excludes incidents captured by Work Health and Safety reporting requirements.

Minister	NSW Minister for Planning and Public Spaces (or delegate)
Mitigation	Activities associated with reducing the impacts of the development prior to or during those impacts occurring
Monitoring	Any monitoring required under this consent must be undertaken in accordance with section 9.39 of the EP&A Act
Night	The period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays
Non-compliance	An occurrence, set of circumstances or development that is a breach of this consent
Operation	The carrying out of the approved purpose of the development upon completion of construction
PA	Means a planning agreement within the meaning of the term in section 7.4 of the EP&A Act
Planning Secretary	Planning Secretary under the EP&A Act, or nominee
POEO Act	*Protection of the Environment Operations Act 1997*
Reasonable	Means applying judgement in arriving at a decision, taking into account: mitigation, benefits, costs of mitigation versus benefits provided, community views, and the nature and extent of potential improvements
Registered Aboriginal Parties	Means the Aboriginal persons identified in accordance with the document entitled "*Aboriginal cultural heritage consultation requirements for proponents 2010*" (DECCW)
Rehabilitation	The restoration of land disturbed by the development to a good condition, to ensure it is safe, stable and non-polluting
Response to submissions	The Applicant's response to issues raised in submissions received in relation to the application for consent for the development under the EP&A Act
Sensitive receivers	A location where people are likely to work, occupy or reside, including a dwelling, school, hospital, office or public recreational area
Site	The land defined in Schedule 1
Site Auditor	As defined in section 4 of the *Contaminated Land Management Act 1997*
Site Audit Report	As defined in section 4 of the *Contaminated Land Management Act 1997*
Site Audit Statement	As defined in section 4 of the *Contaminated Land Management Act 1997*
TfNSW	Transport for New South Wales
VENM	Virgin Excavated Natural Material
Waste	Has the same meaning as the definition of the term in the Dictionary to the POEO Act
Year	A period of 12 consecutive months

SCHEDULE 2

PART A ADMINISTRATIVE CONDITIONS

Obligation to Minimise Harm to the Environment

A1. In addition to meeting the specific performance measures and criteria in this consent, all reasonable and feasible measures must be implemented to prevent, and, if prevention is not reasonable and feasible, minimise any material harm to the environment that may result from the construction and operation of the development.

Terms of Consent

A2. The development may only be carried out:

(a) in compliance with the conditions of this consent;

(b) in accordance with all written directions of the Planning Secretary;

(c) generally in accordance with the EIS and Response to Submissions;

(d) in accordance with the approved plans in the table below:

Architectural drawings prepared by *BVN*			
Dwg No.	**Rev**	**Name of Plan**	**Date**
AR-02A-XX-01	08	Cover Sheet	21/01/2025
AR-02A-XX-03	06	Demolition Plan	12/08/2025
AR-02A-XX-04	07	Proposed Site Plan	16/10/2024
AR-02A-XX-10	06	Proposed Site Elevations	16/10/2024
AR-02B-01-02	08	General Arrangement Plan – Level 01	16/01/2025
AR-02B-02-02	09	General Arrangement Plan – Level 02	24/07/2025
AR-02B-03-02	08	General Arrangement Plan – Level 03	16/01/2025
AR-02B-04-02	08	General Arrangement Plan – Level 04	16/01/2025
AR-02B-05-02	08	General Arrangement Plan – Level 05	16/01/2025
AR-02B-06-02	09	General Arrangement Plan – Roof	22/01/2025
AR-02C-XX-01	04	North Elevation	16/10/2024
AR-02C-XX-02	04	West Elevation	16/10/2024
AR-02C-XX-03	07	South Elevation	16/10/2024
AR-02C-XX-04	07	East Elevation	16/10/2024
AR-02D-XX-01	08	Sections	16/01/2025
AR-02D-XX-02	08	Sections	16/01/2025
AR-02D-XX-03	05	Sections	16/01/2025
AR-02D-XX-04	01	Sections	16/01/2025
AR-02D-XX-05	01	Sections	22/01/2025
AR-02Y-XX-02	06	Schedule of Finishes	16/10/2024
Landscape drawings prepared by *Oculus*			
Dwg No.	**Rev**	**Name of Plan**	**Date**
SSDA00	5	Cover Sheet	06/08/2025
SSDA01	5	Legend Sheet	06/08/2025
SSDA03	5	Planting Schedule	06/08/2025
SSDA10	7	Tree Retention and Removal Plan	06/08/2025
SSDA11	3	Demolition Plan	06/08/2025
SSDA20	6	Surface Finishes Level 02	06/08/2025

SSDA30	6	Levels Plan Level 02	06/08/2025
SSDA40	1	Soil Volume Plan Level 02	06/08/2025
SSDA50	6	Planting Plan Level 02	06/08/2025
SSDA51	3	Planting Plan Level 01 + 03	06/08/2025
SSDA52	1	Planting Plan Level 04 + 05	06/08/2025
SSDA70	5	Sections	06/08/2025
SSDA71	5	Sections	06/08/2025

A3. The Applicant must comply with all written requirements or directions of the Planning Secretary, including in relation to:

(a) the environmental performance of the approved development;

(b) any document or correspondence in relation to the approved development;

(c) any notification given to the Planning Secretary under the terms of this approval;

(d) any audit of the construction or operation of the construction or operation of the approved development;

(e) the terms of this approval and compliance with the terms of the approval (including anything required to be done under the approval);

(f) the carrying out of any additional monitoring and management measures; and

(g) in respect of ongoing monitoring and management obligations, compliance with an updated or revised version of a guideline, protocol, Australian Standard or policy required to be complied with under this approval.

A4. Consistent with the requirements in this consent, the Planning Secretary may make written directions to the Applicant in relation to:

(a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this consent, including those that are required to be, and have been, approved by the Planning Secretary;

(b) any reports, reviews or audits commissioned by the Planning Secretary regarding compliance with this approval; and

(c) the implementation of any actions or measures contained in any such document referred to in (a) above.

A5. The conditions of this consent and directions of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and a document listed in condition A2(c). In the event of an inconsistency, ambiguity or conflict between any of the documents listed in condition A2(c), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.

Limits of Consent

A6. This consent lapses five years after the date of consent unless work is physically commenced.

Prescribed Conditions

A7. The Applicant must comply with all relevant conditions of development consent under Part 4, Division 2, Subdivision 1 of the EP&A Regulation.

Planning Secretary as Moderator

A8. In the event of a dispute between the Applicant and a public authority, in relation to an applicable requirement in this approval or relevant matter relating to the Development, either party may refer the matter to the Planning Secretary for resolution. The Planning Secretary's resolution of the matter must be binding on the parties.

Evidence of Consultation

A9. Where conditions of this consent require consultation with an identified party, the Applicant must:

(a) consult with the relevant party prior to submitting the subject document for information or approval; and

(b) provide details of the consultation undertaken including:

(i) the outcome of that consultation, matters resolved and unresolved; and

(ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.

Staging

A10. The project may be constructed and operated in stages. Where compliance with conditions is required to be staged due to staged construction or operation, a Staging Report (for either or both construction and operation as the case may be) must be prepared and submitted to the Planning Secretary for approval. The Staging Report must be submitted to the Planning Secretary no later than one month before the commencement of construction of the first of the proposed stages of construction (or if only staged operation is proposed, one month before the commencement of operation of the first of the proposed stages of operation).

A11. A Staging Report prepared in accordance with condition A10 must:

(a) if staged construction is proposed, set out how the construction of the whole of the project will be staged, including details of work and other activities to be carried out in each stage and the general timing of when construction of each stage will commence and finish;

(b) if staged operation is proposed, set out how the operation of the whole of the project will be staged, including details of work and other activities to be carried out in each stage and the general timing of when operation of each stage will commence and finish (if relevant);

(c) specify how compliance with conditions will be achieved across and between each of the stages of the project;

(d) specify how compliance with independent auditing requirements will be achieved across and between each of the operational stages of the project; and

(e) set out mechanisms for managing any cumulative impacts arising from the proposed staging.

A12. Where a Staging Report is required, the project must be staged in accordance with the Staging Report, as approved by the Planning Secretary.

A13. Where construction or operation is being staged in accordance with a Staging Report, the terms of this consent that apply or are relevant to the works or activities to be carried out in a specific stage must be complied with at the relevant time for that stage as identified in the Staging Report including independent auditing requirements.

Staging, Combining and Updating Strategies, Plans or Programs

A14. The Applicant may:

(a) prepare and submit any strategy, plan (including management plan, architectural or design plan) or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan (including management plan, architectural or design plan) or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan (including management plan, architectural or design plan) or program);

(b) combine any strategy, plan (including management plan, architectural or design plan), or program required by this consent (if a clear relationship is demonstrated between the strategies, plans (including management plan, architectural or design plan) or programs that are proposed to be combined); and

(c) update any strategy, plan (including management plan, architectural or design plan), or program required by this consent (to ensure the strategies, plans (including management

plan, architectural or design plan), or programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development).

A15. Any strategy, plan or program prepared in accordance with condition A14, where previously approved by the Planning Secretary under this consent, must be submitted to the satisfaction of the Planning Secretary.

A16. If the Planning Secretary agrees, a strategy, plan (including management plan, architectural or design plan), or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in this consent.

A17. Updated strategies, plans (including management plan, architectural or design plan), or programs supersede the previous versions of them and must be implemented in accordance with the condition that requires the strategy, plan, program or drawing.

Structural Adequacy

A18. All new buildings and structures, and any alterations or additions to existing buildings and structures, that are part of the development, must be constructed in accordance with the relevant requirements of the BCA.

Notes:

- *Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021 sets out the requirements for the certification of the development.*

External Walls and Cladding

A19. The external walls of all buildings including additions to existing buildings must comply with the relevant requirements of the BCA.

Applicability of Guidelines

A20. References in the conditions of this consent to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in as at the date of this consent.

A21. Consistent with the conditions of this consent and without altering any limits or criteria in this consent, the Planning Secretary may, when issuing directions under this consent in respect of ongoing monitoring and management obligations, require compliance with an updated or revised version of such a guideline, protocol, Standard or policy, or a replacement of them.

Monitoring and Environmental Audits

A22. Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, Site audit report and independent auditing.

Note: For the purposes of this condition, as set out in the EP&A Act, "monitoring" is monitoring of the development to provide data on compliance with the consent or on the environmental impact of the development, and an "environmental audit" is a periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development.

Access to Information

A23. At least 48 hours before the commencement of construction until the completion of all works under this consent, or such other time as agreed by the Planning Secretary, the Applicant must:

(a) make the following information and documents (as they are obtained or approved) publicly available on its website:

(i) the documents referred to in condition A2 of this consent;

(ii) all current statutory approvals for the development;

(iii) all approved strategies, plans and programs required under the conditions of this consent;

(iv) regular reporting on the environmental performance of the development in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent;

(v) a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;

(vi) a summary of the current stage and progress of the development;

(vii) contact details to enquire about the development or to make a complaint;

(viii) a complaints register, updated monthly;

(ix) audit reports prepared as part of any independent audit of the development and the Applicant's response to the recommendations in any audit report;

(x) any other matter required by the Planning Secretary; and

(b) keep such information up to date, to the satisfaction of the Planning Secretary and publicly available for 12 months after the commencement of operations.

Compliance

A24. The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development.

Incident Notification, Reporting and Response

A25. The Planning Secretary must be notified through the major projects portal immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one) and set out the location and nature of the incident.

A26. Subsequent notification must be given and reports submitted in accordance with the requirements set out in **Appendix 2**.

Non-Compliance Notification

A27. The Planning Secretary must be notified through the major projects portal within seven days after the Applicant becomes aware of any non-compliance.

A28. The notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

A29. A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

Revision of Strategies, Plans and Programs

A30. Within three months of:

(a) the submission of an incident report under condition A26;

(b) the submission of an Independent Audit under condition C43;

(c) the approval of any modification of the conditions of this consent; or

(d) the issue of a direction of the Planning Secretary under condition A3 which requires a review,

the strategies, plans and programs required under this consent must be reviewed, and the Planning Secretary and the Certifier must be notified in writing that a review is being carried out.

A31. If necessary to either improve the environmental performance of the development, cater for a modification or comply with a direction, the strategies, plans, programs or drawings required under this consent must be revised, to the satisfaction of the Planning Secretary or Certifier (where previously approved by the Certifier). Where revisions are required, the revised document must be submitted to the Planning Secretary and / or Certifier for approval and / or information (where relevant) within six weeks of the review.

Note: This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development.

PART B PRIOR TO COMMENCEMENT OF CONSTRUCTION

Notification of Commencement

B1. The Applicant must notify the Planning Secretary in writing of the dates of the intended commencement of construction and operation at least 48 hours before those dates.

B2. If the construction or operation of the development is to be staged, the Planning Secretary must be notified in writing at least 48 hours before the commencement of each stage, of the date of commencement and the development to be carried out in that stage.

Certified Drawings

B3. Prior to the commencement of construction, the Applicant must submit to the Certifier structural drawings prepared and signed by a suitably qualified practising Structural Engineer that demonstrates compliance with this development consent.

External Walls and Cladding

B4. Prior to the commencement of construction, the Applicant must provide the Certifier with documented evidence that the products and systems proposed for use or used in the construction of external walls, including finishes and claddings such as synthetic or aluminium composite panels, comply with the requirements of the BCA. A copy of the documentation must be made available on the Applicant's website within seven days after the Certifier accepts it.

Pre-Construction Dilapidation Report – Protection of Public Infrastructure

B5. Prior to the commencement of construction, the Applicant must:

(a) consult with the relevant owner and provider of services and Infrastructure that are likely to be affected by the development to make suitable arrangements for access to, diversion, protection and support of the affected infrastructure;

(b) prepare a Pre-Construction Dilapidation Report identifying the condition of all public (non-residential) infrastructure and assets in the vicinity of the site (including roads, gutters and footpaths) that have potential to be affected;

(c) submit a copy of the Pre-Construction Dilapidation Report to the asset owner, Certifier and Council; and

(d) provide a copy of the Pre-Construction Dilapidation Report to the Planning Secretary with 48 hours when requested.

Ecologically Sustainable Development

B6. Prior to the commencement of construction, unless otherwise agreed by the Planning Secretary, the Applicant must demonstrate that ESD is being achieved by either:

(a) registering for a minimum 5 star Green Star rating with the Green Building Council Australia and submit evidence of registration to the Certifier; or

(b) seeking approval from the Planning Secretary for an alternative certification process.

Outdoor Lighting

B7. Prior to commencement of lighting installation, evidence must be submitted to the Certifier that all outdoor lighting to be installed within the site has been designed to comply with AS 1158.3.1:2005 Lighting for roads and public spaces – Pedestrian area (Category P) lighting – Performance and design requirements and AS 4282-2019 Control of the obtrusive effects of outdoor lighting.

Demolition

B8. Prior to the commencement of construction, demolition work plans required by *AS 2601-2001 The demolition of structures* (Standards Australia, 2001) must be accompanied by a written statement from a suitably qualified person that the proposals contained in the work plan comply with the safety requirements of the Standard. The work plans and the statement of compliance must be submitted to the Certifier.

Environmental Management Plan Requirements

B9. Management plans required under this consent must be prepared having regard to the relevant guidelines, including but not limited to the *Environmental Management Plan Guideline: Guideline for Infrastructure Projects* (DPIE April 2020).

Notes:

- *The Environmental Management Plan Guideline is available on the Planning Portal at: https://www.planningportal.nsw.gov.au/major-projects/assessment/post-approval*
- *The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*

Construction Environmental Management Plan

B10. Prior to the commencement of any construction, the Applicant must submit a Construction Environmental Management Plan (CEMP) to the Certifier and publish a copy of the CEMP on the Applicant's website in accordance with condition A23 (Access to Information). The CEMP must include, but not be limited to, the following:

(a) Details of:

(i) hours of work;

(ii) 24-hour contact details of site manager;

(iii) management of dust and odour to protect the amenity of the neighbourhood;

(iv) stormwater control and discharge;

(v) measures to ensure that sediment and other materials are not tracked onto the roadway by vehicles leaving the site;

(vi) groundwater management plan including measures to prevent groundwater contamination;

(vii) external lighting in compliance with AS 4282-2019 Control of the obtrusive effects of outdoor lighting;

(b) an unexpected finds protocol for contamination and associated communications procedure to ensure that potentially contaminated material is appropriately managed;

(c) an unexpected finds protocol for Aboriginal and non-Aboriginal heritage and associated communications procedure;

(d) Construction Traffic and Pedestrian Management Sub-Plan (see condition B11);

(e) Construction Noise and Vibration Management Sub-Plan (see condition B12);

(f) Construction Waste Management Sub-Plan (see condition B13); and

(g) Construction Flood Emergency Management Plan (see condition B14).

B11. The Construction Traffic and Pedestrian Management Sub-Plan (CTPMSP) must be prepared to achieve the objective of ensuring safety and efficiency of the road network and address, but not be limited to, the following:

(a) be prepared by a suitably qualified and experienced person(s);

(b) be prepared in consultation with Council and TfNSW;

(c) detail:

(i) measures to ensure road safety and network efficiency during construction in consideration of potential impacts on general traffic, cyclists and pedestrians and bus services;

(ii) measures to ensure the safety of vehicles and pedestrians accessing adjoining properties where shared vehicle and pedestrian access occurs;

(iii) heavy vehicle routes, access and parking arrangements;

(iv) the swept path of the longest construction vehicle entering and exiting the site in association with the new work, as well as manoeuvrability through the site, in accordance with the latest version of AS 2890.2; and

(v) arrangements to ensure that construction vehicles enter and leave the site in a forward direction unless in specific exceptional circumstances under the supervision of accredited traffic controller(s).

B12. The Construction Noise and Vibration Management Sub-Plan must address, but not be limited to, the following:

(a) be prepared by a suitably qualified and experienced noise expert;

(b) describe procedures for achieving the noise management levels in EPA's *Interim Construction Noise Guideline* (DECC, 2009);

(c) describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;

(d) include strategies that have been developed with the community for managing high noise generating works;

(e) include a complaints management system that would be implemented for the duration of the construction; and

(f) include a program to monitor and report on the impacts and environmental performance of the development and the effectiveness of the implemented management measures in accordance with the requirements of condition B23.

B13. The Construction Waste Management Sub-Plan (CWMSP) must address, but not be limited to, the procedures for the management of waste including the following:

(a) the recording of quantities, classification (for materials to be removed) and validation (for materials to remain) of each type of waste generated during construction and proposed use for materials to remain;

(b) information regarding the recycling and disposal locations; and

(c) confirmation of the contamination status of the development areas of the site based on the validation results.

B14. The Construction Flood Emergency Management Sub-Plan must address, but not be limited to, the following:

(a) be prepared by a suitably qualified and experienced person(s);

(b) address the provisions of the *Floodplain Risk Management Guidelines*;

(c) include details of:

(i) the flood emergency responses for both construction phases of the development;

(ii) predicted flood levels;

(iii) flood warning time and flood notification;

(iv) assembly points and evacuation routes;

(v) evacuation and refuge protocols; and

(vi) awareness training for employees and contractors, and users/visitors.

B15. A Driver Code of Conduct must be prepared and communicated by the Applicant to heavy vehicle drivers and must address the following:

(a) minimise the impacts of earthworks and construction on the local and regional road network;

(b) minimise conflicts with other road users;

(c) minimise road traffic noise; and

(d) ensure truck drivers use specified routes.

Construction Parking

B16. Prior to the commencement of any construction, the Applicant must provide sufficient parking facilities on-campus, including for heavy vehicles, to ensure that construction traffic associated with the development does not utilise public and residential streets or public parking facilities.

B17. Prior to the commencement of any construction, the Applicant must submit a Construction Worker Transportation Strategy to the Certifier. The Strategy must detail the provision of sufficient parking facilities or other travel arrangements for construction workers in order to minimise demand for parking in nearby public and residential streets or public parking facilities.

A copy of the strategy must be published on the Applicant's website in accordance with condition A23. This condition cannot be staged.

Soil and Water

B18. Prior to the commencement of construction, the Applicant must:

(a) install erosion and sediment controls on the site to manage wet weather events; and

(b) divert existing clean surface water around operational areas of the site.

B19. Prior to the commencement of construction, erosion and sediment controls must be installed and maintained, as a minimum, in accordance with the publication Managing Urban Stormwater: Soils & Construction (4th edition, Landcom 2004) commonly referred to as the 'Blue Book'.

Flood Management

B20. Prior to the commencement of construction, the Applicant must prepare and implement for the duration of construction:

(a) flood warning and notification procedures for construction workers on site; and

(b) evacuation and refuge protocols.

B21. Prior to the commencement of construction, details must be provided to the Certifier confirming that any structures below the 1% Annual Exceedance Probability plus 500mm of freeboard are constructed from flood compatible building components.

B22. Prior to the commencement of construction, the Applicant must provide evidence from a suitably qualified civil or structural engineer to the Certifier confirming that the structural integrity of the building has been designed to withstand the 1% Annual Exceedance Probability flood.

Operational Noise – Design of Mechanical Plant and Equipment

B23. Prior to installation of mechanical plant and equipment:

(a) a detailed assessment of mechanical plant and equipment with compliance with the relevant project noise trigger levels as recommended in the *SSDA Noise and Vibration Impact Assessment* dated 3/09/2024 and prepared by Acoustic Logic must be undertaken by a suitably qualified person; and

(b) evidence must be submitted to the Certifier that any noise mitigation recommendations identified in the assessment carried out under (a) have been incorporated into the design to ensure the development will not exceed the project noise trigger levels as identified in the *SSDA Noise and Vibration Impact Assessment* and prepared by Acoustic Logic.

Construction and Demolition Waste Management

B24. Prior to the commencement of the removal of any waste material from the site, the Applicant must notify the TfNSW Traffic Management Centre of the truck route(s) to be followed by trucks transporting waste material from the site.

Operational Waste Storage and Processing

B25. Prior to the commencement of construction of waste storage and processing areas, the Applicant must obtain agreement from Council for the design of the operational waste storage area (where waste removal will be undertaken by Council). Where waste removal will be undertaken by a third party, evidence must be provided to the Certifier that the design of the operational waste storage area:

(a) is constructed using solid non-combustible materials;

(b) is designed to ensure the door/gate to the waste storage area is vermin proof and can be openable from both inside and outside the storage area at all times;

(c) includes a hot and cold water supply with a hose through a centralised mixing valve;

(d) is naturally ventilated or an air handling exhaust system must be in place; and

(e) includes signage to clearly describe the types of materials that can be deposited into recycling bins and general garbage bins.

Operational Access and Service Vehicle Arrangements

B26. Prior to the commencement of construction of operational parking and access facilities, evidence of compliance of the design of operational parking and access arrangements with the following requirements must be submitted to the Certifier:

(a) a minimum of one on-site space for servicing and waste during operation of the development and designed in accordance with the relevant Australian Standards; and

(b) the swept path of the largest service vehicle entering and exiting the Site in association with the new work, as well as manoeuvrability through the site, must be in accordance with the latest version of AS 2890.2.

Public Domain Works

B27. Prior to the commencement of any footpath or public domain works on Council land, the Applicant must consult with Council and demonstrate to the Certifier that the streetscape design and treatment meets the requirements of Council, including addressing pedestrian management. The Applicant must submit documentation of approval for each stage from Council to the Certifier.

Heritage

B28. The final design of details of the Ross Street Gates sandstone columns and palisade fence, including the design of columns flagging new openings to the palisade fence, are to be provided to the Planning Secretary for approval, including evidence of support from Heritage NSW for the final design.

B29. All works to the Ross Street Gates sandstone columns and palisade fence are to be undertaken by suitably qualified and experienced tradespersons.

B30. A revised Heritage Interpretation Plan (HIP) must be prepared in consultation with Heritage NSW and submitted to the Certifier and Planning Secretary prior to the commencement of landscaping works on site. The revised HIP is to include detailed designs for the interpretation media, and consideration of interpretation of historical archaeology on the site (if identified).

B31. Archaeological monitoring is required to identify and record potential features associated with World War II air raid trenches. An Archaeological Work Method Statement (AWMS) is to be completed for the project in accordance with the guideline Archaeological assessment (Heritage Office and DUAP 1996) and in consultation with Heritage NSW, to inform and guide archaeological investigations. The AWMS must:

(a) identify the potential archaeological resource on site, and how it will be impacted by the proposed works;

(b) identify research questions to guide the archaeological program;

(c) propose a methodology for archaeological monitoring on site;

(d) provide an Unexpected Finds Procedure for the proposed works;

(e) provide a methodology for post-excavation analysis and reporting; and

(f) be provided to the Certifier and the Planning Secretary prior to the commencement of construction.

B32. If required by condition B31(e), a Final Excavation Report is to be prepared and provided to Heritage NSW within 12 months of the completion of archaeological investigations for accession to the Heritage Library.

B33. Prior to commencement of construction, the following documents are to be prepared and provided to the Certifier for the Ross Street Gates sandstone columns and palisade fence by a suitably qualified and experienced heritage consultant:

(a) a Schedule of Conservation Works for the Ross Street Gates sandstone pillars, to be implemented as part of the approved works; and

(b) a Salvage Methodology for the portions of palisade fence, stone base, and c.1910 metal gate approved for removal. This Salvage Methodology should clearly outline the steps for safe removal of the materials and storage for future use.

B34. A photographic archival of the Ross Street Gates and palisade fence (including stone base and c.1910 metal gate) must be prepared prior to the commencement of construction. This recording must be prepared in accordance with the Heritage NSW publication *Guidelines for preparing archival recordings of heritage items as a condition of consent* (DECCW 2025). The digital copy of the archival record must be submitted electronically to Heritage NSW. The relevant format and specifications of the record are published on the Heritage NSW website.

Aboriginal Cultural Heritage

B35. Prior to the commencement of construction, the Applicant must ensure Aboriginal heritage management procedures are prepared for the development and included in the Project's Construction Environmental Management Plan (CEMP). The Aboriginal heritage management procedures must:

(a) be prepared by suitably qualified and experienced persons.

(b) be prepared in consultation with Registered Aboriginal Parties and be reviewed by Heritage NSW.

(c) include a description of the measures that would be implemented for:

i. ongoing consultation with Registered Aboriginal Parties, including consultation regarding changes to the management of Aboriginal cultural heritage.

ii. a contingency plan and reporting procedure for the management of Unexpected Heritage Finds and Human Remains that is prepared by suitably qualified and experienced heritage specialist in relation to Aboriginal cultural heritage, in consultation with the Registered Aboriginal Parties and in accordance with the *Code of practice for archaeological investigation of Aboriginal objects in New South Wales* (DECCW 2010). The Unexpected Heritage Finds and Human Remains Procedure, as submitted to the Planning Secretary, must be implemented for the duration of construction.

iii. ensuring workers on site receive suitable heritage inductions prior to carrying out any development on site, and that records are kept of these inductions.

TfNSW – Bike Box

B36. The minimum driver sight line distances from the northbound approach on Western Avenue to pedestrians on the southern footway of Parramatta Road must comply with the relevant Austroads guidelines. Vegetation within University grounds is to be removed as necessary to ensure compliant driver visibility is achieved and maintained.

B37. The Applicant is required to enter a Works Authorisation Deed (WAD) with Transport for NSW for the proposed Bike Box on Western Avenue south approach to the Parramatta Road signalised intersection. Prior to the release of approved plans by TfNSW, the Applicant must submit a plan checking fee and lodge a performance bond in accordance with TfNSW requirements.

TfNSW – Civil Works

B38. Detailed design plans and hydraulic calculations of any changes to the stormwater drainage system on Parramatta Road are to be submitted to TfNSW for approval, prior to the commencement of works (sending all documentation to development.sydney@transport.nsw.gov.au).

B39. If the depth of excavation is greater than the linear distance from the state road reserve/property boundary, then the Applicant is to submit design drawings and documents relating to the excavation of the site and support structures to TfNSW for assessment, in accordance with Technical Direction GTD2020/001. The Applicant is to submit all documentation at least six weeks prior to the commencement of construction and is to meet the full cost of the assessment

by TfNSW. If it is necessary to excavate below the level of the base of the footings of the adjoining roadways, the person acting on the consent shall ensure that the owner/s of the roadway is/are given at least seven day notice of the intention to excavate below the base of the footings. The notice is to include complete details of the work.

B40. Any proposed public utility adjustment/relocation works on the state road network will require detailed civil design plans for road opening/underboring to be submitted to TfNSW for review and acceptance prior to prior to the commencement of works. The Applicant must also obtain any necessary approvals from the various public utility authorities and/or their agents.

B41. The Applicant is required to enter a separate Works Authorisation Deed (WAD) with TfNSW for the works outlined in Conditions B37, B38 and B39 (where applicable). Prior to the release of approved plans by TfNSW, the Applicant must submit a plan checking fee and lodge a performance bond in accordance with TfNSW's standard requirements.

PART C DURING CONSTRUCTION

Site Notice

C1. A site notice(s) must be prominently displayed at the boundaries of the site during construction for the purpose of informing the public of project details and must satisfy the following requirements:

(a) minimum dimensions of the site notice(s) must measure 841 mm x 594 mm (A1) with any text on the site notice(s) to be a minimum of 30-point type size;

(b) the site notice(s) must be durable and weatherproof and must be displayed throughout the works period;

(c) the approved hours of work, the name of the builder, Certifier, structural engineer, site/ project manager, the responsible managing company (if any), its address and 24-hour contact phone number for any inquiries, including construction/ noise complaint must be displayed on the site notice(s); and

(d) the site notice(s) must be mounted at eye level on the perimeter hoardings/fencing and must state that unauthorised entry to the site is not permitted.

Operation of Plant and Equipment

C2. All construction plant and equipment used on site must be maintained in a proper and efficient condition and operated in a proper and efficient manner.

Demolition

C3. Demolition work must comply with the demolition work plans required by *Australian Standard AS 2601-2001 The demolition of structures* (Standards Australia, 2001) and endorsed by a suitably qualified person as required by condition B8.

Construction Hours

C4. Construction, including the delivery of materials to and from the site, may only be carried out between the following hours:

(a) between 7am and 6pm, Mondays to Fridays inclusive; and

(b) between 8am and 1pm, Saturdays.

No work may be carried out on Sundays or public holidays.

C5. Construction activities may be undertaken outside of the hours in condition C4 if required:

(a) by the Police or a public authority for the delivery of vehicles, plant or materials; or

(b) in an emergency to avoid the loss of life, damage to property or to prevent environmental harm; or

(c) where the works are inaudible at the nearest sensitive receivers; or

(d) for the delivery, set-up and removal of construction cranes, where notice of the crane-related works is provided to the Planning Secretary and affected residents at least seven days prior to the works; or

(e) where a variation is approved in advance in writing by the Planning Secretary or her nominee if appropriate justification is provided for the works.

C6. Notification of such construction activities as referenced in condition C5 must be given to affected residents before undertaking the activities or as soon as is practical afterwards.

C7. Rock breaking, rock hammering, sheet piling, pile driving and similar activities may only be carried out between the following hours:

(a) 9am to 12pm, Monday to Friday;

(b) 2pm to 5pm Monday to Friday; and

(c) 9am to 12pm, Saturday.

Implementation of Management Plans

C8. The Applicant must carry out the construction of the development in accordance with the most recent version of the CEMP (including Sub-Plans).

Construction Traffic

C9. All construction vehicles (excluding site personnel vehicles) are to be contained wholly within the site, except if located in an approved on-street work zone, and vehicles must enter the site or an approved on-street work zone before stopping.

Hoarding Requirements

C10. The following hoarding requirements must be complied with:

(a) no third-party advertising is permitted to be displayed on the subject hoarding/ fencing; and

(b) the construction site manager must be responsible for the removal of all graffiti from any construction hoardings or the like within the construction area within 48 hours of its application.

No Obstruction of Public Way

C11. The public way (outside of any approved construction works zone) must not be obstructed by any materials, vehicles, refuse, skips or the like, under any circumstances.

Construction Noise Limits

C12. The development must be constructed to achieve the construction noise management levels detailed in *the Interim Construction Noise Guideline* (DECC, 2009). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the management and mitigation measures identified in the approved Construction Noise and Vibration Management Plan.

C13. The Applicant must ensure construction vehicles (including concrete agitator trucks) do not arrive at the site or surrounding residential precincts outside of the construction hours of work outlined under condition C4.

C14. The Applicant must implement, where practicable and without compromising the safety of construction staff or members of the public, the use of 'quackers' to ensure noise impacts on surrounding noise sensitive receivers are minimised.

Vibration Criteria

C15. Vibration caused by construction at any residence or structure outside the site must be limited to:

(a) for structural damage, the latest version of *DIN 4150-3 (1992-02) Structural vibration - Effects of vibration on structures* (German Institute for Standardisation, 1999); and

(b) for human exposure, the acceptable vibration values set out in the *Environmental Noise Management Assessing Vibration: a technical guideline* (DEC, 2006) (as may be updated or replaced from time to time).

C16. Vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified in condition C15.

C17. The limits in conditions C15 and C16 apply unless otherwise outlined in a Construction Noise and Vibration Management Plan, approved as part of the CEMP required by condition B12 of this consent.

Tree Protection

C18. For the duration of the construction works:

(a) street trees must not be trimmed or removed unless it forms a part of this development consent or prior written approval from Council is obtained or is required in an emergency to avoid the loss of life or damage to property;

(b) all trees on the site that are not approved for removal must be suitably protected during construction as per the recommendations of the Arboricultural Impact Assessment prepared by tree iQ, Revision C dated 26 August 2024; and

(c) if access to the area within any protective barrier is required during the works, it must be carried out under the supervision of a qualified arborist. Alternative tree protection measures must be installed, as required. The removal of tree protection measures, following completion of the works, must be carried out under the supervision of a qualified arborist and must avoid both direct mechanical injury to the structure of the tree and soil compaction within the canopy or the limit of the former protective fencing, whichever is the greater.

Air Quality

C19. The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.

C20. During construction, the Applicant must ensure that:

(a) activities are carried out in a manner that minimises dust including emission of windblown or traffic generated dust;

(b) all trucks entering or leaving the site with loads have their loads covered;

(c) trucks associated with the development do not track dirt onto the public road network;

(d) public roads used by these trucks are kept clean; and

(e) land stabilisation works are carried out progressively on site to minimise exposed surfaces.

Soil and Water

C21. All erosion and sediment control measures must be effectively implemented and maintained at or above design capacity for the duration of the construction works and until such time as all ground disturbed by the works have been stabilised and rehabilitated so that it no longer acts as a source of sediment. Erosion and sediment control techniques, as a minimum, are to be in accordance with the publication Managing Urban Stormwater: Soils & Construction (4th edition, Landcom, 2004) commonly referred to as the 'Blue Book'.

Imported Fill

C22. The Applicant must:

(a) ensure that only VENM, ENM, or other material that meets the requirements of a relevant order and exemption issued by the EPA, is brought onto the site;

(b) keep accurate records of the volume and type of fill to be used; and

(c) make these records available to the Certifier and/or the Planning Secretary within seven days upon request.

Disposal of Seepage and Stormwater

C23. Adequate provisions must be made to collect and discharge stormwater drainage during construction. The prior written approval of Council must be obtained to connect or discharge site stormwater to Council's stormwater drainage system or street gutter.

Emergency Management

C24. The Applicant must prepare and implement awareness training for employees and contractors, including locations of the assembly points and evacuation routes, for the duration of construction.

Stormwater Management System

C25. Within three months of the commencement of construction, the Applicant must design an operational stormwater management system for the development and submit it to the Certifier for approval. The system must:

(a) be designed by a suitably qualified and experienced person(s);

(b) be generally in accordance with the conceptual design in the Civil Engineering Drawings prepared by Robert Bird Group, Sheet Number C-011-XX-01-[A01] to C-007-XX-09-[A01] dated 14/10/2024;

(c) be in accordance with applicable Australian Standards; and

(d) ensure that the system capacity has been designed in accordance with *Australian Rainfall and Runoff* (Engineers Australia, 2016) and *Managing Urban Stormwater: Council Handbook* (EPA, 1997) guidelines.

Aboriginal Cultural Heritage

C26. Construction must be undertaken in accordance with the recommendations of the Aboriginal Cultural Heritage A01 Ross Street Teaching & Learning Hub, prepared by Urbis, dated 22 October 2024.

C27. All reasonable steps must be taken to avoid harm, modification, or other impact to Aboriginal objects except as authorised by this approval.

C28. Works are to avoid harm where possible to natural soil profiles within areas of identified moderate archaeological potential as shown in Figure 23 of the *Aboriginal Cultural Assessment A01 Ross Street Teaching & Learning Hub*, prepared by Urbis, dated 22 October 2024.

C29. The Registered Aboriginal Parties must be kept informed about the SSD. The Registered Aboriginal Parties must continue to be provided with the opportunity to be consulted about the Aboriginal cultural heritage management requirements of the SSD.

Unexpected Finds Protocol – Aboriginal Heritage

C30. In the event that surface disturbance identifies a new Aboriginal object:

(a) all works must halt in the immediate area to prevent any further impacts to the object(s);

(b) a suitably qualified archaeologist and the registered Aboriginal representatives must be contacted to determine the significance of the objects;

(c) the site is to be registered in the Aboriginal Heritage Information Management System (AHIMS) which is managed by Heritage NSW under the NSW Department of Climate Change, Energy, the Environment and Water and the management outcome for the site included in the information provided to AHIMS;

(d) the Applicant must consult with the Aboriginal community representatives, the archaeologists and Heritage NSW to develop and implement management strategies for all objects/sites; and

(e) works may only recommence with the written approval of the Planning Secretary.

Unexpected Finds Protocol – Historic Heritage

C31. If any unexpected archaeological relics are uncovered during the work, then:

(a) all works must cease immediately in that area and notice is to be given to Heritage NSW and the Planning Secretary;

(b) depending on the possible significance of the relics, an archaeological assessment and management strategy may be required before further works can continue in that area as determined in consultation with Heritage NSW; and

(c) works may only recommence with the written approval of the Planning Secretary.

Waste Storage and Processing

C32. All waste generated during construction must be secured and maintained within designated waste storage areas at all times and must not leave the site onto neighbouring public or private properties.

C33. All waste generated during construction must be assess, classified and managed in accordance with the Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014).

C34. The Applicant must ensure that concrete waste and rinse water are not disposed of on the site and are prevented from entering any natural or artificial watercourse.

C35. The Applicant must record the quantities of each waste type generated during construction and the proposed reuse, recycling and disposal locations for the duration of construction.

C36. The Applicant must ensure that the removal of hazardous materials, particularly the method of containment and control of emission of fibres to the air, and disposal at an approved waste disposal facility is in accordance with the requirements of the relevant legislation, codes, standards and guidelines.

Outdoor Lighting

C37. The Applicant must ensure that all external lighting is constructed and maintained in accordance with AS 4282-2019 Control of the obtrusive effects of outdoor lighting.

Site Contamination

C38. Prior to the commencement of any work that would result in the disturbance of potential or contaminated soils, materials, groundwater or sediments, the Applicant must conduct site investigations to confirm the full nature and extent of the contamination at the project area and comply with the following requirements:

(a) the site investigations must be undertaken, and the subsequent report(s), must be prepared in accordance with relevant guidelines made or approved by the EPA under section 105 of the *Contaminated Land Management Act 1997*;

(b) the reports must be prepared, or reviewed and approved, by consultants certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP(SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme; and

(c) the recommendations of the Remediation Action Plan prepared by Douglas Partners dated 22 August 2024.

C39. The unexpected finds procedure within the Remediation Action Plan prepared by Douglas Partners dated 22 August 2024 must be updated following results of further site investigations undertaken in accordance with condition C38 and implemented throughout duration of project work.

C40. Remediation of the site must be carried out in accordance with the Remediation Action Plan prepared by Douglas Partners and dated August 2024 and any variations to the Remediation Action Plan must be approved by an NSW EPA-accredited Site Auditor.

C41. Where remediation is carried out / completed in stages, a NSW EPA-accredited Site Auditor must confirm satisfactory completion of each stage by the issuance of Interim Audit Advice(s).

C42. The Applicant must ensure the proposed development does not result in a change of risk in relation to any pre-existing contamination on the site that would result in significant contamination.

Independent Environmental Audit

C43. Independent Audits of the development must be conducted and carried out in accordance with the Independent Audit Post Approval Requirements.

C44. Proposed independent auditors must be agreed to in writing by the Planning Secretary prior to the commencement of an Independent Audit.

C45. The Planning Secretary may require the initial and subsequent Independent Audits to be undertaken at different times to those specified in the Independent Audit Post Approval Requirements, upon giving at least 4 week's notice (or timing) to the Applicant of the date upon which the audit must be commenced.

C46. In accordance with the specific requirements in the Independent Audit Post Approval Requirements, the Applicant must:

(a) review and respond to each Independent Audit Report prepared under condition C43 of this consent, or condition C48 where notice is given by the Planning Secretary;

(b) submit the response to the Planning Secretary; and

(c) make each Independent Audit Report, and response to it, publicly available within 60 days of submission to the Planning Secretary, unless otherwise agree by the Planning Secretary.

C47. Independent Audit Reports and the Applicant's response to audit findings must be submitted to the Planning Secretary within two months of undertaking the independent audit site inspection as outlined in the Independent Audit Post Approval Requirements unless otherwise agreed by the Planning Secretary.

C48. Notwithstanding the requirements of the Independent Audit Post Approval Requirements, the Planning Secretary may approve a request for ongoing independent operational audits to be ceased, where it has been demonstrated to the Planning Secretary's satisfaction that an audit has demonstrated operational compliance.

TfNSW – Road Occupancy License

C49. A Road Occupancy Licence (ROL) shall be obtained from Transport Management Centre (TMC) for any works that may impact on traffic flows on Parramatta Road during construction activities. A ROL can be obtained through https://myrta.com/oplinc2/pages/security/oplincLogin.js.

PART D PRIOR TO COMMENCEMENT OF OPERATION

Notification of Occupation

D1. At least one month before commencement of any operation, the date of commencement of the operation of the development must be notified to the Planning Secretary in writing. If the operation of the development is to be staged, the Planning Secretary must be notified in writing at least one month before the commencement of each stage, of the date of commencement and the development to be carried out in that stage.

External Walls and Cladding

D2. Prior to commencement of operation, the Applicant must provide the Certifier with documented evidence that the products and systems used in the construction of external walls including finishes and claddings such as synthetic or aluminium composite panels comply with the requirements of the BCA.

D3. A copy of the documentation given to the Certifier must be made available on the Applicant's website within seven days after the Certifier accepts it.

Works as Executed Plans

D4. Prior to the commencement of operation, works-as-executed plans signed by a registered surveyor demonstrating that the stormwater drainage and finished ground levels have been constructed as approved, must be submitted to the Certifier.

Outdoor Lighting

D5. Prior to the commencement of operation, the Applicant must submit evidence from a suitably qualified practitioner to the Certifier that demonstrates that installed lighting associated with the development achieves the objective of minimising light spillage to any adjoining or adjacent sensitive receivers and:

(a) complies with the latest version of AS 4282-2019 - *Control of the obtrusive effects of outdoor lighting* (Standards Australia, 1997); and

(b) has been mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.

Mechanical Ventilation

D6. Prior to commencement of operation, the Applicant must provide evidence to the Certifier that the installation and performance of the mechanical ventilation systems complies with:

(a) *AS 1668.2-2012 The use of air-conditioning in buildings – Mechanical ventilation in buildings* and other relevant codes; and

(b) any dispensation granted by Fire and Rescue NSW.

Operational Noise – Design of Mechanical Plant and Equipment

D7. Prior to the commencement of operation, the Applicant must submit evidence to the Certifier that the noise mitigation recommendations in the assessment undertaken under condition B23 have been incorporated into the design of mechanical plant and equipment to ensure the development will not exceed the recommended operational noise levels identified in the SSDA Noise and Vibration Impact Assessment, prepared by Acoustic Logic, revision 2 dated 3/09/2024.

Fire Safety Certification

D8. Prior to commencement of occupation, a Fire Safety Certificate must be obtained for all the Essential Fire or Other Safety Measures forming part of this consent. A copy of the Fire Safety Certificate must be submitted to the relevant authority and Council. The Fire Safety Certificate must be prominently displayed in the building.

Structural Inspection Certificate

D9. Prior to the commencement of occupation of the relevant parts of any new or refurbished buildings, a Structural Inspection Certificate or a Compliance Certificate must be submitted to the Certifier. A copy of the Certificate with an electronic set of final drawings (contact approval

authority for specific electronic format) must be submitted to the Planning Secretary and the Council after:

(a) the site has been periodically inspected and the Certifier is satisfied that the structural works is deemed to comply with the final design drawings; and

(b) the drawings listed on the Inspection Certificate have been checked with those listed on the final Design Certificate/s.

Post-construction Dilapidation Report – Protection of Public Infrastructure

D10. Prior to the commencement of operation, the Applicant must engage a suitably qualified and experienced expert to prepare a Post-Construction Dilapidation Report. This Report must:

(a) ascertain whether the construction works created any structural damage to public infrastructure by comparing the results of the Post-Construction Dilapidation Report with the Pre-Construction Dilapidation Report required by condition B5 of this consent;

(b) have, if it is decided that there is no structural damage to public infrastructure, the written confirmation from the relevant public authority that there is no adverse structural damage to their infrastructure (including roads).

(c) be submitted to the Certifier;

(d) be forwarded to Council for information; and

(e) be provided to the Planning Secretary within 48 hours when requested.

Repair of Public Infrastructure

D11. Unless the Applicant and the relevant public authority agree otherwise, the Applicant must:

(a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by carrying out the construction works; and/or

(b) relocate, or pay the full costs associated with relocating any infrastructure that needs to be relocated as a result of the development; and/or

(c) pay compensation for the damage as agreed with the owner of the public infrastructure.

Note: This condition does not apply to any damage to roads caused as a result of general road usage or otherwise addressed by contributions of this consent.

Road Damage

D12. Prior to the commencement of operation, the cost of repairing any damage caused to Council or other Public Authority's assets in the vicinity of the Subject Site as a result of construction works associated with the approved development must be met in full by the Applicant.

Utilities and Services

D13. Prior to commencement of operation, the Applicant must obtain a Compliance Certificate for water and sewerage infrastructure servicing of the site under section 73 of the *Sydney Water Act 1994*.

Stormwater Operation and Maintenance Plan

D14. Prior to the commencement of operation, a Stormwater Operation and Maintenance Plan (SOMP) is to be submitted to the Certifier. The SOMP must ensure the proposed stormwater quality measures remain effective and contain the following:

(a) maintenance schedule of all stormwater quality treatment devices;

(b) record and reporting details;

(c) relevant contact information; and

(d) Work Health and Safety requirements.

Operational Waste Management Plan

D15. Prior to the commencement of operation, the Applicant must prepare a Waste Management Plan for the development and submit it to the Certifier. The Waste Management Plan must:

(a) detail the type and quantity of waste to be generated during operation of the development;

(b) describe the handling, storage and disposal of all waste streams generated on site, consistent with the *Protection of the Environment Operations Act 1997, Protection of the Environment Operations (Waste) Regulation 2014* and the *Waste Classification Guideline* (Department of Environment, Climate Change and Water, 2009);

(c) detail the materials to be reused or recycled, either on or off site; and

(d) include the Management and Mitigation Measures included in the RtS.

Site Contamination

D16. Prior to commencement of operation, the Applicant must submit a Validation Report for the development to the Certifier. The Validation Report must:

(a) be prepared, or reviewed and approved, by consultants certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP(SC)) or the Soil Science Australia Certified Professional Soil Scientist Contate Assessment and Management (CPSS CSAM) scheme;

(b) be prepared in accordance with the relevant guidelines made or approved by the EPA under section 105 of the *Contaminated Land Management Act 1997*;

(c) include, but not be limited to:

(i) comment on the extent and nature of the remediation undertaken;

(ii) if material is to remain in-situ and capped, describe the location, nature and extent of any remaining contamination on site as well as any ongoing management requirements;

(iii) sampling and analysis plan and sampling methodology undertaken as part of the remediation;

(iv) if treated material is to remain on the subject site, results of sampling of treated material, compared with the treatment criteria in the most updated RAP;

(v) results of any validation sampling, compared to relevant guidelines/criteria;

(vi) comment on the suitability of the area for the intended land use; and

(d) be submitted to the Planning Secretary within 48 hours when requested.

D17. Prior to commencement of operation, the Applicant must obtain confirmation from the Certifier in writing that the requirements of condition D16 have been met.

D18. Where changes are made to the Remediation Action Plan under condition C38, prior to the commencement of operation, the Applicant must submit a Section A1 Site Audit Statement or a Section A2 Site Audit Statement accompanied by an Environmental Management Plan prepared by a NSW EPA accredited Site Auditor. The Section A1 or A2 Site Audit Statement must verify the relevant part of the site is suitable for the intended land use and be provided, along with any Environmental Management Plan to the Planning Secretary and the Certifier.

Landscaping

D19. Prior to the commencement of operation, landscaping of the site must be completed generally in accordance with the landscape plan(s) listed in condition A2(d).

D20. Prior to the commencement of operation, the Applicant must prepare a Landscape Management Plan to manage the landscaping on-site and submit it to the Certifier.

Green Travel Plan

D21. Prior to commencement of operation, or other timeframe agreed in writing by the Planning Secretary, the Applicant must implement measures to promote the use of active and sustainable transport modes, as outlined in the Green Travel Plan (GTP) section in the Transport Impact Assessment, prepared by SCT Consulting, dated 13 February 2025, or the University's revised Sustainable Transport Access Management Plan (STAMP), whichever is the later.

Flood management – Engineering Certification/Validation

D22. Prior to the commencement of operation, a Structural Inspection Certificate or other form of written certification from a suitable qualified civil or structural engineer must be submitted to the Certifier which certifies that the constructed building meets the requirements of condition B22.

D23. The evidence required under condition D22 is to be made available to the Planning Secretary within seven days upon request.

Medium Rigid Vehicle (MRV) Movement Restriction

D24. Prior to the commencement of operation, a sign 'No left turn, vehicles under 6m excepted' must be implemented for the left turn movement from Parramatta Road into Western Avenue. This sign (no left turn, vehicles under 6m excepted) is to be installed under 'Works Instruction' from TfNSW.

Affordable housing contribution

D25. In accordance with the City of Sydney Affordable Housing Program and prior to the commencement of operation, the Applicant must provide evidence to the Certifier that a monetary contribution towards the provision of affordable housing has been paid to the City of Sydney Council, in accordance with the following:

(a) The contribution is calculated by establishing the sum of the equivalent monetary contribution $11,646.80 multiplied by 1% of the total floor area for non-residential development. The contribution is indexed at 1 March 2025.

(b) Plans detailing the total floor area must be submitted to the satisfaction of Council to determine the applicable contribution, where *total floor area* is defined under clause 7.13(6) of the Sydney Local Environmental Plan 2012.

(c) If the contribution is paid after the indexation period in which the consent is granted, 1 March 2025 to 28 February 2026, the above contribution will be adjusted according to the Sydney LGA median strata dwelling price ('MDP') using the following formula.

(d) Contribution payable at Time of Payment = C x MDP2 / MDP1, where:

(i) C is the original total contribution amount payable to the City of Sydney as shown above;

(ii) MDP2 is the Median Strata Dwelling Price in Sydney LGA taken from the most recent NSW Government Rent and Sales Report at the time of indexation of the equivalent monetary contribution rate; and

(iii) MDP1 is the Median Strata Dwelling Price in Sydney LGA taken from the NSW Government Rent and Sales Report used to establish the current equivalent monetary contribution rate, being 1 March 2025 to 28 February 2026.

Note: Contact Council's Planning Assessment Unit at planningsystemsadmin@cityofsydney.nsw.gov.au for written confirmation of the amount payable, with indexation as necessary, prior to payment.

PART E POST OCCUPATION

Operation of Plant and Equipment

E1. All plant and equipment used on site must be maintained in a proper and efficient condition operated in a proper and efficient manner.

Operational Noise Limits

E2. The Applicant must ensure that noise generated by operation of the development does not exceed the noise limits in the SSDA Noise and Vibration Impact Assessment prepared by Acoustic Logic, version 3 dated 3/09/2024.

Ecologically Sustainable Development

E3. Unless otherwise agreed by the Planning Secretary, within six months of commencement of operation, Green Star certification must be obtained demonstrating the development achieves a minimum 5 star Green Star Design & As Built rating. If required to be obtained, evidence of the certification must be provided to the Certifier and the Planning Secretary. If an alternative certification process has been agreed to by the Planning Secretary under condition B6, evidence of compliance of implementation must be provided to the Planning Secretary and Certifier.

Outdoor Lighting

E4. External Lighting must comply with AS/NZS 4282:2023 Control of the Obtrusive Effects of Outdoor Lighting. Upon installation of lighting, but before it is finally commissioned, the Applicant must submit to the Certifier evidence from an appropriately qualified practitioner demonstrating compliance with this standard.

E5. Notwithstanding condition E4, should outdoor lighting result in any residual impacts on the amenity of surrounding sensitive receivers, the Applicant must provide mitigation measures in consultation with affected landowners to reduce the impacts to a level acceptable to those landowners.

Landscaping

E6. The Applicant must maintain the landscaping and vegetation on the site generally in accordance with the approved Landscape Management Plan required by condition D20 for the duration of occupation of the development.

Discharge Limits

E7. The development must comply with section 120 of the POEO Act, which prohibits the pollution of waters.

Signage

E8. All signage approved under this consent must be continuously maintained in a structurally sound and tidy manner by the Applicant for the duration of the development.

Use of Loading dock

E9. All service vehicles accessing the loading bay must do so, wherever possible, outside of regular University teaching hours to minimise risks to pedestrians.

Flood information

E10. Induction information for students and staff regarding flood hazards must be provided. This must include details of:

(a) the flood emergency responses for operational phase of the development;

(b) hazards on local roads and live traffic information for road closures;

(c) predicted flood levels;

(d) flood warning time and flood notification;

(e) assembly points and evacuation routes; and

(f) evacuation and refuge protocols.

APPENDIX 1 ADVISORY NOTES

General

AN1. All licences, permits, approvals and consents as required by law must be obtained and maintained as required for the development. No condition of this consent removes any obligation to obtain, renew or comply with such licences, permits, approvals and consents.

Long Service Levy

AN2. For work costing $250,000 or more, a Long Service Levy must be paid. For further information please contact the Long Service Corporation on 131 441.

Legal Notices

AN3. Any advice or notice to the consent authority must be served on the Planning Secretary.

Access for People with Disabilities

AN4. The works that are the subject of this application must be designed and constructed to provide access and facilities for people with a disability in accordance with the BCA. Prior to the commencement of construction, the Certifier must ensure that evidence of compliance with this condition from an appropriately qualified person is provided and that the requirements are referenced on any certified plans.

Utilities and Services

AN5. Prior to the construction of any utility works associated with the development, the Applicant must obtain relevant approvals from service providers.

AN6. Prior to the commencement of above ground works written advice must be obtained from the electricity supply authority, an approved telecommunications carrier and an approved gas carrier (where relevant) stating that satisfactory arrangements have been made to ensure provisions of adequate services.

Road Design and Traffic Facilities

AN7. All roads and traffic facilities must be designed to meet the requirements of Council or TfNSW (whichever is applicable). The necessary permits and approvals from the relevant road authority must be obtained prior to the commencement of road or pavement construction works.

Road Occupancy Licence

AN8. A Road Occupancy Licence must be obtained from the relevant road authority for any works that impact on traffic flows during construction activities.

SafeWork Requirements

AN9. To protect the safety of work personnel and the public, the work site must be adequately secured to prevent access by unauthorised personnel, and work must be conducted at all times in accordance with relevant SafeWork requirements.

Hoarding Requirements

AN10. The Applicant must submit a hoarding application to Council for the installation of any hoardings over Council footways or road reserve.

Handling of Asbestos

AN11. The Applicant must consult with SafeWork NSW concerning the handling of any asbestos waste that may be encountered during construction. The requirements of the Protection of the Environment Operations (Waste) Regulation 2014 with particular reference to Part 7 – 'Transportation and management of asbestos waste' must also be complied with.

Fire Safety Certificate

AN12. The owner must submit to Council an Annual Fire Safety Statement, each 12 months after the final Safety Certificate is issued. The certificate must be on, or to the effect of, Council's Fire Safety Statement.

APPENDIX 2 WRITTEN INCIDENT NOTIFICATION AND REPORTING REQUIREMENTS

Written Incident Notification Requirements

1. A written incident notification addressing the requirements set out below must be emailed to the Planning Secretary through the major projects portal within seven days after the Applicant becomes aware of an incident. Notification is required to be given under this condition even if the Applicant fails to give the notification required under condition A25 or, having given such notification, subsequently forms the view that an incident has not occurred.
2. Written notification of an incident must:
   (a) identify the development and application number;
   (b) provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident);
   (c) identify how the incident was detected;
   (d) identify when the Applicant became aware of the incident;
   (e) identify any actual or potential non-compliance with conditions of consent;
   (f) describe what immediate steps were taken in relation to the incident;
   (g) identify further action(s) that will be taken in relation to the incident; and
   (h) identify a project contact for further communication regarding the incident.
3. Within 30 days of the date on which the incident occurred or as otherwise agreed to by the Planning Secretary, the Applicant must provide the Planning Secretary and any relevant public authorities (as determined by the Planning Secretary) with a detailed report on the incident addressing all requirements below, and such further reports as may be requested.
4. The Incident Report must include:
   (a) a summary of the incident;
   (b) outcomes of an incident investigation, including identification of the cause of the incident;
   (c) details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and
   (d) details of any communication with other stakeholders regarding the incident.

THE UNIVERSITY OF SYDNEY

Contractor Handbook

University Infrastructure (UI) & Central Operations Services (COS)

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Table of Contents

1 Introduction 7
1.1 Purpose and Objectives of Handbook 7
1.2 Culture Statement 7
1.3 Community Engagement 7
1.4 About the University 8
1.5 Vision and Values 8
1.6 University Campuses 8
1.7 Disclaimer 9
1.8 Code of Conduct/Policy 9
2 Getting Started 13
2.1 Contractor Safety Management System (CSMS) Software Platform 13
2.2 Qualification and Approval 13
2.3 WHSE Project Startup Meetings 14
2.4 Induction and Location-Specific Inductions 14
2.5 Gaining Site Access, Protective Services and Emergency Management 16
2.6 Vehicles 19
2.7 Faculty & School Information 20
3 Work Health, Safety & Environment General Requirements 21
3.1 Responsibilities 21
3.2 Instruction and Direction from University Staff 23
3.3 Communications to University Staff 23
3.4 Regulators on Site 24
3.5 Supervision, inspection, auditing and performance monitoring 24
3.6 Managing Risks to Health and Safety 26
3.7 Consultation, Coordination and Cooperation 29
3.8 Design Standards and Signage Manuals 30
3.9 Personal Protective Equipment (PPE) 31
3.10 Sanitary Provisions/Use of Amenities 32
3.11 Housekeeping, Storage of Equipment and Leaving the Work Area 32
4 Work Health and Safety (WHS) Special Requirements / High Risk Work 33
4.1 Permit to Work 33
4.2 Start and close of workday inspections 34
4.3 Preventing Unauthorised Access, Use of Barricades, Fencing, Hoarding and Signs 34
4.4 Scaffolds 37
4.5 Prevention of falls, working at heights and accessing roofs 38
4.6 Plant, Tools and Equipment 38
4.7 Traffic Management 41

4.8 Essential Services 43
4.9 Electrical Safety 44
4.10 Lock-Out, Tag-Out and Test 46
4.11 Isolation and shutdown of services 51
4.12 Trenching & Excavation 52
4.13 Respirable Silica and Engineered Stone 53
4.14 Fire Prevention 55
4.15 Welding 56
4.16 Asbestos, Lead and other Hazardous Infrastructure Materials 57
4.17 Prevention of needle stick/sharps injuries 59
4.18 Confined Spaces 59
4.19 Demolition 60
4.20 Lifting, Cranes and Hoists 60
4.21 Vaccinations 64
4.22 Working Outdoors 64
5 Environmental and Sustainability Requirements 66
5.1 Sustainability Commitments/Policy 66
5.2 Environmental Management Requirements 66
5.3 Energy and Resource Efficiency 69
5.4 Waste Management 69
5.5 Refrigerant Gases 72
5.6 Vibration and Noise Management 73
5.7 Flora and Fauna 74
5.8 Heritage and Cultural Areas 75
5.9 Water Quality 77
5.10 Contaminated Land 77
5.11 University Farms 77
6 Emergency Preparedness and Response 79
6.1 University Emergency Procedures 79
6.2 First Aid 79
6.3 Contractor Emergency Procedures 80
6.4 Building Specific Evacuation Plans 80
6.5 Emergency Contact List 81
6.6 Work on Isolated or Remote Locations 81
7 Hazard and Incident Reporting 82
7.1 Hazard and Incident Reporting 82
7.2 Access to RiskWare 82
7.3 Notifiable Incidents 82

8 Definitions 85

1 Introduction

1.1 Purpose and Objectives of Handbook

The University of Sydney (the University) is committed to ensuring the rights of everyone to a safe workplace for workers, including Contractors and subcontractors, students, visitors and the general public who may potentially be affected by activities on the University campuses and other facilities (e.g. research stations, farms, hospitals). The University is committed to working sustainably to protect the environment, prevent pollution, reduce resource consumption and minimise waste. The University is also committed to comply with compliance regulations.

This Contractor Handbook has been developed to outline the requirements for Contractors undertaking works (construction, maintenance, cleaning, technical, consulting etc.) for University Infrastructure (UI) and Central Operations Services (COS) on behalf of the University.

As a prior condition to commencing any work the University, Contractors engaged by UI/COS are required to read through this Handbook to ensure an understanding of the UI/COS Work Health, Safety & Environment Management System which provide specific rules for working on site. By reading and understanding this guide, everyone working within the University will be able to play their role in maintaining a safe workplace for all. All Contractor workers are required to be familiar with the necessities of this document and effectively implement its requirements.

Any failure to always obey and follow these rules whilst onsite can result in:

- You or others around you being harmed or suffering injuries
- Your immediate removal from the site
- You / your company being issued with a Non-Conformance Report
- Your company's removal from the University site
- Your company ceasing contract work with the University
- You / your company being fined and/or prosecuted by SafeWork NSW
- You / your company being fined and/or prosecuted by the Environmental Protection Authority

All UI/COS Contractors are required to work to all relevant legislative requirements associated with their scope of engagement.

1.2 Culture Statement

The University has laid out a path towards best practice in health, safety and environmental sustainability with an ultimate goal of achieving a genuine commitment to health, safety and the environment by everyone involved with University related activities, resulting in a positive Work Health, Safety & Environment culture.

The way Contractors carry out their work, their behaviour, their appearance, their communications with and attitude to others while on campus is a direct reflection of UI/COS. It is therefore essential that all Contractors keep this in the forefront of activities. This, along with the purposes and objectives outlined above, should provide a clear indication of the UI/COS expectations of Contractors.

1.3 Community Engagement

The University is more than a workplace for our staff and a classroom for our students. We welcome visitors and take particular pleasure in seeing local residents making the most of our cultural, and sporting activities, or simply enjoying the blend of heritage and modern architecture, gardens and public spaces our campuses provide.

We are working to re-emphasise partnerships with our neighbours in the suburbs that surround our campuses. We aim to improve local infrastructure and access to campus facilities, provide employment and education opportunities, and broaden the experience of our students.

Contractors are expected to respect the community that the University operations may influence, understanding that their actions can either positively or negatively impact and reflect upon the University.

1.4 About the University

The University of Sydney is Australia's oldest university, with over 70,000 students and over 9,000 continuing and fixed-term staff, based on the 2024 Annual Report. It provides a platform for teaching, learning and research. The University has a large and diverse portfolio of physical assets, which includes buildings, grounds, site services and other infrastructure. These assets are essential to the efficient and effective functioning of the University and support its core teaching and research activities.

UI and COS are located on the University of Sydney Darlington Campus (Building G12, 22 Codrington Street, Darlington). UI/COS are responsible for the University long and short-range campus planning, capital resource planning, project delivery, property management, assets and services management and operations.

1.5 Vision and Values

This University has stood for more than 170 years – the oldest university in the country. Our vision for the next decade is unashamedly aspirational – based around what we want the University to be known for in 2032.

When people speak about the University of Sydney in 10 years' time, we want it to be about the extraordinary power our world-class research and teaching has to transform people's lives – and for the pride it generates throughout our city, our state and our nation.

The 2032 Strategy was approved by the Senate in August 2022. It is intentionally different to previous University strategies.

- It takes a longer-term view.
- It is focused on the change we need for our work to be more compelling, and more important to society, than at any other time in our history.
- It aims to establish us firmly on the path to becoming one of the world's very best teaching and research universities.

At the centre is our continuing commitment to building on the First Nations knowledge of these lands – we have work to do, and that work must be in culturally responsive ways.

1.6 University Campuses

The University has a network of teaching campuses spread throughout the Sydney area and further afield in rural NSW and interstate. The main Camperdown/Darlington campus is well known as the home of our historic sandstone buildings, gargoyles and cloisters, lawns and courtyards. But this is just one part of the picture.

Across our campuses are lecture theatres, teaching spaces and studios with state-of-the-art facilities, laboratories with the latest technology, clinical schools to support professional development and experimental farms and research stations to put theory into practice.

Maps of the various campuses can be found here: Campus Maps

Summary information about various campuses can be found here: Campus locations

1.7 Disclaimer

UI/COS have prepared this Handbook in order to assist Contractors and their workers to work safely on the University grounds and abide by work health and safety, and environment (WHSE) legislation and the University policies relating to people, property and WHSE. All Contractors must comply with the requirements set out in this Handbook, as it applies to the activities they undertake for the University.

The University Policies and Procedures identified in this Handbook are subject to change and as such the Contractor is responsible for ensuring adherence to current protocols which are available online. Every effort has been made to explain the local site rules and obligations of Contractors and their workers working at the University. However, responsibility to understand and observe relevant legislation and other legal obligations remains with the Contractor at all times.

The latest version of this Handbook will always be available on the University website here: Contractors public page

1.8 Code of Conduct/Policy

Where organisations and business operators carry out work on behalf of the University it is expected that they and their staff will act ethically, with integrity and respect, and will observe the standards established in the University's Code of Conduct - Staff and Affiliates. The University Code of Conduct applies to all University staff and affiliates, including contractors. The Code of Conduct is located here: Policy Register

The University expects that contractors and their staff:

- Operate within the law and comply with applicable policies, including those relating to the prevention of sexual harm, gender-based violence, bullying, harassment and discrimination, codes of practice and procurement policies and procedures.
- Act respectfully, safely, inclusively and lawfully in all dealings with the University and its staff, affiliates and students.
- Act ethically at all times and conduct yourself in a professional, fair and constructive manner in all your dealings with the University, its staff, affiliates and students.
- Report unethical practice, misconduct, fraud or corruption as soon you become aware of it.
- Disclose any actual or perceived conflicts of interest and report any unethical behaviour immediately.
- Provide accurate, reliable and timely information and advice.
- Do not offer financial inducements, gifts or benefits to University employees, contractors and consultants which might directly or indirectly compromise, influence or appear to influence them in their official University capacity.
- Provide ethically sourced goods and services which have been manufactured, sourced or acquired ethically and free from corruption, fraud, bribery or conflict of interest.
- Demonstrate your commitment to identifying, assessing and addressing modern slavery risks in your operations and supply chains in the jurisdictions in which you operate.
- Promote and champion a culture where sexual harm and gender-based violence is not tolerated and people are encouraged to report unlawful workplace conduct.
- Retain appropriate and accurate records of business you have conducted with the University and explain the basis of any accounts or charges submitted by you to the University.

Refer to the information below for further information on specific elements of the Code of Conduct

and various policy requirements.

1.8.1 One Sydney, Many People

Through our shared responsibilities to the Aboriginal Lands upon which the University stands, we create a genuine sense of belonging among all students and staff. As one of Australia's most eminent universities, we demonstrate visible leadership by fulfilling our social contract with Australia's First Peoples.

One Sydney, Many People is guided by respect for Aboriginal and Torres Strait Islander peoples and acknowledges the many cultures, knowledges and traditions of this place we call Australia.

Contractors are encouraged to participate or actively promote opportunities for Indigenous Employment and report it to the University.

1.8.2 Smoking and E-cigarette use

The University has a Smoke-free Environment Policy. **Smoking, including vaping of e-cigarettes is banned on all campuses**, except for within designated smoking areas. Smoking in these areas is only allowed in the immediate vicinity of the "Smoking Area" sign and ash trays are provided for cigarette butts. E-cigarette cartridges must not be disposed of in University waste bins.

This prohibition applies to all University staff, Contractors, visitors, clients, students and any other people entering or using University work areas, vehicles or facilities.

It should be noted that smoking zones have been established on all University campuses however smoking is prohibited by law in certain places, for example, where there is a risk of fire or explosion, in enclosed areas or in food preparation, handling and serving areas.

Further information can be found here Campus Maps and search for 'Smoking'.

Should a Contractor be found to be smoking on campus more than twice, then the contract may be subject to review or termination.

1.8.3 Alcohol, Drugs and Fitness for Work

No Contractor is to commence work, attempt to work, or return to the workplace whilst under the influence of, (or in possession of) alcohol or illegal drugs (or prescription drugs where side effect may affect their abilities).

Contractors found to be under the influence, or in possession of alcohol or illegal drugs will be subject to disciplinary action. This action may include cancellation of Contractor contracts and a ban from the University.

1.8.4 Language and Printed Material

Contractors should not engage in offensive or inappropriate language including swearing, wolf whistles and inappropriate comments whilst working on any University Campuses. Contractors are not permitted to display printed material that may be offensive to others including pornographic, religious or racist images or unsavoury corporate signage/slogans.

Determination of whether any printed materials are suitable for use within the University is at the sole discretion of the RUS.

1.8.5 External Communication

Contractors should:

- Notify their Responsible University Supervisor (RUS) immediately if a member of the press has requested a response. Note that where 'Responsible University Supervisor' is stated, it refers to 'University Facilities/Project Manager and includes Contract Managers, Supervisors, ICT Project Managers/contacts and anyone at the university managing contractors.
- Direct customer or stakeholder feedback to their RUS so that it can be passed on to the UI/COS Communications Manager.
- Communicate problems or suggestions to their RUS.

1.8.6 Behaviour

Contractors must not be involved in:

- Theft, fraud, possession or removal of the University property or the property of others (actual or attempted)
- Destroying, damaging, defacing or misusing the University premises or property
- The possession of firearms or dangerous weapons on the University premises, including farms

1.8.7 Equal Opportunity and Anti-Discrimination

The Contractor must ensure that the conduct of their workers and/or subcontractors during the contracted works does not compromise or infringe the rights of University staff and students in accordance with the *Equal Opportunity Act 1984*, Industrial Relations Act 1996 and its amendments to the University Sexual Harassment Policy and Grievances Procedure.

1.8.8 Ethical Standards

Contractors are required to note that it is the expectation of the University that its relationship with the Contractor is based on, among other things, ethical standards that are above reproach.

It is expected that any Contractor conducting business with the University would also share and promote similar standards for mutual benefit. A copy of the University Code of Conduct is available here: Policy Register

In the event of any evidence being presented that ethical standards have been compromised, the University reserves the right to take all necessary action, including legal, to sever existing arrangements with the Contractor concerned.

1.8.9 Human Remains

Body donors and their remains must be treated with dignity and respect. Taking photographs or video or interfering with human remains is not permitted under any circumstances. Areas containing human remains must be secured at all times. Any contractor found to be in breach of these requirements may be immediately removed from site.

Contractors must work in accordance with the *Anatomy Act 1977*, Public Health policy directive PD2023_044 and any applicable University, faculty, school or local area requirements for spaces where human remains, anatomical specimens or related teaching and research materials are stored, handled or used.

1.8.10 Dress Code

Singlets as well as any clothing depicting potentially offensive material are unacceptable. Footwear must be sturdy and suitable to the work activities and may not include flip-flops or sandals.

1.8.11 Children and Visitors

Under no circumstances are Contractors allowed to bring children onto a University work site. All visitors must be approved by the UI/COS Project/Contract Manager and Site Supervisor prior to arrival.

1.8.12 Animals

Dogs, pets, or other animals are not permitted to accompany Contractors on Campus at any time, unless for companion animal purposes etc. Farm animals (horses, stock dogs) must only be brought onto farms with prior approval.

1.8.13 Privacy

Contractors must respect the privacy of all University staff, students, visitors and body donors with respect to any information seen, heard, printed or electronic.

The University privacy policy information can be found here: Policy Register

2 Getting Started

2.1 Contractor Safety Management System (CSMS) Software Platform

UI and COS have implemented the Contractor Safety Management System (CSMS). The goal of the CSMS is to streamline and enhance contractor safety management. This new system will integrate key aspects such as:

- Pre-qualification during supplier sourcing
- Contractor onboarding and induction processes
- Ongoing safety management, including training, licenses, and other necessary documentation
- Subcontractor oversight
- Permit-to-work processes
- Corrective actions reporting system

2.2 Qualification and Approval

The University is committed to providing and maintaining the highest possible standard of health, safety and welfare for its workers (including, students, visitors, contractors and labour hire staff) entering any of the Campuses.

The University aims to meet or exceed all relevant health and safety legislation. The University has adopted a risk management approach by identifying, assessing, eliminating or controlling and monitoring all health, safety and environmental issues in the workplace. The University is committed to the implementation of preventative strategies that are integrated into day-to-day operational management. To achieve this goal, UI/COS have set minimum health and safety standards and requires all Contractors to demonstrate their capacity to meet these standards as part of the qualification process to undertake work at the university.

This includes a specific University WHS Policy and Procedure that encompasses formal evaluation of all Contractors used by the University and subsequent site observations, consultation, audits, inspections and reviews to track WHS performance of Contractors working on site.

University personnel are accountable for workplace health, safety and environmental sustainability. This responsibility includes the evaluation of health, safety and environmental risks within tenders, engagement of suitably qualified Contractors, provision of information to new Contractors and monitoring the safety and environmental performance of the Contractors.

The intent is to minimise risks to health and safety of Contractors, the University community and the environment from any activities undertaken by Contractors engaged to perform works on behalf of the University. This is achieved through the systematic approach to Contractor management by controlling risks associated with Contractor's works through:

- The design and implementation of systems of work that are safe for people and the environment
- Undertaking hazard identification and risk control activities
- Providing proper and safe equipment and substances
- Providing adequate instruction, training and supervision

As part of the qualification and approval process the Contractor is also required to:

- Produce a copy of their WHS and Environment Policy/Plan/System including all safe systems of work statements, as required

- Provide copies of relevant experience, insurance coverage (Workers Compensation, Public Liability, Professional Indemnity insurance etc.), SafeWork NSW registrations and license information
- Participate in audits, inspections and quality reviews, as required.

2.3 WHSE Project Startup Meetings

UI and COS contractors are required to participate in a project-specific pre-commencement WHSE meeting with the relevant RUS and a WHS representative. This requirement applies to all UI projects and COS Asset Renewal Program, including user-funded projects. The meeting must be held at least two weeks before the contractor commences work on site.

The purpose of these meetings is to review the key WHSE requirements of the project with the nominated site supervisor, discuss identified hazards and controls, and confirm that WHSE planning and preparation have been satisfactorily completed before the project begins.

Typically, these meetings generate actions and items for follow-up, which must be closed out before commencement of the project. The RUS is responsible for planning and chairing the meeting.

2.4 Induction and Location-Specific Inductions

All Contractors are required to pass the following inductions prior to commencing work within the University campuses:

- Contractor Online Induction (organised through UI/COS)
- **Contractor location-specific inductions** such as animal housings, farms, telescopes, Laboratory Induction – Trades and Services etc. (organised through RUS and carried out by University department/faculty staff) as required
- The Contractors own induction and training program

2.4.1 Contractor Online Induction

The UI/COS Contractor Online Induction is mandatory for all contractors and is organised by the RUS.

Induction is available online via CSMS.

2.4.2 Collecting your University of Sydney Contractor ID Card

After completing the **Contractor Online Induction**, you may be eligible for a University of Sydney **Contractor ID card** (photo ID required at collection).

COS contractors

- ID card required.
- CSMS automatically provides building access once mandatory requirements and UniKey are active.
- You will receive an email once your UniKey has been added to your CSMS profile. Please ensure you've completed all mandatory requirements before picking up your ID card.

UI contractors

- ID cards are only required if building access is needed.
- Steps:

1. Submit **Access Request permit** via CSMS.
2. Once approved, collect ID card from **G12 Front Desk** – bring photo ID, CSMS permit parent/child numbers.

Collection point: G12 Services Building, Level 1, 22 Codrington St. Open Mon–Fri, 8:00am–4:00pm.

When working on any campus the Contractor must, on demand, provide proof of induction by showing the University of Sydney Contractor ID card or CSMS induction records or by presenting a downloaded or printed copy of certificate of completion. If the Contractor cannot produce evidence of induction completion, they will be instructed to stop work until such time as their induction status can be confirmed (at the cost of the Contractor). If no induction status can be easily and readily determined the Contractor may be requested to leave the campus.

2.4.3 Contractor Location-Specific Induction

In certain areas, location-specific inductions are required in addition to the Contractor Online Induction. Example: Laboratory Induction – Trades and Services.

The Contractor must coordinate with the RUS to determine whether a location-specific induction is necessary. For that, the local point of contact (i.e. often a building manager) must be consulted 48 hours prior to any scheduled works. The local point of contact will be able to advise and coordinate for a nominated responsible person from the location to deliver the induction to the contractor. The induction may include information on access requirements or vaccinations. The RUS will provide details of who to contact.

Records of these inductions will be kept by the department/faculty responsible. The following areas and Faculties are identified as having additional inductions. The local point of contact for these areas and Faculties must be consulted 48 hours prior access:

- The Charles Perkins Centre, including laboratories.
- Life, Earth and Environmental Sciences Building (LEES)
- Centrally managed Laboratory Facilities
- The Brain and Mind Centre.
- Sydney College of Arts.
- Faculty of Engineering and IT, including laboratories, research and development locations, the Australian Centre for Field Robotics and the School of Aerospace, Mechanical & Mechatronic Engineering.
- Faculty of Dentistry.
- Sydney Nursing School.
- Faculty of Agriculture and Environment.
- School of Physics.
- Faculty of Science.
- School of Molecular Bioscience.
- Sydney Nanoscience Hub.
- Sydney Medical School (Anderson Stewart Building)
- F09 Madsen Building.
- F11 Chemistry Building
- Molonglo Observatory Synthesis Telescope (MOST).
- Narrabri Observatory which hosts the University Stellar Interferometer (SUSI).

This is not an all-inclusive list of areas requiring induction. The contractor and RUS must check with the local point of contact prior to commencing any work.

2.5 Gaining Site Access, Protective Services and Emergency Management

Contractors that require a University of Sydney Contractor ID must collect their University of Sydney Contractor ID card as indicated above. The card must always be with the contractor whilst on campus and produced on request from any University staff member.

Lost University of Sydney Contractor ID cards, access swipes or keys will result in the requirement to pay a replacement fee, which can be between $15 and $575,000 dependent upon the item lost and potential security risk.

Prior to any work being carried out on campus the RUS must ensure that the Contractor is provided information relevant to known risks and hazards of the worksite and associated tasks.

This information is provided as part of the site-specific induction organised by the RUS and local point of contact, the project documentation and project start-up meeting where appropriate.

2.5.1 Sign In / Sign Out

Certain areas require the Contractor to sign in/out on arrival/departure. This information is provided as part of the site-specific induction organised by the RUS and local point of contact.

2.5.2 Protective Services & Emergency Management Contact Details

Protective Services and Emergency Management team are available 24 hours a day to assist with handling an emergency or safety threat. They regularly patrol our grounds and can be reached on:

- Protective Services & Emergency Management (general enquiries) – (02) 9351 3487
- Protective Services & Emergency Management (24-hour emergency response) – (02) 9351 3333

2.5.3 Restricted Access Areas and Other Specific Hazard Locations

2.5.3.1 Authorisation to access restricted areas

Contractors who require access to restricted or controlled/secured areas will be required to obtain formal authorisation for access. In certain cases, a Permit to Work may be required e.g. for roof access or working at heights.

Restricted and controlled/secured areas may include but are not limited to:

- Laboratories (PC2 and PC3 biohazard labs, research and experimental labs, etc.)
- Anatomy laboratories, museums and mortuaries
- Plant rooms
- Roofs and roof spaces
- Remote areas
- Chemical stores
- Radiation stores
- Biohazard rooms
- Rooms containing asphyxiant gases
- Microwave dishes – non-ionising radiation risk
- High Voltage substations
- Farms

- Telescopes
- Animal Houses

Approval to access these restricted areas must be sought at least five (5) working days prior to works commencing with the RUS AND the restricted area supervisor.

AT NO TIME CAN UI/COS WORKERS, CONTRACTORS AND THEIR WORKERS ENTER A RESTRICTED AREA WITHOUT PERMISSION FROM THE RESTRICTED AREA CONTROLLER.

Contractors are not to enter a restricted area unless such authorisation has been obtained, even if another University worker or student provides them with access.

2.5.3.2 Identification of restricted areas

To assist with identification of restricted areas, the RUS in cooperation with the Contractor, must liaise with the local point of contact, who will be able to provide a list of restricted access areas similar to that shown below.

Image 1 – Example of Restricted Access Areas List

Restricted access areas in School of Aerospace, Mechanical & Mechatronic Engineering

Area name	Room number	Contact person	Contact person phone number
Main Workshops FSAE Car Workshop Student Workshop	S112, J07 S116, J07 S120, J07	Mr. Duncan Stenger	9351 2459
Halliday Laboratory	S173	Mr Greg Elder	9351 7163
Combustion Laboratory	S147, J07	Dr. Matthew Dunn	9351 7150
Biomaterials Laboratory	S197, J07	Dr. Philip Boughton	9351 5018
Tissue Engineering Lab	S183, J07	Prof. Hala Zreiqat	9351 2392
Server Room	S223, J07	Dr. Doug Auld	9351 2336
Wind Tunnel	N107, J11	Dr. Doug Auld	9351 2336
Server Room	N210, J11	Dr. Doug Auld	9351 2336
Flight Simulator Bennett Laboratory	N209, J11	A.Prof. Peter Gibbens	9351 7350
Jabiru (Bird Lab)	N121, J11	Mr John Toddhunter	9351 7137
Flight Simulator Bennett Laboratory	N209, J11	A.Prof. Peter Gibbens	9351 7350
Field Robotics	EIE Bldg	Mr. Ritesh Lai	9036 6392
Fluid Mechanics	126, J13	Prof. Steven Armfield	9351 2927

SAMPLE ONLY

Each restricted area has a nominated area supervisor, sometimes called “Room Custodian”, “Contact Person” or “Lab Manager”.

2.5.3.3 Specific requirements for entry and work procedures

Before work proceeds in a restricted area, the relevant area supervisor will provide specialist advice on requirements for entry and work procedures. This may include working under constant supervision of University personnel.

2.5.3.4 Signage of restricted areas

Some restricted areas are identified with signage located on doorways and access points to these locations. Contractors are required to follow the requirements of signage which will identify hazards within the space, precautions that must be observed and emergency contact persons.

Image 2 - Authorised Entry Placard



The University's standard 'authorised entry only' signage provides basic information about:

- the hazards in the areas
- the safety precautions required when entering or working in the area
- contact details for the area supervisor
- emergency contact details for the building

Image 3 – Example of Plant Room Sign



2.5.4 Keys/Swipe Cards

The RUS will advise the Contractor where keys or swipe cards are to be collected and returned. Contractors must comply with the KeyWatcher requirements covered in the CSMS contractor induction, including what can and cannot be done when borrowing keys.

Keys and swipe cards must be returned at the end of each day, or where agreed with the RUS, at the completion of the project or contract.

Where a KeyWatcher cabinet is used, keys may only be borrowed by authorised persons. Keys issued through KeyWatcher are allocated to the individual's access card and remain that person's responsibility until returned. Keys must not be shared, transferred or used by another person.

Typically, keys are only able to be held for up to 10 hours and must be returned before the expiry period, unless alternative arrangements have been approved by the RUS. When returning a key, the user must ensure it is securely placed back in the cabinet and can no longer be removed.

2.5.5 Access related to Permit to Work

For certain activities and for working in certain areas, a Permit to Work must have been requested from the RUS and approved (e.g. roof access, working at heights, asbestos removal, lead paint removal, excavation, hot works etc.). A minimum notice will be required depending on the type of permit required, unless it is an emergency situation/call out. For any hazardous material removal, where applicable, ensure that the **Asbestos Management Plan (AMP)** and **Hazardous Infrastructure Materials Management Plan (HIMMP)** are read, understood and complied with.

Refer to the **Permit to Work** section of this handbook for further information.

2.5.6 Hours of Work

Business Hours

Hours of operation vary across the University and the Campus. It is important to clarify with the area to be accessed but as a general rule, the standard hours of operation are 8.30am-5pm.

Contractors may refer to this web site for various operating hours of libraries, campuses and Faculties.

Library opening hours

Work After Hours

All buildings are alarmed after hours. If a Contractor requires access outside of normal business hours, they must receive prior approval in writing from the RUS (will be required to show the approval to Protective Services and Emergency Management for building alarms) and access must have also been arranged by the local Point of Contact prior to entry. Additional costs may be incurred if security is called out after hours.

2.6 Vehicles

Contractors and their workers must observe all parking, road markings, directional and control signage within University grounds. Pedestrians always have right of way and specified speed limits on University grounds must be strictly obeyed at all times.

All vehicles entering the campus must park in accordance with the restricted parking area conditions and posted directions. Restricted and parking area conditions apply 7 days a week 24 hour a day. The parking station operates on a 24-hour basis. Infringement notices will be issued upon any vehicles parked illegally. Fines will not be waived in such circumstances.

Vehicles delivering materials and tools to work site, and displaying a current parking permit, may park in allocated loading zones. These are not intended for all-day parking, with a general provision of 30 minutes maximum stay. Vehicles failing to display a current parking permit, or parked in an incorrect area, will receive a parking infringement notice.

Additional information on parking locations and parking permits available here:

Getting to campus

Parking or driving across footpaths and grassed or landscaped areas is prohibited. In instances where the nature of work makes essential to locate a vehicle on landscaped areas the following steps must apply:

- The Contractor must notify the RUS of specified works within five (5) working days
- The Campus Grounds Manager or nominated representative must advise the RUS and

Contractor of approved pathway and location for parking

Contractors are reminded that while on the University campuses they are still required to wear seatbelts whenever travelling in a vehicle. Should a contractor be found not wearing a seat belt on campus, then the contract may be subject to review.

Mobile phones should not be used when driving, except with a hands-free device when required for the work and only to answer or make calls and only if the phone is secured in a fixed mounting and does not require you to touch or manipulate the phone in any way.

All loads must be appropriately covered, restrained or protected in a manner to prevent the potential for a loss of load.

Contractors must not drive through floodwater. Where access routes, work areas or parking areas are affected by flooding or there is a risk of flooding, the Contractor must stop, reassess the work and use an alternative safe route or wait until the area has been confirmed safe.

University traffic and parking policy and procedure can be found here: Policy Register

2.7 Faculty & School Information

Faculty and School Information is located here: Faculties & Schools page

3 Work Health, Safety & Environment General Requirements

The University Work Health and Safety Policy and Environmental Sustainability Policy apply to all University staff and affiliates, including contractors. The policy is located here: Policy Register

3.1 Responsibilities

3.1.1 Workers

While at work, any worker must:

- Take reasonable care for their own health and safety
- Take reasonable care that their acts or omissions do not adversely affect the health and safety of other persons
- Take reasonable care to protect the environment, prevent pollution and minimise environmental impacts.
- Comply, so far as the worker is reasonably able, with any reasonable instruction that is given by the University to allow the person to comply with the WHS Act and Regulations
- Comply with all applicable environmental legislation, regulations, standards and other EMS requirements and instructions.
- Co-operate with any reasonable policy or procedure of the University relating to health or safety at the workplace that has been notified to workers
- Ensure that other workers are performing their work in a safe manner, so far as is reasonably practicable
- Be mindful of students and other campus users at all times

All persons entering University grounds have a responsibility in the course of performing their duties to:

- Comply at all times with all University contract conditions and requirements
- Use safety, emergency and protective equipment correctly and not render them inoperative
- Report directly to their immediate supervisor any situation which they have reason to believe could present a hazard and which they cannot themselves correct (e.g. unsafe practices, unsafe equipment, etc.)
- Report any incident or injury to health that arises in the course of or in connection with their work

3.1.2 Responsible University Supervisors (RUSs)

RUS(s) are responsible for:

- Having knowledge of WHSE requirements that apply to the work being undertaken and have appropriate training for this Handbook
- The implementation of these requirements in their area of responsibility and accountability
- UI – undertaking WHSE pre-commencement meetings with contractors.
- Ensuring the induction of the Contractor, informing Contractors of site-specific hazards, or other pertinent WHSE information about the location, and ensuring the Contractor implements measures to minimise risk to University staff and students

- Liaising with the relevant local point of contact to obtain up-to-date information on any site-specific induction and other WHSE requirements, and communicating requirements to the Contractor
- Ensuring a process of WHSE audits and inspections is appropriately implemented for Contractors under their remit to appropriately determine contractor awareness and understanding of their compliance responsibilities in relation to health, safety and the environment.
- Consulting, coordinating, and cooperating with any relevant stakeholders when the work may impact the health and safety of any other workers, staff, students and contractors
- Reviewing the risk assessments and health, safety and environmental plan developed by the Contractor prior to work commencing
- Working with the Contractor to ensure that specified safety systems and risk control measures are implemented for the duration of the contract works
- Report Contractor incidents and hazards according to the UI/COS procedure and in RiskWare.
- Collecting Contractor WHS statistics within the first week of the month for the previous month

3.1.3 Contractors

Contractors are responsible for:

- Ensuring compliance to WHS and environmental legislative requirements at all times
- Not placing themselves or others at risk of injury
- Working in accordance with relevant University Policy and Codes
- Complying with all requirements (as appropriate) contained within this Handbook
- Ensuring all Contractor workers and subcontractors who will be directly involved in the contract works have completed the University Contractor Online Induction, any other required site-specific induction(s) and received additional information as part of the project documentation or start-up workshop prior to the commencement of any work
- Obtaining formal authorisation from the RUS and the relevant area supervisor prior to enter a restricted area
- Providing WHSE statistics for activities and projects undertaken for the University to the relevant RUS within the first week of the month for the previous month using the online form.
- Report any WHSE incidents to the RUS immediately

Contractors have a responsibility to ensure the health and safety of their staff and University personnel, students and visitors that may be impacted by their operations. Contractors are also required to observe the following responsibilities, and the information contained in this induction Handbook, in addition to any other requirements which may be identified in the localised induction process. Further, contractors also have a duty of care to the environment and must take steps to prevent pollution and minimise environmental impacts.

The Contractor must also, so far as is reasonably practicable, provide and maintain a work environment in which people are not exposed to hazards. Contractors must:

- Ensure their own safety and the safety of others
- Provide a workplace and safe system of work so that, as far as practicable, workers, staff or students are not exposed to hazards
- Provide workers with information, instruction, training and supervision to enable them to work in a safe manner

- Ensure that all workers and subcontractors workers comply with these instructions and procedures
- Ensure that all statutory law, regulations, standards and Building Codes which are enforceable in NSW are always complied with
- Ensure that all Permits to Work have been completed and approved prior to the work commencement
- Communicate, consult and cooperate with their health and safety representatives and adjacent work groups in matters related to safety and health in the workplace
- Provide appropriate protective clothing and equipment as required by particular types of work and/or work carried out in particular locations or conditions
- Practice good site housekeeping to eliminate or minimise the risk of accidents, harm or pollution i.e. ensure work areas are left clean, tidy and vacuumed and that all rubbish and redundant materials are removed from site
- Tools and materials must not be left unattended
- Ensure work areas have appropriate barriers and signage when working on or near a thoroughfare (pedestrian or vehicle) or as required to prevent exposure to the hazard
- Promptly correct any hazard or risk that they are aware of, or if unable to do so, contact the relevant RUS during normal working hours, or Security Services after hours and advise of the hazard or risk
- Report WHSE incidents or hazards accordingly to the UI/COS procedure to the RUS and provide relevant documentation to identify details and actions of incident
- Immediately report any serious and or life-threatening incidents to the appropriate authorities,
- i.e. SafeWork NSW and advise Security Services and the nominated RUS of details

Contractors must instruct their workers regarding WHSE matters and ensure appropriate measures are undertaken to induct staff, i.e. information, education and training. The Contractor must also ensure workers are familiar with their own WHSE plans and procedures as well as those of the University as relevant to their scope of work.

The RUS may at any time request copies of any records to ensure compliance with WHSE legislation, safety management system requirements or the requirements of this Handbook. Copies of Site Meeting Minutes must also be forwarded to the RUS providing evidence of WHSE related matters.

3.2 Instruction and Direction from University Staff

Contractor work will at times necessitate communication with University staff. **Contractors are advised that they should not take on additional jobs or tasks out of the scope of their engagement** without prior authorisation from their RUS.

Instruction and direction from Faculty staff should be limited to the information required to understand and safely carry out the assigned task.

3.3 Communications to University Staff

Under no circumstances are reports, test results, consultant or engineering findings, to be communicated to University staff (who are not part of the UI/COS contract). All such communications are to be reviewed, approved and provided to University staff by the relevant RUS.

3.4 Regulators on Site

The expectation of contractors is that whenever a regulator (such as SafeWork NSW, Comcare, iCare, NSW Environment Protection Authority (EPA), Local Council etc.) arrive on site, UI/COS are immediately contacted (within 20 minutes) so a determination can be made if a UI/COS and/or other University representative needs to be there. Contact with UI/COS should be direct to the RUS and notification to the UI and COS – Health & Safety Partners, immediately.

The reason for this requirement is:

- Ensure UI/COS are appropriately informed of the nature of the visit
- Enable UI/COS to respond to questions that might be out of scope of the project or beyond the knowledge of the contractor, e.g. safety or compliance programs that the contractor may not necessarily be aware of
- Ensure the appropriate information is provided to the Regulator about the matter
- Ensure the Regulator is not overstepping any powers and that any Notices issued (either to the contractor or University) are issued in accordance with the legislation

Decisions by Regulators can have an impact on an organisation like the University, potentially affecting costs, altering elements of process and strategy, and of course affecting reputation.

Copies of any reports, notices or directions provided to the Contractor by a Regulator must be provided to the relevant PSU:

- UI – Compliance and Assurance Manager darren.mendonca@sydney.edu.au (0409 428 295)
- COS - Senior Manager, Operational Risk, Resilience & Compliance rebecca.gonzalez@sydney.edu.au (0403 721 328)

3.5 Supervision, inspection, auditing and performance monitoring

3.5.1 Supervision

The Contractors must provide adequate supervision to workers to the satisfaction of legislative requirements and University desires. **A Contractor Supervisor must be nominated, present on site and supervise and control the works at all times.**

Directions and explanations given by the University to the Contractor must be deemed to have been given to sub-Contractors and their workers.

3.5.1.1 Supervision of apprentices or trainees

Supervisors of apprentices and trainees must be appropriately qualified and have relevant experience for the vocation being undertaken.

An apprentice supervisor must be trade qualified in the relevant apprenticeship vocation. This means they must hold a Certificate of Proficiency for that trade or have equivalent qualifications and experience that would entitle them to such a certificate.

Where the apprenticeship relates to a regulated trade, such as electrical, plumbing, air-conditioning or refrigeration work, **the supervisor must also hold a valid supervisor licence or Qualified Supervisor Certificate.** A qualified supervisor must be an employee of the licence holder, a member of the partnership, or a director of the company holding the contractor licence.

A trainee supervisor must be suitably qualified or experienced at the same level as, or higher than, the traineeship vocation.

3.5.2 Inspections & Breaches

The University treats all instances of WHSE negligence very seriously. Failure to wear protective clothing or safety equipment when it is necessary is an example of WHSE negligence. Another example is the incorrect use or handling of hazardous materials.

The Contractor, as a Person Conducting a Business or Undertaking (PCBU) has a duty of care to provide and maintain a safe workplace for their workers, University staff, students and others and consequently has a responsibility to conduct workplace inspections on a regular basis. **The Contractor must make available copies of WHSE inspection and audit reports when requested by the RUS.**

Contractors are advised that the RUS(s), nominated representatives or UI and COS – Health & Safety Partner may carry out periodic and spot/unannounced WHSE inspections on any University premises.

These inspections form part of the University WHS Policy (http://sydney.edu.au/policies/). The Contractor's WHSE representative may also accompany the inspection during this process.

RUS(s) or their nominated representative must conduct random WHSE observations of Contractor conformance to WHSE plans or permit to work conditions. Non-conformances relating to WHSE will be recorded and conveyed to the Contractor for rectification and used as part of the review process for Contractor performance.

University staff identifying that a Contractor is undertaking activities in an unsafe manner, are responsible for reporting the unsafe practice to the relevant RUS, UI and COS Health & Safety Partner or nominated representative immediately advising them of the unsafe practice being undertaken.

Contractors must take immediate remedial action on any safety hazard, defect or any other issue associated with WHSE matters identified during such inspections. Contractors must comply with any reasonable written instructions issued by the RUS relating to WHSE.

If repeat incidents are observed, the Contractor may be instructed to cease work until the situation has been rectified, and the work site and/or operational procedures are deemed safe.

3.5.3 Audits and Reviews

The University may periodically request information relating to the Contractor's WHSE management systems of work. UI/COS may also determine a need for ongoing WHSE audits and inspections for a specific contract or project and may engage external experts for WHSE assurance activity. Where this occurs, contractors must comply with all reasonable audit requests and requirements.

Information requested may include, but not be limited to, the following:

- Site WHSE Plan and system components
- Safe Work Procedures and Method Statements
- Certificates for Plant
- Certificate of Operations and Training Records
- Licences, i.e. for high-risk works and trades
- Risk Management Procedures
- Incident investigation reports, either internal or notifiable
- Evidence of compliance with Development Consent and any other relevant environmental requirements, as applicable
- WHSE audits, inspections, task observations and schedules

3.5.4 WHSE Performance Monitoring

Contractor WHSE performance is monitored throughout the progress of the contracted work, and should

a Contractor not be performing their WHSE duties as per the contract, the responsible RUS will take steps to remedy the situation.

Contractors are required to provide WHS statistics monthly, including lead and lag indicators, for activities and projects performed for the University. The relevant RUS is responsible for gathering these statistics and the Contractor is responsible for providing them within the first week of the month for the previous month using the online form.

The Principal contractor is responsible for providing HSE performance and compliance status to relevant RUS monthly.

3.5.5 Non-Conformance and Corrective Action

The objective of the corrective action process is to prevent issues from occurring and to stop issues from recurring where they have already occurred. This is achieved by identifying non-conformances and opportunities for improvement, determining their root causes, and implementing corrective actions.

Non-conformance with this Handbook, the University WHS Policy and Procedures, environmental requirements, the Contractor's Safe Work Method Statements, or other known project conditions and requirements may be recorded in CSMS as a Corrective Action Report or Opportunity for Improvement.

Contractors must investigate non-conformances and opportunities for improvement to determine the actual root cause and implement appropriate corrective actions. Investigations should identify not only the immediate cause, but also any underlying causes that may result in repeated issues or indicate a broader systemic problem. Suitable root cause analysis methods may include, but are not limited to, 5 Whys, ICAM, Ishikawa Fishbone Diagram, Failure Mode and Effects Analysis, Fault Tree Analysis, TapRooT or Barrier Analysis.

The University, UI and COS representatives will review the effectiveness of corrective actions. Corrective actions will be monitored through to completion.

Contractors are expected to communicate relevant corrective action information across their work groups and projects, regardless of location or duration, where the lessons may help prevent similar issues. This process supports continual improvement and aligns with ISO-based management system principles.

3.5.6 Disciplinary Action

UI/COS reserves the right to immediately suspend and/or remove worker and/or terminate contracts regardless of any previous non-conformances or noted issues the contractor may have recorded, for any serious breaches of the provision of this handbook or failure to adequately respond to reasonable requests by UI/COS.

All compliance issues, non-conformances and disciplinary issues are taken into consideration when reviewing the performance of a contractor with respect to future contract opportunities.

3.6 Managing Risks to Health and Safety

All Contractors are required to identify reasonably foreseeable hazards associated with their work and work environment that could give rise to risks to health and safety and then manage the associated risks.

All Contractors must work through the hierarchy of control when managing risk as per the Act and Regulations. In controlling risks, the priority is always to eliminate risks to health and safety so far as is reasonably practicable. Where it is not reasonably practicable to eliminate, it is a requirement to minimise those risks as far as is reasonably practicable. All risk management should be in consultation with the workers undertaking the tasks or working in the environment.

Where the risk cannot be eliminated, the risks must be minimised by doing one or more of the followings:

- substituting (wholly or partly) the hazard giving rise to the risk with something that gives rise to

a lesser risk

- isolating the hazard from any person exposed to it
- implementing engineering controls

If a risk then remains, the remaining risk must be minimised, so far as is reasonably practicable, by implementing **administrative** controls.

If a risk remains after the above has been implemented, the duty holder must minimise the remaining risk, so far as is reasonably practicable, by ensuring the provision and use of suitable **personal protective equipment**.

Note: A combination of the controls may be used to minimise risks, so far as is reasonably practicable, if a single control is not sufficient for the purpose.

Refer to Figure 1 for information on hierarchy of control reproduced from Code of Practice How to Manage Work Health and Safety Risks.

Figure 1 - Hierarchy of Controls



3.6.1 Maintenance of control measures

Once a Contractor has implemented a control measure to eliminate or minimise risks, they must ensure that the control measure is, and is maintained so that it remains, effective, including by ensuring that the control measure is and remains:

- fit for purpose
- suitable for the nature and duration of the work
- installed, set up and used correctly

Contractors must implement an effective process for monitoring controls. This process must enable the identification of one-off and systemic issues, support trend analysis, and ensure lessons learned are captured and applied.

3.6.2 SWMS and Documented Risk Assessments

Hazards identified, evidence of a risk assessment and the controls recommended must be documented and provided to the RUS (or where appointed Principal Contractor). Often this will be in the form of a safe work method statement (SWMS).

It is also mandatory to provide a SWMS to the RUS, or to the designated Principal Contractor, prior to the commencement of work for high-risk construction works (refer to definition in Section 8). SWMS must comply with the requirements of the *WHS Regulation 2025 (NSW)*.

Contractors must review subcontractor SWMS against the relevant requirements of this Handbook, the contractor's own site safety requirements, and applicable legal and contractual obligations. The review must confirm that the SWMS is suitable for the task and location, and that it is supported by relevant task-specific information, such as safety data sheets, hazardous substances and chemicals information, permits to work, and emergency or rescue plans where applicable.

All SWMS used by contractors and subcontractors must be specific to the task being undertaken and the location where the work will occur.

3.6.3 Minimum Risk Management Practices

Contractors are required to adhere to the following minimum risk management practices and coordinate with the RUS where required.

Before the works, the following aspects must be addressed e.g. in a Safety Management Plan:

- Brief description of the scope of work including summary of major activities, identification of high-risk works and specialist tasks.
- A specific risk assessment incorporating controls and subcontractor documentation (if applicable) and supervision arrangements
- Identify person(s) with WHSE accountabilities for the works
- Specific inductions required, local points of contact, Permits to Work required, licenses to perform works, SWMS and safe work procedures relevant to the work, consultation process
- Required site inspections, frequency and timing and specific areas targeted for inspection
- Plan for managing work area, segregation of work area, delivery of materials, rubbish out etc.
- Site specific emergency / evacuation plan (and impact / coordination with building occupants if the site affects them)
- Arrangements for incident and hazard reporting

During the works:

- Pre-start risk assessments e.g. job safety analysis
- Monitoring and management of change.

3.6.4 WHS Management Plan

The *Work Health and Safety Regulation 2025 (NSW)* requires the Principal Contractor for a construction project valued at more than $250,000 to prepare a written WHS Management Plan for the workplace before work on the project commences.

Although a WHS Management Plan is not legally required for construction projects valued at $250,000 or less, the University may still require a project-specific WHS Management Plan or equivalent documented safety arrangements where the work involves high-risk construction work, complex interfaces, occupied buildings, critical services, public interface, or other significant risks.

The WHS Management Plan must describe how work health and safety will be managed for the project. The plan must be specific to the project, site, scope of work and risk profile, and must not be a generic corporate WHS document.

The size and complexity of the WHS Management Plan should be proportionate to the size and complexity of the project, including the nature and extent of any high-risk construction work being undertaken. At a minimum, the WHS Management Plan must include:

- the names, positions and health and safety responsibilities of all persons whose roles involve specific health and safety responsibilities
- the arrangements for consultation, cooperation and coordination between persons working at the site in relation to compliance with their duties under the WHS Act and Regulation
- the arrangements for managing health and safety incidents, including reporting and incident notification
- any site-specific health and safety rules and the arrangements for ensuring that all persons are informed of those rules
- the arrangements to collect, assess, monitor and review Safe Work Method Statements.

In addition to the above, the WHS Management Plan must:

- be site and project-specific, including relevant site layout diagrams
- outline traffic and pedestrian management controls, including relevant diagrams
- describe how waste removal and deliveries will be managed, including paths of travel through buildings where applicable
- include details of relevant inductions, including CSMS induction requirements and permit requirements
- identify any hoarding, fencing, barricades, exclusion zones or site separation arrangements that will be established
- describe how subcontractor WHS documentation will be reviewed, accepted and monitored
- describe how critical controls and other risk controls will be monitored throughout the works
- describe how corrective actions, non-conformances and opportunities for improvement will be managed, tracked and closed out
- avoid generic wording such as “where required”, “as necessary” or “as applicable” unless the plan clearly defines when and how the requirement applies to the project or task.

WHS Management Plans should be supported by relevant project and task risk assessments, site layout plans, traffic and pedestrian management plans, emergency and rescue arrangements, and other documents necessary to demonstrate how the work will be safely planned and controlled.

The Principal Contractor must provide the WHS Management Plan to the RUS before project commencement. Where updates are required following the WHSE Project Startup Meeting, or after any review or revision of the plan, the updated WHS Management Plan must also be provided to the RUS.

The RUS, UI or COS Health and Safety Partner, or other nominated University representatives may carry out periodic, targeted or unannounced audits of the WHS Management Plan and its implementation on site.

3.7 Consultation, Coordination and Cooperation

A safe workplace is more easily achieved when everyone involved in the work communicates with each other to identify hazards and risks, talks about any health and safety concerns and works together to find solutions. All Contractors must consult, so far as is reasonably practicable, with workers who carry out work for them and persons who are (or are likely to be) directly affected by a WHS matter related to the work.

It is critical that contractors have identified other stakeholders (your RUS can assist with this) and establish appropriate communication to consult, coordinate and cooperate with each other to the

completion of the works. On campus this may include representatives from faculty, administration or student groups, retail outlets managers and other contractor groups (construction, maintenance, IT etc.). Specific stakeholders, such as building managers and emergency wardens, must be consulted with where they are established in or adjacent to work areas.

The campus is a dynamic environment with many changing scenarios, situations and events, and at times the work a contractor must do may need to be deferred or rescheduled to accommodate exams, experiments, events or security related concerns. In such times the expectation is that contractors will work with stakeholders and cooperate in implementing arrangements suitable for all parties and where shared duties exist, these are managed and communicated in a coordinated and cooperative manner.

Where workplace safety matters or issues remain unresolved after consultation with relevant stakeholders and duty holders, support can be provided through the RUS to assist with resolution and to avoid further dispute or recurrence of the issue.

Consultation and resolution efforts should address all relevant matters, including:

- the degree and immediacy of risk to workers or other persons involved in the issue
- the number and location of workers and other persons affected by the issue
- the temporary and permanent measures required to resolve the issue
- who will be responsible for implementing the resolution measures.

Evidence of stakeholder communication must be provided where required for CSMS permit applications.

If a WHS issue remains unresolved after reasonable efforts have been made to achieve an effective resolution, the relevant duty holders should notify the University through the RUS before escalating the matter to an external regulator or authority, where it is reasonably practicable to do so. This allows the University to understand the issue, support further consultation and resolution, and prepare for any regulatory engagement.

Nothing in this section prevents any person or duty holder from exercising their rights or obligations under WHS legislation, including requesting SafeWork NSW to appoint an inspector to attend the workplace to assist in resolving a WHS issue.

As part of the 2025 legislative updates to NSW workplace protections, certain unresolved WHS disputes may also be dealt with by the NSW Industrial Relations Commission, including disputes relating to the cessation of unsafe work.

3.7.1 Works Notifications

The weekly *Works Notifications* email lists the buildings and areas affected by planned works and urgent work notifications may be issued by email at any time. Current works can also be checked by contacting your RUS.

3.7.2 Scheduled Events

When undertaking works within the University of Sydney, the Contractor shall be mindful that they are working within an Operational Environment, which includes, but is not limited to, several Scheduled Events that take place.

The Contractor shall make themselves aware of these Events by communicating with the RUS.

The Contractor shall schedule works accordingly to ensure the safety of those attending the Event and assist with the coordination of the Event where necessary.

3.8 Design Standards and Signage Manuals

The University publishes design standards, forms, sustainability standard submissions templates, guidelines and signage manuals for consultants and contractors undertaking design, documentation

and construction of University-owned, occupied or managed buildings, facilities, services and infrastructure.

The current University design standards, forms, guidelines and signage manuals are available from the University's Contractors public page.

These documents set out the University's minimum requirements for design, construction and maintenance, and apply to project managers, consultants, contractors, subcontractors, tenants, managing agents and University staff involved in University buildings and facilities.

Contractors must ensure the relevant standards, forms, guidelines and manuals are incorporated into the works, including contract documentation where applicable. Design standards must be referenced by revision number and issue date. Contractors must use the current versions available on the University's Contractors public page, as printed or locally saved copies may be uncontrolled.

The documents cover areas including building and architecture, services, communications, fire safety, hydraulics, roofing, façades, excavation, landscape, sustainability, accessibility, learning spaces, asset identification, operations and maintenance, and internal, external and interpretive signage.

Applicable WHS, disability discrimination, planning, environmental and other Commonwealth and State legislative requirements, the National Construction Code, Building Code of Australia, and relevant Australian and New Zealand Standards are minimum mandatory requirements. Where there is ambiguity between University standards and mandatory requirements, the higher performance requirement applies, unless otherwise approved by the University.

Requests for technical clarification must be made in writing to the issuer of the relevant standard, as identified on the standard's cover page.

3.9 Personal Protective Equipment (PPE)

Contractors are responsible for determining, through risk assessment or as otherwise stated in applicable Regulations, Standards, Safety Data Sheets and Codes, the required PPE for the work to be carried out. Contractors must provide their workers with PPE and have a process to manage the correct selection, supply, use, replacement, maintenance, training, instruction and storage of the PPE. All **PPE must be appropriate for the task and the work environment.**

The following PPE matrix is provided outlining the recommended minimum PPE requirements for contractors when undertaking specific work activities or in specific locations. Notwithstanding any specific PPE requirements determined by the responsible University supervisor for the area/location as necessary to work within their areas, it is mandatory for all outdoor workers to wear long sleeves and long pants, further, when working within laboratory spaces PPE must comply with the requirements as specified on the authorised entry placard and/or as required by the laboratory manager, without exception.

Location of Work	Eyewear	Hand Protection	Safety Shoes	Safety Clothing	Head wear	Hearing	Respiratory	UV Protection
Office	B	B	B	B	B	B	B	N/A
Construction Sites	B	B	M	M	M	B	B	B
Internal Fit outs	B	B	M	M^	M	B	B	B
Repairs & Maintenance	M	B	M	M	B	B	B	B
Outdoor Work	M	M	M	M	B	B	B	M
Farms	M	M	M	M	B	B	B	M
Kitchens / Food servery	B	B	M	M	B	B	B	N/A

Laboratory	M	M	M	M	B	B	B	B
Plant Rooms	M	M	M	M	M	M	B	
Restricted Spaces	M	M	M	M	M	B	B	B

M - Must / B - Based on Risk Activity / M^ - Long sleeve and long pants safety clothing is not mandatory, unless determined by risk assessment for the task.
Where a contractor adopts a PPE standard lower than that shown above, they must be able to support the decision through risk assessment, including evidence-based determinations of what alternative control measures will be implemented to ensure the risks will be eliminated or minimised as far as reasonably practicable. This is to ensure that appropriate work consultation and risk assessment has been undertaken and the hierarchy of control has been applied.

3.10 Sanitary Provisions/Use of Amenities

The Contractor may at times have shared access to toilets on the campus on which the works are being undertaken. As these toilets will continue to be used by the wider University community, the Contractor is responsible for using and maintaining these toilets in an appropriate and clean manner.

Most large infrastructure projects will out of necessity have their own ablutions setup and serviced. Contractors with such ablutions must ensure that controls are in place to prevent accidental discharge (e.g. overflow) and that the servicing of them does not impact on University staff, students and visitors.

Where ablutions are unable to be shared or setup within the project perimeter's alternative locations must be discussed and organised through the RUS.

3.11 Housekeeping, Storage of Equipment and Leaving the Work Area

Contractors must maintain a high standard of housekeeping while at the University. This means ensuring that the layout of the workplace allows, and the workplace is maintained to allow for persons to enter and exit and to move about without risk to health and safety, both under normal working conditions and in an emergency.

It is the responsibility of the Contractor to maintain their materials, tools and other equipment in an orderly manner on-site to reduce risks and to ensure these are secure and tidy prior to leaving each day.

Equipment and plant that is not in use must be left in a state that does not create a risk to the health or safety of any person.

All debris and waste resulting from Contractor activity is to be removed by the responsible Contractor in a timely manner. Working areas, stairways, passages and safety exits must be always kept clear of obstructions.

If required, working areas must be barricaded off and appropriate warning notices erected. All materials and debris must be lowered and not dropped from elevated locations and platforms.

Contractors must avoid tracking dust and debris through operational areas, corridors and lifts etc. to help maintain a clean working environment. Where this is not feasible it is expected that the Contractor will provide floor protection or coverings that are appropriate for the work.

4 Work Health and Safety (WHS) Special Requirements / High Risk Work

Contractors performing any work that is considered 'high risk' must ensure that they comply with the requirements of WHS legislation for high-risk work. Any Contractor performing work of this nature will be required to provide proof of training, competency level and/or valid licence, safe work method statements and where required a completed permit for the work.

Refer to Section 8 Definitions within this Handbook for a list of all activities defined as **high-risk work**.

4.1 Permit to Work

Permits to work are required for the following tasks and a Permit to Work must be obtained prior to the commencement of work:

- Access request
- Asbestos removal
- Confined space work (A Confined Space Entry Permit is to be provided, managed and authorised by the Contractor, however, will be required to be notified to the RUS prior to commencement of the work and upon completion. Copies of the permit must be displayed at the work site.)
- Dust works (creating excessive dust)
- Electrical power shutdown
- Excavation and ground penetration (all deeper than 150mm)
- Fire systems interruption
- Hot works (including welding)
- Lead Paint removal
- Lifting (cranes and hoists)
- Natural gas isolation and shutdown
- Roof access (and roof spaces)
- Traffic and pedestrian management
- Working at heights (including scaffolding, use of EWP, use of ladders with risk of fall > 2m etc.)

These permits, except Confined space entry permit, must be submitted through the CSMS unless otherwise directed by the UI and COS - Health & Safety Partner or nominated representative. In certain circumstances the contractor will be able to use their own permit systems, or those of a principal contractor, and this will be through consultation and agreement with the UI and COS Health & Safety Partner or nominated representative. Potential circumstances where a CSMS permit may not be required include works where the Principal Contractor has control of the entire site and there is no interface with University infrastructure, services, operations or building occupants. Examples may include works in a dedicated hot works area or workshop, or minor works with no potential impact on building infrastructure, such as no fire system isolation or interruption. Each case must be assessed individually and agreed with the UI or COS Health and Safety Partner or nominated local safety representative.

No work can be commenced until the appropriate permits or approvals have been obtained and approved by UI/COS.

It is the responsibility of the Contractor to liaise with the RUS to obtain approval of the Permit to Work. If there are any changes to the scope of work, methodology, or personnel, the Contractor must

inform the RUS and obtain approval before commencing work on site.

On completion or suspension of works where a permit has been issued, these permits, along with documentation supporting the implementation of the permit (such as risk assessments, copies of licences, waste dockets, clearance certificates or results of gas monitoring), must be returned to the RUS (or where appointed the Principal Contractor).

When dealing with permits, queries relating to permits for 'emergency work' are frequently raised. Emergency works, in the context of permits, means works undertaken in response to an unforeseen and immediate risk to health and safety, critical infrastructure, the environment, or significant property damage, and where delay would materially increase the likelihood or severity of harm. Urgency, operational pressure, cost, program impacts, or reputational risk do not, of themselves constitute emergency works. Not all urgent situations constitute emergencies, and urgency alone does not justify bypassing controls of permit processes.

Support resources for the Contractor Safety Management System (CSMS), including Frequently Asked Questions and Quick Reference Guides, are available here: Contractors public page

4.2 Start and close of workday inspections

Contractors are required to check the site boundary, barricades and fencing at the commencement of each workday to ensure the site remains secure and that site controls remain in place. Checks should also identify any changed circumstances or damage that may have occurred (e.g. fallen trees, hoarding etc.).

Contractors must also undertake documented inspections with photographic evidence at the end of each workday, and prior to a long weekend, public holidays or other instances (e.g. adverse weather conditions, protests etc.) where the site will be unattended.

Copies of the documented close of workday inspections must be sent to the RUS.

4.3 Preventing Unauthorised Access, Use of Barricades, Fencing, Hoarding and Signs

4.3.1 Preventing Unauthorised Access and Establishing Exclusion Zones

Principal Contractors and workers who have management or control of a workplace have several obligations regarding the control of access to workplaces, such to:

- Ensure signs are installed that:
    - Show the Principal Contractor's name and telephone contact numbers (including an out of hours telephone number) show the location of the site office for the project, if there is one, (UI/COS have Project Sign templates to use, see examples on following pages)
    - Are clearly visible from outside the workplace, or the work area of the workplace, where the construction project is being undertaken
- Ensure, so far as is reasonably practicable, that the workplace is secured from unauthorised access, having regard to all relevant matters, including risks to health and safety arising from unauthorised access to the workplace, the likelihood of unauthorised access occurring and, to the extent to which it cannot be prevented, how to isolate hazards within the workplace.

On the University sites, **it is a requirement that work zones are clearly demarcated**. For construction works (minor and major) this may include controlling workspaces on multiple levels of a building, having signage (e.g. danger: no authorised entry; warning: construction zone, etc.), barricades, fencing and hoarding in place and ensuring that locations where University workers, students and visitors would otherwise come into contact with workplaces are secured from unauthorised access.

Additionally, putting in place exclusion zones within the work site can prevent workers from being

exposed to a hazard. Exclusion zones, or 'No go' areas, must be implemented to highlight the risks of entry to an area where there is an unguarded hazard, or to areas where work is being undertaken overhead and there is a risk of falling objects. They require clear signs warning people not to access the hazardous area and highly visible barriers securely fixed to prevent displacement. Relevant information and instruction must be provided about exclusion zones with adequate supervision to ensure that no unauthorised worker enters the exclusion zone.

Exclusion zones must also be established where minor works are undertaken within an occupied workplace to ensure that those people are not at risk of injury or harm from the work being undertaken.

4.3.2 Use of Barricades, Fencing, Hoarding and Signs

All construction and maintenance works are to be isolated from other activities, students, guests and staff of the University. Where this cannot be controlled by closing off the area of the building or using signage to temporarily prevent access to an area, then barricades or more substantial hoardings are required to be used.

Isolation of all works helps ensure the safety of all persons on the worksite or passing by on campus. The Principal Contractor must supply, erect and maintain any necessary barricades, fencing and handrails appropriate to the work they are doing, including signage to suit specified works, and or as directed by the Contract Manager. Unless directed otherwise, use of 1800mm high metal mesh proprietary barricade is required. The use of crowd control/pedestrian control barriers must be approved by the RUS(s) prior to use. The planned use of such barriers can be included in work methodologies or SWMS that have been reviewed and approved by the RUS.

University branded signs are free-issue and can be organised through the RUS.

4.3.2.1 Standard for Barricades and Fencing

All temporary fencing and hoarding must be manufactured and installed to Australian Standard 4686. Once installed, the temporary fencing or hoarding must be **certified by a qualified person as conforming to the requirements of Australian Standard *AS 4687:2022 Temporary fencing and hoarding*.**

The certificate must include:

(a) Photos of the installation;

(b) Any additional control measures deemed necessary such as additional bracing, heavier base plates, removing accessories (e.g. shade cloth, signs etc.); and

(c) confirmation from the qualified person of the pathway to achieve compliance, and that the structure is compliant, and has factored the following:

- design analysis, physical testing or a combination of both
- design wind speed with consideration of the local site conditions
- the stability class and importance level
- terrain category
- shielding class
- topography and proximity

A copy of the fencing or hoarding inspection certificate must be provided to the RUS, along with confirmation that the additional control measures have been addressed.

Where possible, temporary fencing should be braced to a stronger structure, e.g. hoarding or building, to assist in strength of installation. Temporary fencing should be inspected on a regular basis e.g. daily or weekly, to identify and rectify any potential hazards. At the end of workday, the site is to be secured by means of physical barriers to prevent public access.

Care must be taken to check and secure the barricades and fences whenever contracted workers leave the work area. This may include providing temporary lighting on the site, if deemed necessary by the Principal Contractor or directed by the RUS.

Temporary fencing, scaffolding and hoarding may require University mesh and other signage to be added. This will be determined in consultation with the RUS. Such mesh may be like that shown below.



Image 4 – Examples of University mesh on temporary fencing

4.3.2.2 Standard for Signs

Safety signs are placed throughout University campus to protect your health and safety. The Principal Contractor is required to supply and display appropriate safety and warning signage at the construction workplace for the duration of the project.

Safety signs of different colours and shapes should be used to indicate different safety hazards.

Restricted sites need to be signed in accordance with Australian Standard *AS 1319 Safety Signs in the occupational environment*.



Image 5 – Example of Safety Signs

4.4 Scaffolds

All scaffolds must conform to the requirements of WHS Regulations, AS/NZS 4576 Guidelines for scaffolding, AS/NZS 1576 Scaffolding (set), associated Standards for decking components, ladders, tube and coupler scaffolding, erection methodologies given in SafeWork NSW guide *Erecting, altering & dismantling scaffold Part 1*, and *SafeWork NSW Scaffolding Industry Safety Standard (March 2022)*.

4.4.1 Anticipating and planning for changes during scaffold lifecycle

Contractors, scaffolders and designers should consult and coordinate on the construction sequence and purpose of the scaffold, anticipating and planning for the required changes to a scaffold structure relative to the sequence of construction. Such consultation typically includes (but is not limited to) the use of scaffold ties and tie anchorage types, repositioning ties, topping up, moving hop-ups and decking components, accesses and openings, duty ratings, partial disassembly or removing components and the requirement for staged handovers.

4.4.2 Emergency planning

In addition to the consultation process noted above, contractors must consult with trades and workers to anticipate and plan for the changing work conditions and potential emergency scenarios during the building/construction sequence that will be impacted by the scaffold at various stages of construction and make appropriate plans to ensure effective emergency response may be achieved.

Emergency planning may consider such matters as changes to access and egress paths, alternative options for when stretcher stairs are not available, position and movement of rescue equipment and personnel through the scaffold, and access for emergency services (police, ambulance, fire etc.).

4.4.3 Preventing unauthorised access to scaffolds

Contractors and scaffolders must ensure that access to scaffolds is prevented while the scaffold is:

- Incomplete, closed or being altered or modified
- Without a valid handover certificate, or has not been inspected
- Required to be repaired or rectified following an incident or unauthorized modifications have been made

In addition to the above requirements, all scaffolds on university projects over 4m are required to have 2.8m hoarding surrounding the base level of the scaffold and have a lockable access/egress point, where there is the potential for the scaffold to be accessed by the public, staff and students. This may be internal and external to the project site.

4.4.4 Independent design and install verifications

The contractor is responsible for ensuring that all higher complexity scaffolds have independent design assessment and verification to identify any potential structural and stability issues, along with constructability of the design. Output of the assessment and verification must be documented, and any identified issues should be addressed prior to work commencing on the erection of the scaffold. This assessment and verification must be by a third party not engaged in the design process.

After erection and a handover certificate has been obtained, the contractor must organise a competent person who is independent of the scaffold contractor to inspect and verify:

- the erected scaffold conforms to the detailed design
- scaffolding work has been competently performed
- the scaffold is appropriate for intended use

Output of the inspection and verification must be documented, and any identified issues should be addressed prior to releasing the scaffold for use by other workers on site.

4.4.5 Handover Certificates

As per SafeWork NSW *Scaffolding Industry Safety Standard (March 2022)*: a handover certificate must be provided before first use of the scaffold after scaffolders have completed their scaffolding work i.e. after a new scaffold has been erected, or an existing scaffold has been repaired or altered.

Examples of alterations requiring an inspection and new handover certificate include:

- Adding/removing additional bays or lifts
- Changing ties or tie locations
- Changing platforms, hop-ups and decking component locations
- Changing edge protection or containment
- Partial disassembly or removing components (e.g. create an access opening)

Copies of handover certificates must be able to be provided upon request.

4.5 Prevention of falls, working at heights and accessing roofs

Contractor must comply with the requirements of WHS Act and Regulations, Code of Practice for Managing the risk of falls. Permits are required for working at heights and roof access activity, details for which can be found in this Handbook in the Permit to Work section.

A Working at Heights Permit must be obtained if using a step ladder, extension ladder or fixed ladder which involves a risk of a person falling more than 2 metres.

Before accessing rooftops, contractors should review the available information relating to roof safety reports and relevant heights safety equipment installed on rooftops. This information is accessible on CSMS.

Contractors must consider any special hazards specific to building activity (such as chemical flutes which may vent on roof tops), and common heights related hazards such fragile roof, skylights, power lines, asbestos and hazardous materials, radio frequency radiation, cooling towers and so on. All work at heights must consider the potential for dropped objects and for the works, including materials and equipment, to impact people or property outside the work zone.

A Roof Access Permit can only be authorised if the risk of fall from heights, with control measures agreed within the permit, is eliminated or minimised so far as is reasonably practicable AND IF the works do not include erection, alteration or dismantling of a scaffold or use of an EWP, workbox, BMU, temporary guardrails, safety mesh, work positioning system (restraint system), or a fall arrest system. Otherwise, a Working at Heights Permit must be used in place of a Roof Access Permit.

Any worker carrying out works at heights must be competent to carry out the task and trained in Working Safely at Heights.

Where penetrations are identified or created in the work area, they must be securely covered and fixed into position and clearly labelled as a penetration.

4.6 Plant, Tools and Equipment

Contractors must provide all necessary tools, equipment, PPE and access equipment that may be required to undertake the work. Only with the specific approval of the RUS are Contractors to use the facilities, plant or equipment owned by the University. Contractors must also ensure they, and their workers, are appropriately trained in the use and maintenance of plant and equipment used.

All Contractors are to manage the use of plant and equipment as directed in the following sections of this Handbook, and as per the *WHS Regulations 2025*, Chapter 5 Plant and Structure. Specific reference is made to *Subdivision 2 Additional control measures for general plant* and *Subdivision 3 Additional control measures for certain plant*.

The Contractor must ensure that all plant and equipment:

- Is fit for purpose
- Is suitable for the nature and duration of the work
- Has manufacturer operating instructions, including required pre- and post-start operational checks, and
- Is installed, set up and used correctly

Contractors must ensure that all plant and equipment have manufacturer operating instructions and/or operational pre- and post-start checks information available with the equipment and workers complete the required checks. Generic logbooks are discouraged in favour of manufacturer-specific requirements.

Powered and non-powered items, such as glass/duct/material lifts, must also have accompanying manufacturers operational pre-start checklists completed.

4.6.1 Standards

The following standards apply to all Contractors with regards to plant, tools and equipment:

- Only used by qualified or suitably trained personnel
- Use plant, tools and equipment for the purpose it was designed for and within its specified capacity limits
- Operators using plant requiring certificates of competency or licence must always carry them on their person while on site
- Ensure any safety features or warning devices are maintained, tested and used as intended
- Always seek instruction before using an unfamiliar piece of plant, tool or equipment
- Report any damaged plant, tools or equipment and do not use it until it has been repaired
- Where guards are provided, they must be kept in place
- Never distract the attention of another worker when operating plant or equipment
- Always use appropriate personal protective equipment
- Never use compressed air for cleaning clothing, plant or equipment
- Quantities of fuel, oil, solvents, cleaning fluids should be stored in approved containers in a cool, ventilated and where necessary, bunded, areas
- Report ALL hazards, unsafe conditions and work practices

4.6.2 Hand Tools

Picks, shovels, axes, crowbars, hammers, wrenches, files, screwdrivers etc. must be checked regularly. Use of an approved wrist-stop or lanyard to secure the tool is mandatory where there is a risk of it falling and injuring people below.

4.6.3 Explosive Power Tools

All explosive chargers for explosive powered tools must be kept in an approved, locked box. All operators of explosive powered tools must be trained and competent in using the tool. A warning sign must be displayed at each location the tools are used. Suitable protection must be worn when using the tools.

All work with any explosive tools or high vibration equipment must be approved by the RUS prior to commencement of work.

4.6.4 Lasers

Lasers may only be used by licensed persons. Lasers must be used with the following precautions:

- Up to Class 3A only to be used on the construction site
- Positioned so as not to be at eye level of workers in the area
- Warning signs must be erected

4.6.5 Compressed Air Equipment

Always use care when working with compressed air. If compressed air enters the blood stream through the skin, it can be fatal.

Wear suitable eye protections to guard against airborne substances, ear protection where excessive noise is likely to occur and/or respiratory protection where dust is present. Never, under any circumstances, should compressed air be directed towards the body of a person.

Where compressed air equipment will be used for prolonged periods suitable signage must be displayed.

4.6.6 Drones (remotely piloted aircraft (RPA))

Flying drones/remotely piloted aircraft/unmanned aerial systems is not authorised over any University property unless formal authorisation is obtained from UI and COS, Airservices Australia and the Civil Aviation Safety Authority where relevant.

4.6.7 Mobile Plant

Contractors must assess the use of mobile plant with regards to the surrounding environment and the potential for impact on the health and safety of others. Contractors should consider risks such as:

- the plant overturning or rolling-away
- things falling on the operator of the plant
- the operator being ejected from the plant
- the plant colliding with any person or thing
- mechanical failure of pressurised elements of plant that may release fluids that pose a risk to health and safety

Contractors must ensure mobile plant does not collide with pedestrians or other powered mobile plant. Without limiting this requirement, if there is a possibility of the plant colliding with pedestrians or other powered mobile plant, the Contractor must ensure the plant has a warning device (e.g. flashing lights, audible reversing alarms, horn, etc.) alerting anyone nearby who may be at risk from its movement and that appropriate traffic management procedures are implemented.

In shared and public areas, a spotter must be organised for each mobile plant movement: this person should be in visual contact with the driver at all times and wear high visibility clothing.

All guards, operator controls, emergency stops, and warning devices (where fitted) must be maintained in a clean state so they are easily recognisable and will work to best effect.

All mobile equipment such as front-end loader, dozers, backhoes, forklifts, drill rigs etc. must have keys removed; blades, tines and buckets lowered onto the ground and must be chocked or blocked when not in use.

This includes trucks and delivery vehicles while on campus and for which the contractor must ensure wherever possible they are parked on a firm, level surface with the handbrake applied, the motor switched off and rendered inoperable and the risk of plant moving of its own accord, including

rolling away, is eliminated.

4.6.8 Plant Access and Security

The Principal Contractor is responsible for the safe delivery, storage, security and retrieval of all plant under their management or control while it is located on University premises. For the purposes of this requirement, University premises refers to areas owned, leased, occupied or managed by the University in connection with the works.

This responsibility applies regardless of whether the plant is owned, hired, supplied or accessed by the Principal Contractor, their subcontractors or any other third party, to the extent that the plant is under the Principal Contractor's management or control.

Plant that is not in use must be secured to prevent unauthorised access, operation or movement. This includes the removal and control of keys or control devices and the implementation of appropriate physical or engineering controls.

Plant must not be delivered, accessed, operated or removed from University premises without the Principal Contractor's knowledge and coordination, including where plant is owned or retrieved by a hire company or other third party.

Plant stored, parked or staged on University premises, including outside the immediate work area or awaiting collection, is taken to be under the Principal Contractor's management or control and remains their responsibility until it is removed from those premises.

Any unauthorised or uncoordinated access to, or movement of, plant must be treated as a safety incident and managed in accordance with the requirements of this Handbook.

4.7 Traffic Management

Construction contractors using vehicles, powered mobile plant or other load shifting equipment for their activities on the University campuses must carry out risk assessments and consider the following:

- Separating pedestrians and vehicles
- Vehicle routes
- Safe crossings
- Parking areas
- Loading and unloading of vehicles
- Forklifts and other powered mobile plant
- Reversing vehicles
- Signs and road markings
- Lighting

In shared areas (e.g. Eastern Avenue), a spotter must be organised for each vehicle movement: this person should be in visual contact with the driver at all times and wear high visibility clothing.

Construction contractors must develop and implement an appropriate traffic management plan, traffic guidance scheme and/or traffic control plan suitable for the works. The traffic management plan should include details of:

- the output of traffic risk assessments
- emergency procedures
- the desired flow of pedestrian and vehicle movements
- the expected frequency of interaction of vehicles and pedestrians

- management of delivery and waste removal service
- control measures for each expected interaction including illustrations of the layout of barriers, walkways, signs and general arrangements to warn and guide traffic around, past, or through a work site or temporary hazard
- how short term, mobile work and complex traffic situations will be managed
- responsibilities and competencies required of people managing traffic in the workplace
- responsibilities of people expected to interact with traffic in the workplace
- instructions or procedures for controlling traffic including in an emergency

A traffic management plan should be monitored and reviewed at regular intervals or following an incident to ensure it is effective and considers changes at the workplace.

All traffic management plans that impact roads and pedestrian access paths or that will alter established traffic flow patterns throughout the University must be submitted through the **Traffic and Pedestrian Management permit** in CSMS.

All trade contractors must follow campus parking and traffic signs and where these trades are working with construction contractors must work in accordance with the traffic arrangements for the project.

4.7.1 Traffic Controllers and Spotters

The University recognises that traffic controllers and spotters perform different roles and require different competencies and levels of authority.

Traffic controllers are responsible for controlling and directing traffic and pedestrian flows on or adjacent to roads, including during road closures, partial road closures, construction access, maintenance works or roadside work events. Traffic controllers must hold the required SafeWork NSW Traffic Control Work Training Card for the traffic control work being performed and must be trained by a SafeWork NSW approved training provider.

Spotters operate within controlled work areas and assist with the safe movement of vehicles, mobile plant, heavy equipment or loads where visibility, clearance, reversing, exclusion zones or interaction with pedestrians may create a risk. Spotters do not control public traffic unless they also hold the required traffic control competency.

Spotters must be competent for the task, understand the site traffic management arrangements, maintain effective communication with the operator or driver, remain in a safe position with clear visibility, and wear high-visibility clothing that makes them clearly distinguishable from other workers where required.

4.7.2 Road Closures

Road closure requests must be submitted through the **Traffic and Pedestrian Management permit** in CSMS.

Requests will be assessed on the following criteria:

- safety concerns
- importance and need for closure
- impact
- available alternatives to closure

If it is necessary to close a road, adequate signs and barriers must be erected as directed by the Protective Services and Emergency Management Unit. The Contractor is responsible for the erection and maintenance of required signage and barriers, at their cost.

Unauthorised road closures may result in the road being re-opened without further notice.

Contractors are responsible for obtaining and complying with council permits, RMS permits, and

approved road closures and diversions.

4.8 Essential Services

Essential services include the supply of gas, water, sewerage, telecommunications, electricity, chemicals, fuel and refrigerant in pipes or lines. The Contractor must manage the risks to health and safety associated with essential services at the workplace.

All construction work that is carried out on or near:

- Pressurised gas distribution mains or piping
- Pressurised water mains or piping
- Chemical, fuel or refrigerant lines
- Energised electrical installations

is considered as **high-risk construction work** and a SWMS must be prepared before this work commences.

Refer to Isolation and shutdown of services.

Before work commences, Contractors must confirm the services are at or near the location where the work is to be done that could create a risk if contacted or damaged. Services may be underground or hidden in floor slabs, behind walls, in wall cavities or even within wall render.

Services locating and slab scanning is essential to aid in the minimisation of potential service strikes. The University has buildings and infrastructure which is very old, and many previously unidentified services have been discovered in slabs and walls and subfloor areas chased into structural elements and created risks to workers.

Contractors must locate and identify shut-off valves for essential services when cutting into slab, ground or wall. This must be communicated to workers and incorporated in the Work Health and Safety Management Plan and Emergency Procedures.

The RUS will make available all known information of the area. Contractors must apply for a **Permit to Dig** for all excavation and ground penetration works through CSMS.

4.8.1 Core Holes

At the University, coring activities through floors, slabs, ceilings and walls carry significant risks. These include potential damage to structural elements, hazards from electrical, gas and plumbing services, and complications with ICT infrastructure. Such risks can result in costly repairs, legal issues and serious safety incidents. It is therefore essential that thorough site assessments are carried out and appropriate technology is used to identify and mitigate risks before any cutting begins.

Prior to commencing coring activities, contractors must:

- Identify the location of all services in the area (e.g. through scanning).
- Check whether any services are controlled by timers (such as electrical systems), as these may not be detected during scanning if inactive, but could be live during coring.
- Determine the safest method of core extraction (e.g. drawing the core back toward the worker, rather than coring through into another space).
- Drill pilot holes as part of the investigation process.
- Assess where spotters are required (e.g. on the opposite side of the structure being cored, where live services may be present but not visible).
- Isolate services where required.

4.9 Electrical Safety

Prior to the commencement of any work involving electrical lines and/or equipment, Contractors must contact the RUS (or where appointed the Principal Contractor) who will define the scope and limits of the work.

Contractors must ensure that all electrical items are tested and tagged according to the *WHS Regulation 2025 (NSW)* and associated codes of practice and standards, specifically:

- Electrical practices for construction work
- Low voltage electrical work
- AS/NZ 3760 In-service safety inspection and testing of electrical equipment and RCDs

Suitably qualified, licensed and trained personnel must carry out all electrical isolations. Work on any isolated equipment must not commence without tagging and locking the equipment out.

All works to electrical systems must be documented and the Contractor will send a Certificate of Compliance of Electrical Works (CCEW) to the responsible UI/COS Project/Contract Manager.

The Contractor must refer to the *Code of Practice Managing Electrical Risks in the Workplace* when electrical risks are identified in their scope.

All construction wiring must be supplied and installed as per AS/NZS 3012 and its referenced standards and codes.

Live electrical work must not be undertaken unless it is not reasonably practicable to isolate the relevant energy source. Where live electrical work is required, the Contractor must provide, manage and authorise a live work permit and associated procedure before the work commences. The Contractor must notify the RUS before any live electrical work is undertaken.

4.9.1 Electrical Leads (cord extension sets)

All electrical leads must be the heavy-duty sheathed type:

- Tested and tagged by a qualified person
- Supported clear of the ground or floor using insulated or other suitable materials wherever practical
- Only connected to the nearest power outlet
- Removed from the power outlet when not in use
- Protected if passing under doors, through doorways or across open areas (e.g. tapped down to prevent trip hazards)
- Must be kept as short as practicable and in good order
- Joints must be made with approved plugs and sockets or junction boxes

A cord extension set must not be joined so that the total length of any combination exceeds relevant maximum values as per AS/NZS 3012. Generally, this will be:

- 10A, 1.0 and 1.5 conductor size will be 25m and 35m respectively
- 16/16A, 1.5 and 2.5 conductor size will be 25m and 40m respectively
- 20A, 2.5 and 4.0 conductor size will be 30m and 50m respectively

Quoted lengths are taken from AS/NZS 3199 and based on voltage drop of 5% of 230V at rated current for the conductor size.

4.9.2 Residual Current Devices (RCD)

An RCD is an electrical safety device designed to immediately switch off the supply of electricity when electricity 'leaking' to earth is detected at harmful levels. RCDs offer high levels of personal protection from electric shock.

Contractors are required to manage any electrical risk associated with the supply of electricity to 'plug in' electrical equipment using an appropriate RCD in certain higher-risk workplaces.

Contractors must comply with *AS/NZS 3012 Electrical installations - Construction and demolition sites* in relation to RCD requirements for construction and demolition sites.

Common examples of electrical equipment requiring an RCD include:

- Hand-held electrical equipment, for example drills and saws
- Electrical equipment that is moved while in operation, including jackhammers, electric lawn mowers, floor polishers and extension cords
- Electrical equipment that is moved between jobs in ways that could result in damage to the equipment, for example electric welders, electric cement mixers, portable bench saws and extension cords

Additional RCD requirements may be included in *AS/NZS 3000 Electrical installations, Wiring Rules*, local building and electrical safety laws.

4.9.3 High Voltage Works

Requirements for electrical work on high voltage equipment after switching, isolation, short circuiting and earthing are specialised requirements. Only competent electrical workers who have received appropriate training in high voltage electrical work are permitted to work on high-voltage electrical equipment.

High voltage works have specific requirements that will be detailed in Contractor scope of works and may require assistance of supply authorities.

4.9.4 Working in the vicinity of overhead and underground electric lines

Contractors required to work in the vicinity of overhead and/or underground electric lines must follow legislative and code of practice requirements for such associated matters as:

- Risk management processes.
- Approach distances.
- Operating cranes and mobile plant
- Tree and vegetation management
- Scaffolding work
- Agricultural work
- Low voltage overhead electric lines near structures
- Transporting high loads

4.9.5 High voltage substations

A Contractor needing access to a high voltage Substation area must abide by all applicable Acts and Regulations. Access must be arranged through University Facilities Officer, who will arrange access permits.

The Contractor must obtain written permission prior to accessing any high voltage sub-station and must abide by the following criteria:

- Obtain a Contactors permit to work from the RUS
- Regulation under the Electricity Act 1995
- AS/NZS 3000 Electrical Installations (Australian/New Zealand Wiring Rules)
- WHS Regulations 2025 (NSW), Part 4.7

All electrical work completed by a Contractor must have an 'Certificate of Compliance for electrical work' (CCEW) completed and forwarded to the RUS. Also refer to the Facilities Management Unit for Electrical Compliance Protocol which provides guidance on compliance with relevant State legislation concerning Certificate of Compliance for electrical work (CCEW).

4.9.6 Use of ladders for electrical work

Where electrical works requires the use of portable ladders, only fiberglass ladders must be used. This includes works to gain access to electrical installations such as cutting gyprock, removing roof panels. Metal ladders, including step and trestle ladders, must not be used where electrical hazard exists. When handling metal ladder for non-electrical work, care must be taken to ensure that the ladder does not make contact with power lines and conductors.

Contractor must comply with the requirements of Code of Practice for Managing the risk of falls for selection and use of ladders.

4.9.7 Ultra-violet (UV) lamps in Heating, ventilation, and air conditioning (HVAC) system

Contractors planning to access HVAC systems for works, must take into consideration presence of UV lamps (emitting ultraviolet type C radiations) installed for air sterilization in certain equipment and implement appropriate control measures as per the hierarchy of controls to prevent accidental exposure.

Such lamps are in particular present in D17 Charles Perkins Centre and F13 Anderson Stuart Building. Contractors must always consider isolating such lamps before starting work to eliminate the risk of exposure.

4.10 Lock-Out, Tag-Out and Test

4.10.1 Lock-Out, Tag-Out and Test Requirements

The Lock-Out, Tag-Out and Test process is required if a contractor is required to conduct work on any plant, equipment or service that has one or more energy sources that crate a potential hazard for the contractor when working on the equipment.

4.10.1.1 One person one lock

University sites require each person working under a Lock-Out, Tag-Out and Test procedure to have, and attach, their own lock to prevent the isolator being opened while their task is in process.

If two or more people are working on machinery, plant and equipment that is isolated through several lock out points, each person must attach a lock and tag to each lock out point.

To avoid the need for multiple locks on each lock out point, a lock box may be used. Under this system, each lock out point is locked by only one lock, and the keys to the locks of the machinery's lock out points are placed inside a box that is locked by all the individual locks of people working on the same plant.

Image 6 – Example of a group lockout box



4.10.1.2 One lock one key

Each person working on the machinery, plant and equipment must have their own lock, key and tag. There should be no duplicate key available for any lock, except a master key for use in an emergency that is secured and only available to the appropriate supervisor with the authority to use the master key.

During inspection, repair, maintenance, cleaning or adjustment of the machinery, plant and equipment, the one key to each person's lock should be held only by that person, who is responsible for both locking and unlocking the lock out device.

4.10.1.3 Multiple energy sources

If more than one energy source or hazard must be locked out to enable safe shut-down of the machinery and equipment, the single key to each lockout device should be held by the same person.

4.10.1.4 Isolation by Incumbents for Project Work

Isolations for infrastructure and construction projects are often performed by incumbent facilities services contractors. Where an incumbent maintenance contractor completes an isolation for a Principal Contractor, the Principal Contractor must ensure that the isolation is verified and that the site manager or site supervisor applies their own lock and tag to the isolation.

Where workers or subcontractors are working under the isolation, the isolation must be managed through a lock box arrangement, as outlined in section 4.10.1.1 One person one lock. The site manager or site supervisor must secure the isolation keys in the lock box, and each worker or subcontractor working under the isolation must apply their own personal lock to the lock box before commencing work.

4.10.1.5 Removal of Tags and Locks

Removal of Danger tags, security locks or other devices must only be carried out by the originator. Contractors are not permitted to remove other contractor's tags and locks.

Unauthorised breach or removal of a tag or lock will result in disciplinary action.

If a tags or lock cannot be traced or requires removal but the person responsible for the items cannot remove the lock, **permission can only be obtained from:**

- UI – Chief of University Infrastructure
- COS – Director Asset Management & Operations.

4.10.2 Danger Tags

Danger – Do Not Operate Tag is used with a lock-out device to identify that a lock-out is in progress; the person working on the plant/equipment; and date applied.

Image 7 - Example of Danger Tags



The tag is not used on its own to isolate plant or circuits, as this is not an effective isolation device. A tag only provides information to others; a lock must be used as an isolation device and will be accompanied by a tag.

Under no conditions will activating operational stop buttons, emergency stop devices or interlock devices be considered the equivalent to the isolation of power sources or the release of stored energy.

Attach own Danger Tags or Lock-Out Device to isolation switches, valves or other isolators in all instances where Lock-Out, Tag-Out and Test is required. Contractors must use industry standard locks, hasps and tags, for example, Master Lock types.

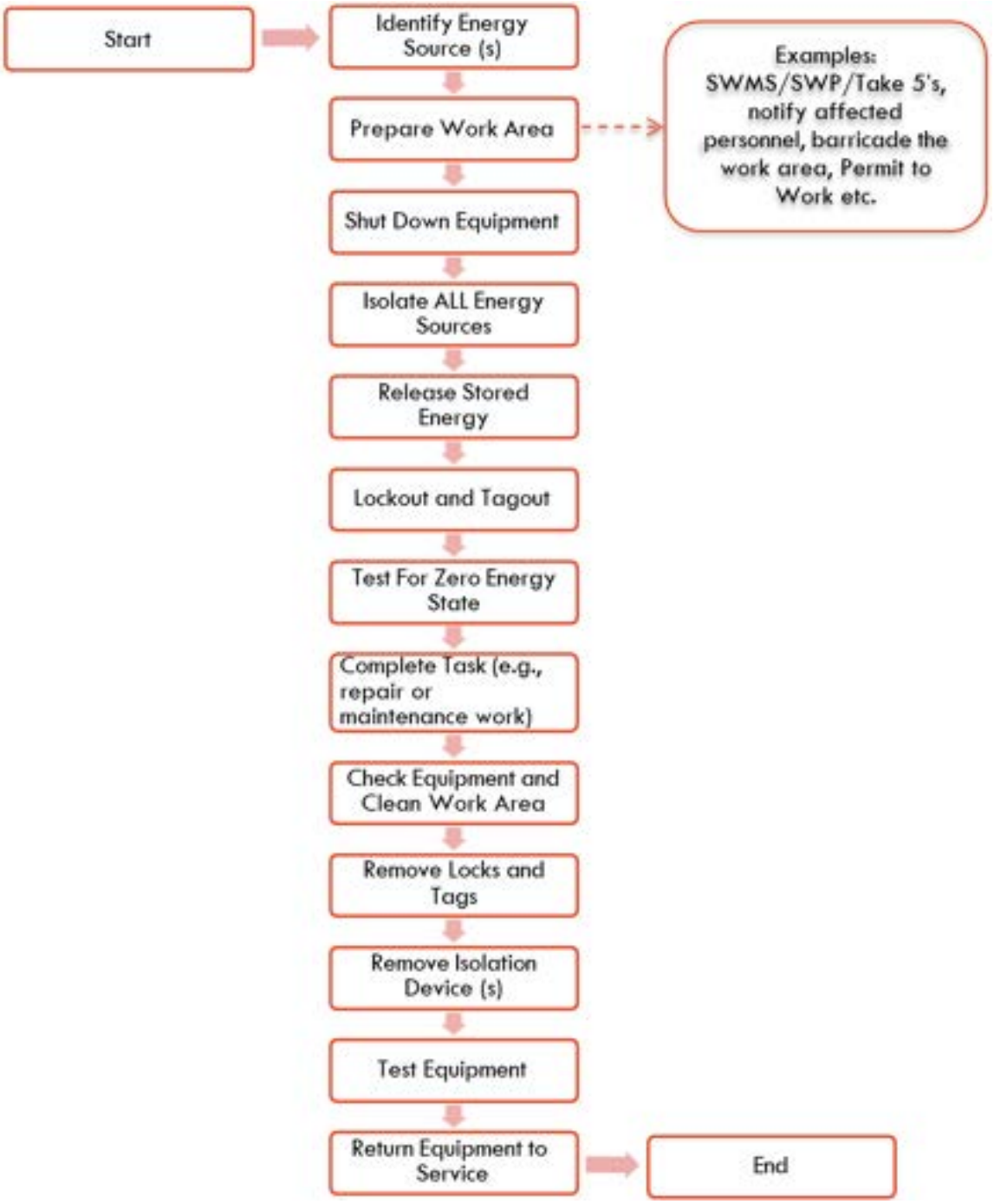
Image 8 – Example of Lock and Hasp



All locks must be traceable to the user. Where locks are identified only by numbers, a Register of Personal Locks is to be maintained and readily available.

4.10.3 Energy Isolation Flowchart

Energy Isolation procedures involve the isolation of all forms of potentially hazardous energy so that the plant does not move or start up accidentally. Isolation of plant also ensures that entry to a restricted area is controlled while the specific task is being carried out. Isolation activities must address the basic steps outlined below:



4.10.4 Procedure for the Removal of Lockout/Tagout Devices by Persons Other Than Those Who Fitted Them

Warning

- This procedure must only be used when there are reasonable grounds to believe that the person who fitted the lock and/or tag has inadvertently forgotten to remove the lock and/or tag, or when that person is incapacitated and cannot remove the lock and/or tag.
- It is possible the worker may have temporarily left the facility to obtain spare parts or required equipment to complete the repair, so absence from the facility is not reason enough to initiate this procedure.
- Prior to using this procedure, a thorough effort must be made to locate the person who fitted the lock and/or tag and get him or her to return to the facility to remove the item.

- In all cases where the person can be located, he or she must be requested to return and remove the lock and/or tag instead of using this procedure.

When a worker who applied a lock or tag is not available to remove it, the lock or tag may be removed only by the RUS by following these procedures:

Step	Action
1.	Make a reasonable and thorough attempt to locate the worker, such as making contact on his work telephone and/or mobile phone and request that the contracting company contact the worker.
2.	Inform all relevant personnel that the removal of the lock is being undertaken and specify what equipment the lock was isolating and who fitted the lock.
3.	Evaluate if it is safe to reenergize the equipment by performing all of the following: • Check the area thoroughly to ensure all equipment has been reassembled correctly. • Ensure all connections to the equipment have been remade. • Remove any tools or equipment from the area. NOTE: This may require the assistance of a competent person.
4.	Report the evaluation and obtain permission from the **Chief of University Infrastructure** / **Director of Asset Management & Operations (AMO), COS** as applicable to remove the lock and/or tag.
5.	Clear the area of all personnel and tools.
6.	Remove the lock and/or tag. NOTE: This may require the assistance of a competent person.
7.	Re-start the equipment if necessary. NOTE: This may require the assistance of a competent person.
8.	Inform the Contracting Company that the lock and/or tag have been removed.
9.	Inform the **Chief of University Infrastructure** / **Director of AMO (COS)** as applicable that the lock and/or tag have been removed

4.10.5 Testing Isolation Procedure

After plant has been shut down, locked out and tagged, all isolated power sources should be tested first with appropriate instruments and then by trying to activate the plant, before any person attempts to start work on the plant. This should be done by a person who understands the complexity of the plant (or parts of the plant, including control stations and computers remote from the plant).

It is not safe to assume an isolator has locked out an electricity source simply because it is in an open position. While normally this should open an air gap between contact points, it is possible for contact points to become welded together by the passage of electricity and remain so even when the isolator appears to be open.

Work on the plant should not begin until tests have confirmed it is safe to do so. The calibration of any instruments required to test isolation procedure should be checked before use.

4.10.6 Out of Service Tags

Out of Service Tags are used to identify plant or equipment taken out of service due to a fault, damage, or non-requirement.

Tags are not removed until the item is safe for return to service.

Image 8 – Example of Out of Service Tag



An 'Out of Service' Tag can be used by anyone who considers the item to be unsafe or unserviceable. Details of the date, person tagging, and reasons will be entered onto the tag.

Tags are securely fixed to the plant/equipment controls (e.g. steering wheel on a forklift) and isolator where applicable. Any starting device (e.g. key) is removed to prevent activation.

The person tagging should immediately advise Campus Assist of the fault by telephone or on- line, who will ensure that matter is appropriately logged.

4.11 Isolation and shutdown of services

To ensure minimal impact on stakeholder groups, the RUS are required to confirm that service isolations for services such as electricity, water, gas, telephone or data have been arranged and that individuals or areas affected have been advised ten (10) working days prior to the date of the shutdown.

Information regarding the service isolation should be provided to the RUS describing the nature of the work to be done, the time and the expected duration of the shutdown. All interruptions must be kept at an absolute minimum and only at such times as has been agreed by the RUS. Should services be shut down accidentally, the Contractor must advise the RUS and Protective Services and Emergency Management immediately.

Contractors are to ensure that the isolation/tag out system is applied to the setting up, servicing and repair of all machinery capable of being activated by energy sources including electrical, pneumatic, hydraulic, chemical and mechanical (refer to section Lock-out, tag-out and test).

4.11.1 Isolation of Fire & Security Alarms

When undertaking works that may generate heat, dust, smoke, or involve alterations to the Building Fire Protection Systems, the following procedures must be adhered to:

Fire System Interruption Permit: A fire system interruption form must be submitted through CSMS at least three (3) working days prior to the start of the isolation.

Engagement of University Fire Services Maintenance Provider: Isolations must be executed exclusively by a current University Fire Services Maintenance Provider.

Risk Assessment for Fire Protection: A risk assessment identifying the risks and measures undertaken to ensure adequate fire protection must be provided with the fire system interruption application. This assessment is crucial in maintaining fire safety in the general location of the works.

Daily Restoration of Fire Isolations: All fire isolations must be reinstated at the end of each working day, except under rare, pre-approved circumstances. For overnight isolation approvals, contact fire.services@sydney.edu.au to ensure that necessary physical fire protection measures are in place such as the deployment of fire watchers. Depending on the extent of these isolations, the University's Insurer may also be required to be notified.

Mandatory Approval Prior to Work Commencement: WORKS CANNOT COMMENCE BEFORE FORMAL APPROVAL IS RECEIVED FROM UI/COS.

Regulations for Hot Work: No welding or other heat or dust producing work is to be carried out in any internal area before the fire alarm detectors are isolated. A Permit to Work must be completed, indicating any/all Hot Work activities. Non-compliance may result in a false alarm, calling out the Fire & Rescue NSW Services and the relevant Service Provider, at the cost of the Contractor.

Notification of Modifications to Hydrant or Sprinkler System: COS Protective Services and Emergency Management and the relevant RUS must be notified of any modifications to the hydrant system requiring interruption to the fire water supply at least five (5) working days prior to the modification work. Depending on the extent of these isolations, the University's Insurer may also be required to be notified.

4.11.2 Natural Gas Isolation and Shutdown

Contractors must notify the RUS in writing at least 10 working days prior to any natural gas isolations using the **Natural Gas Isolation and Shutdown permit in CSMS**. The notice will clearly specify which gas system will require isolation and shutdown as this will form a part of the UI/COS Communication that is required to be circulated to affected buildings prior to the event.

This notice must be approved by the RUS prior to commencement of works.

4.11.3 Electrical Shutdowns

Contractors must notify the RUS in writing at least 10 working days prior to any power shutdown required. The notice will clearly specify which parts of the electrical system will require shutdown as this will form a part of the UI/COS Communication that is required to be circulated to affected buildings prior to the event.

This notice must be approved by the RUS prior to commencement of works. Where a complete shutdown is required on a switchboard or multiple switchboards under a project, the **Electrical Power Shutdown permit in CSMS** must be submitted and authorised prior to commencement of works.

4.11.4 Isolation of Fume Cupboards

Fume cupboard or chemical store ventilation can only be isolated by arrangement with the RUS and the local area manager. Fume extraction fans must not be isolated before 'tagging out' all affected laboratory fume hoods to prevent their use (refer to section on 'Danger' and 'Out of Service' tags). Contractors must personally confirm with the laboratory manager that all laboratory staff are aware that they are about to start work on a fume hood system.

4.12 Trenching & Excavation

Any excavation work on the University grounds must be carried out in accordance with the provision of WHS Regulations and *Code of Practice Excavation Work*. **All excavation and ground penetration works require a Permit to Dig** available on CSMS.

All excavation work is considered high risk work and therefore requires the Contractor to prepare and submit a SWMS.

Prior to intrusive works, the Contractor must check the applicable Hazardous Infrastructure Materials Registers and contaminated land environmental management plan (if relevant) for the building and the University's Asbestos Management Plan (AMP) and Hazardous Infrastructure Materials Management Plan (HIMMP) and determine whether works will disturb hazardous infrastructure materials and/or contamination requiring specific management (refer to Section 4.16 and 5.9).

Contractors must manage the risks to health and safety associated with excavation work before the work commences including but not limited to the risk of:

- a person falling into an excavation
- a person being trapped by the collapse of an excavation
- a person working in an excavation being struck by a falling object
- a person working in an excavation being exposed to an airborne contaminant
- vehicle or mobile plant encroachment on the excavation and zone of influence

To manage the risks, all relevant matters must be considered including:

- the nature of the excavation
- the nature of the excavation work including the range of possible methods of carrying out the work
- the means of entry into and exit from the excavation (if applicable)
- the potential presence of hazardous infrastructure materials and/or other contamination in the excavation area
- The requirements of *Essential Services* of this Handbook must be followed as part of the excavation process.

Any excavations within 1.5 meters of known service are to be carried out by manual excavation (i.e. shovel) or hydro-vac/non-destructive measures until the service is exposed.

All open excavations must be always surrounded by suitable barricades or barriers.

Any underground obstacle, unexpected service, unidentified materials, suspected archaeological items or artefacts identified requires an immediate stop of work and the Contractor must inform the RUS to assess the necessary course of action. Refer to Unexpected Finds section (4.16.1).

All trenches over 1.5 metres in depth must be protected against collapse by approved methodologies (e.g. bench, batter, shore etc.) and barricades must be erected around the trench and always kept in place.

Where contractors are engaged for events on university grounds, they are advised that all structures are to be weighed down and not pegged. Any proposal to erect a structure on the lawns needs to be clearly documented in the booking request, and if in doubt, discuss with University Venues or Grounds.

4.13 Respirable Silica and Engineered Stone

Contractors are required to identify and manage risks associated with crystalline silica substances (CCS) and silicosis through worker exposure to silica dust during tunnelling, demolition and excavation work, or uncontrolled cutting, grinding, polishing and drilling of common building materials including brick, concrete, sandstone and tiles and use/handling of engineered stone.

Typical crystalline silica levels in different materials are:

- sand and sandstone: 70-100%
- manufactured stone: 93% or higher
- granite: 20-45% (typically 30%)
- concrete and mortar: 25-70%
- calcium-silicate bricks: 50-55%
- slate: 20-40%

- brick: up to 30%
- fibre cement sheets: 10-30%
- demolition dust: 3-4%
- marble: 2%
- limestone: 2%

Contractors must comply with the requirements of the Code of Practice: Managing Risks of Respirable Crystalline Silica in the Workplace, which commenced in NSW on 20 February 2026.

A key requirement is for PCBUs to assess the risks associated with the processing of crystalline silica substances and determine whether the processing is high risk. Where it is not possible to determine whether the processing is high risk, the work must be treated as high risk until demonstrated otherwise through further assessment or monitoring.

As part of planning works that may involve crystalline silica substances, particularly demolition, strip-out, excavation, drilling, cutting, grinding or other intrusive works, contractors must undertake the risk determination during the planning stage. The University expects this determination to be undertaken by a certified occupational hygienist, or where this is not available, by a person with relevant qualifications and experience in occupational hygiene, or a person working under the supervision of a certified occupational hygienist.

The WHS Regulation requires a silica risk control plan to be implemented for all high-risk processing of crystalline silica substances before the processing commences. The plan must be developed in consultation with the workers involved in the processing and must address the required content, controls, air monitoring, review and training requirements. The plan must clearly state whether air monitoring is required for the specific task.

Where air monitoring results show that the airborne concentration of respirable crystalline silica has exceeded the workplace exposure standard, the contractor must notify SafeWork NSW within 14 days of receiving the air monitoring report. **The RUS must also be notified as soon as the contractor becomes aware of the exceedance.**

Contractors must use controls that eliminate or minimise the generation of silica dust, such as water suppression, dust extraction systems on portable tools, isolation, local exhaust ventilation, or other suitable higher-order controls. The Code of Practice must be referred to when selecting controls, based on the hierarchy of controls.

All workers involved in high-risk silica processing must be provided with information about the Silica Worker Register. Employers must register relevant workers undertaking high-risk silica processing within 28 days of the worker commencing that work. Contractors are also reminded that they must provide health monitoring to workers where there is a significant risk to their health from exposure to respirable crystalline silica.

Where respiratory protective equipment is required to reduce respirable crystalline silica exposure, its effectiveness may be considered for workplace exposure standard compliance only where all reasonably practicable higher-order controls are in place and the RPE is correctly selected, fit tested, used and maintained.

Clearly visible warning signs must be placed at silica exclusion zones. A competent person must determine the size and location of the exclusion zone, having regard to the task, site conditions, wind direction, other work activities and potential exposure pathways. Signs must indicate that:

- a silica dust hazard is present
- access is restricted to authorised persons
- RPE is required within the exclusion zone.

Where an exclusion zone affects workplace activities, only authorised workers wearing the required RPE may enter the exclusion zone.

4.14 Fire Prevention

Contractors are required to identify and assess fire risks associated with their work, including risks arising from tools, equipment, materials and substances, and the storage of these items. This assessment must include the use, charging, storage and fire risk of lithium-ion batteries.

Lithium-ion batteries are a leading fire hazard and can pose serious risks to infrastructure and persons in the vicinity due to fire, explosion, toxic fume, electrical energy and chemical exposure hazards. Contractors must include in their emergency response procedures how they will manage a lithium-ion battery fire, including evacuation of the affected area, calling 000 immediately, and following relevant emergency instructions. Contractors must consider where and how battery chargers and lithium-ion batteries will be used, charged and stored as part of their site setup and safety planning.

Fires must not be lit on campus at any time. Fires must not be lit on farms unless approval has been granted and appropriate fire control measures are in place.

In the event of the fire alarm sounding, the Contractor and their workers must evacuate the site, following exit signage and the directions of the University Fire Wardens to the assembly point nominated. Contractors must make themselves aware of campus and building and/or evacuation plans.

The Contractor's representatives must not re-enter the building until advised by the Fire Wardens that it is safe to do so.

This does not discharge the responsibility of the Contractor to ensure workers are provided with adequate information in relation to emergency evacuation procedures. Where possible, the Contractor must nominate a Chief Warden. In the instance where the Contractor has not nominated a Chief Warden, Security Services personnel must act in this capacity.

The RUS must be advised prior to the first site meeting of the name and contact details of the Chief Warden. It must be the Chief Warden's responsibility to check the site area(s) in the event of a fire alarm to ensure that the Contractor's representatives have evacuated the area in accordance with the University Emergency Evacuation Procedures.

4.14.1 Fire Extinguishers

Contractors are required to provide fire extinguishers which comply with AS/NZS 1841 Portable fire extinguishers. Supply and installation must meet AS 2444 Portable fire extinguishers and fire blankets - Selection and location.

Fire extinguishers need to be regularly inspected and maintained in accordance with AS 1851 Routine service of fire protection systems and equipment. Located in university buildings, fire extinguishers and associated hose reels are identifiable by relevant signage in the corridors.

Fire extinguisher types must be used to suit intended purpose. To allow for instant recognition of the most suitable fire extinguisher, identification discs are to be displayed on the can to indicate the particular types of fire it can be used on.

4.14.2 Hot Works

A hot works permit is required for any work involving open flames, hot surfaces, sparks, molten material, or sufficient energy to ignite combustible, ignitable or flammable materials.

Hot works, including welding, grinding and cutting, must be approved through a CSMS Hot Works Permit before work commences. A CSMS Hot Works Permit may not be required where the Contractor has a designated hot works area or workshop, or where there is no potential fire risk to University buildings, infrastructure or services, such as no requirement for a fire system isolation. This must be agreed with the RUS and RUS safety representative and applies only to the specific project or task approved.

A hot works permit applies only to a single shift or day. Where hot works will be conducted over multiple shifts or days, separate permit requests must be submitted and approved before each period of hot works commences. Planned hot works must not be conducted within 6 metres of a building with aluminium composite cladding.

Where a fire system isolation is required, the Contractor must liaise with the RUS to submit the fire system interruption request at least three working days before the proposed isolation, in accordance with the relevant section of this Handbook.

Adequate fire protection must be present, with suitable fire extinguishers attached to, or near work area. Welders must use screens to protect all personnel from welding flashes and any hot waste produced during the welding process. Workers undertaking the hot works should wear the correct personal protective equipment.

Contractors must supply their own fire extinguishers and not rely upon the University fire extinguishers.

After the hot work activities have ceased, a fire watch for the duration required by the matrix available in the hot works permit must be completed and the time included for when the fire watch commenced and finished, along with the name and signature of the person completing the fire watch.

The requirements of any NSW Fire Brigade (rural or otherwise) fire bans must be always adhered to.

4.14.3 Gas Works

Gas Work is defined as work on consumer piping, fittings, components, appliances, flues, sub- meters, apparatus and other devices an associated requirement.

Refer to **Isolation and shutdown of services** for service isolation and shutdowns.

Prior to commencement of any works on gas infrastructure the following procedures must be adhered to:

- The gas system must be isolated.
- Smoking, open-flamed, hot work and other ignition sources in the hazardous area will be identified and isolated.
- Consumer gas piping (i.e. piping after the metre) must be purged prior to work commencing. Where purging is not practicable, the Contractor will notify the relevant Utility Authority prior to commencing work on any unpurged piping.
- All open pipe ends must be sealed while the work is in progress.
- All gas piping must be tested by the Contractor after works have been complete.
- Testing for gas leads must be conducted using either the soap and water method
- (external) or a gas 'sniffer'.

4.15 Welding

All welding, whether with gas flame, electric arc, electric resistance, lasers, electron beams, friction, molten metal baths or ultrasound, use energy sources and joining methods which are potentially hazardous.

Risk assessments should be completed for the type of welding work and risk assessments will be required to support permit processes such as hot work permits, and for welding in specific locations, such as confined spaces.

Risk assessments should consider such hazards as:

• Airborne contaminants • Radiation • Electrical risks • Fire and explosion • Burns and exposure to heat	• Lead • Confined spaces • Falls • Manual tasks • Ventilation and local exhaust

• Compressed and liquefied gases • Noise	• PPE

The use of welding screens to mitigate risks to workers, others in the area (through welding flash etc.) and property damage is required.

4.16 Asbestos, Lead and other Hazardous Infrastructure Materials

As detailed in the **Asbestos Management Plan (AMP)** and **Hazardous Infrastructure Materials Management Plan (HIMMP)**, prior to any works, the Contractor must check the applicable Hazardous Infrastructure Materials Registers for the building and determine whether works will disturb hazardous materials and therefore considered as hazardous infrastructure materials-related works. Where applicable also check for available land environmental management plans.

These Site Registers and associated reports/documentation are available on the **Alpha Tracker web site** which can be accessed through CSMS. Refer to the Quick Reference Guides available in the CSMS Quick Reference Guides section of the web page - Contractors public page :

- CSMS_Alpha Tracker via Document Control Module_QRG
- CSMS_Alpha Tracker via PTW Module_QRG

For access to Alpha Tracker outside of using the CSMS, email cos.hse@sydney.edu.au and access details will be arranged and forwarded to the person making the request.

Hazardous Infrastructure Materials surveys organised by UI/COS to develop the registers are nonintrusive surveys that do not inspect inaccessible areas and do not take samples where this could damage the facilities. These registers often do not provide sufficient information for demolition or refurbishment works where materials not assessed in the surveys will be disturbed.

If works will disturb materials and if presence of hazardous infrastructure materials is unknown, works must not start until a competent person (a licensed asbestos assessor) determines whether hazardous infrastructure materials are present.

Any works that may disturb hazardous infrastructure materials must be considered as hazardous infrastructure materials-related works and managed as such.

Therefore, certain legislative requirements may apply such as health monitoring for workers conducting hazardous infrastructure materials-related works, notification to the regulator, licenses, etc. Also, air monitoring must be conducted in the work area if there is uncertainty as to whether the exposure standards are likely to be exceeded. All hazardous infrastructure materials inspections, whether organised for Compliance purposes or via a contractor, must be provided to the RUS for updating of University hazardous materials records. Additional information on the management of hazardous infrastructure materials, reports and permits is available on CSMS.

4.16.1 Unexpected finds

As detailed in the AMP and HIMMP, If the Contractor finds suspected "new" asbestos-containing materials (ACM) or other hazardous materials during the works, they must stop work immediately and contact the RUS to discuss further action. Contractors are expected to comply with the requirements of their own 'unexpected finds procedure', or equivalent, to ensure the safety and wellbeing of persons potentially impacted by the find.

Such materials include:

- Asbestos
- Polychlorinated Biphenyls (PCBs)

- Lead dust and lead paint
- Heavy metals
- Flammable or explosive liquids or gases
- Toxic, infective or contaminated materials
- Radiation from radioactive materials
- Noxious or explosive chemicals
- Tanks or other containers which are not labelled and/or have an unknown history
- Discoloured and/or odorous materials
- Phase-separated hydrocarbons, oily substances and/or sheen on soil/water

4.16.2 Asbestos

Contractors shall consult the Site Register(s) and Hazardous Infrastructure Materials Reports for asbestos information on buildings. These reports are currently available on the Alpha Tracker web site which can be accessed through CSMS (See 4.16).

The AMP and HIMMP are also housed within Alpha Tracker.

Note that several hazardous infrastructure materials reports and Alpha Tracker also contain information on lead paint, lead dust, PCB's, SMF and heavy metals that may have been identified during inspections.

All asbestos work must be carried out in accordance with the AMP and HIMMP and the SafeWork NSW requirements and as set out in Code of Practice How to Safely Remove Asbestos and Code of Practice How to manage and control asbestos in the workplace.

The CSMS Asbestos Removal Work Permit application must be completed for all asbestos removal works, including the excavation of asbestos-contaminated soil.

Asbestos-containing materials can only be removed and disposed of by an appropriately licensed asbestos Contractor, and must be tracked, if applicable.

4.16.3 Settled dust

It should be presumed that, for any building on campus constructed before 1993, roof spaces will contain dust contaminated with a variety of minerals including lead. Especially for buildings near busy roads, industrial areas and dense city areas.

This is primarily due to the use of lead in automotive petrol for which the phase-out began in 1993.

Dust contaminated with lead presents a WHSE risk to be managed, by any persons accessing a roof or ceiling space, as part of their risk management process. This may include control measures such as:

Not entering the roof space if not required, not disturbing settled dust, preventive dust cleaning for relevant areas prior to conducting works that could disturb dust, wearing PPE such as masks, etc.

Roof spaces are restricted spaces to authorised personnel only: an approved Roof Access permit (accessed through CSMS) is required, and contractors must address this risk as part of the permit application.

4.17 Prevention of needle stick/sharps injuries

Sharps are defined as objects or devices capable of cutting or penetrating the skin, e.g. hypodermic needles, broken glass and scalpel blades. Various hard plastic items, such as broken plastic pipettes, are also classified as sharps.

All sharps have the potential to cause injury through cuts or puncture wounds. In addition, many sharps are contaminated with blood or body fluids, microbiological materials, toxic chemicals or radioactive substances, posing a risk of infection or illness if they penetrate the skin.

There is a risk of sharps injury for workers handling sharps but also for cleaning workers and grounds workers. Needles and sharps can be found especially in laboratories, bins, toilets, parks and gardens.

Where there is a risk of needle stick or sharp injury, appropriate personal protective equipment must be worn such as puncture resistant gloves, safety boots, long pants and long sleeve shirts. Contractors must undergo all inductions deemed necessary by the local manager/contact. Contractors are to strictly adhere to all information provided by the local manager/contact.

Contractors are not to handle any needles or sharps and must immediately contact their manager and the area supervisor if needles or sharps are identified in the workplace.

Any incident involving needles or sharps must be treated as a notifiable incident to SafeWork NSW as it potentially exposes the person to a substance likely to create a serious risk to health or safety in the future. Refer to section "Notifiable Incident" for more details on notification requirements.

4.18 Confined Spaces

A confined space means an enclosed or partially enclosed space that:

- is not designed or intended primarily to be occupied by a person
- is, or is designed or intended to be, at normal atmospheric pressure while any person is in the space
- is or is likely to be a risk to health and safety from:
    - an atmosphere that does not have a safe oxygen level, or
    - contaminants, including airborne gases, vapours and dusts, that may cause injury from fire or explosion, or
    - harmful concentrations of any airborne contaminants, or
    - engulfment

Confined spaces may include but are not limited to:

- Storage tanks, process vessels, boilers, pressure vessels, silos and other
- Tank-like compartments
- Open-topped spaces such as pits or degreasers
- Pipes, sewers, shafts, ducts and similar structures

When working in confined spaces, Contractors and their workers must comply with WHS Regulations and *Code of Practice Confined Spaces* and ensure risk assessment, control of risks, entry permits, rescue arrangements and training and competency is carried out accordingly.

A Confined Space Entry Permit is to be provided, managed and authorised by the Contractor, however, will be required to be notified to the RUS prior to commencement of the work and upon completion. Copies of the permit must be displayed at the work site.

COS/UI has made available a confined space register with each identified space having a corresponding risk assessment. This information must be taken into consideration when completing a permit.

The Contractor must ensure that all staff working in or on confined spaces are trained in confined space entry safety standards and will be required by the University to provide proof of training.

4.19 Demolition

Demolition work on university campuses must comply with all WHS legislative requirements, including the requirements specified for demolition licensing.

Demolition work must be:

- planned, risk assessed and carried out by those with appropriate demolition licenses:
    - **Restricted**: For structures 6–15m or involving load shifting machinery.
    - **Unrestricted:** For structures >15m, chemical installations, pre/post-tensioned components, tower/mobile cranes, floor propping, explosives.
- Undertaken only when a named supervisor (nominated during the licence application process) is present and actively supervising licensed demolition work
- Carried out by appropriately trained workers:
    - Supervisors Must complete **10 units** from Certificate III/IV in Demolition
    - Workers must complete:
        - **CPCCDE3016** - Identify, remove, and handle hazardous materials.
        - **CPCCWHS2001** - Work safely in the construction industry (prerequisite).
    - **Exemptions**: Truck drivers (in cabin), traffic controllers outside site, and non-site personnel.

To carry out demolition (or partial demolition) of any building, structure, major plant, or installation that **contains or may contain hazardous chemicals**, an **Unrestricted Demolition Licence** is required. This requirement is waived only if a **competent person**, as defined under the WHS Regulation, has provided a **written declaration** confirming the site is free of hazardous chemicals. The declaration must include an **expiry date** indicating how long the assessment remains valid.

4.20 Lifting, Cranes and Hoists

Lifting, crane and hoist activities can create significant risks, including roll-over or tipping, people being struck by the load or plant, dropped loads, impact with structures or services, and uncontrolled movement of loads.

Contractors must ensure lifting, crane and hoist activities are planned, risk assessed, supervised and carried out by competent persons using suitable plant, equipment and lifting gear.

All lifting, crane and hoist activities must be classified by the Contractor as either Simple and Routine or Complex before work commences. The classification must consider the load, lifting method, equipment, ground conditions, weather conditions, surrounding environment, interface with people or services, and the complexity of the lift.

Table 1 – Type of Lifts and Minimum Controls

Simple and Routine Lift	**Minimum control**
This includes simple and routine lifts which are not defined as complex. Simple and routine lifts are lifting activities carried out under controlled conditions, using suitable lifting plant or equipment well within their rated capacity, where no **Complex Lift** characteristics are present. Examples include: • forklift lifts • telehandler lifts • hoisting • truck-mounted Hiab-style delivery or unloading lifts. Where one or more characteristics of a **Complex Lift** are identified, the lift is to be treated as a **Complex Lift**, regardless of the plant or equipment used.	The Contractor must determine that the lift does not meet any of the characteristics of a Complex Lift. A risk assessment must be completed and consider, where relevant: • load weight and integrity • lifting operation and method • communication methods • emergency arrangements • centre of gravity • competent personnel • capacity of lifting equipment • overhead, underground and adjacent services • nearby airfield or helipad assets • slew radius • lifting gear, including shackles and rigging configuration • capability of the site and ground stability • lift area, lift path, movement and route • wind and weather conditions • exclusion zones • proximity of outriggers or tracks to underground services • consequence of critical failure • pre-lift readiness checks The lifting methodology and relevant controls may be documented within the task-specific Safe Work Method Statement, provided the SWMS clearly addresses the lifting activity and the relevant risk assessment considerations listed above. Where the lifting activity is not adequately addressed in the SWMS, a separate Lift Plan must be prepared. Additional controls, such as traffic management plans, may be required.
Complex Lift	**Minimum control**
A lift must be classified as a **Complex Lift** where any one or more of the following apply: 1. the load is 50 tonnes or more 2. the load weight is greater than 75% of the rated capacity of the crane, hoist, forklift, telehandler or lifting equipment in the proposed configuration 3. the suspension point is not directly above the load's centre of gravity, or the load may become unstable during lifting, slewing, travelling, lowering or placement 4. the load is eccentric, unevenly distributed, irregular in shape, difficult to secure, fragile, flexible, unusually long, or has the potential to shift, rotate, swing or become unstable 5. the lift involves personnel hoisting, lifting	As per the Simple and Routine Lift minimum controls, and: **CSMS Lifting Permit.**

persons, or the use of a workbox 6. the lift involves multiple cranes, tandem lifting, or coordinated lifting using more than one item of lifting plant 7. the lift requires a crane, tower crane or heavy lifting plant to be assembled, erected, climbed, altered, commissioned or dismantled on site 8. the lift requires travel with a suspended load, including pick-and-carry crane operations, unless the activity is a routine forklift or telehandler movement carried out on verified suitable ground, within rated capacity, with the load secured and kept low during travel 9. the approach route, travel path, lift path, slew path, landing area or removal route is obstructed, restricted, congested, sloped, uneven, poorly defined, or otherwise difficult to control 10. boom, jib, load, counterweight, outrigger, stabiliser, mast, attachment or plant clearance is restricted, including where clearance from a structure, obstruction, service or exclusion boundary is less than 1 metre 11. the lift is carried out over, adjacent to, or within an area where a dropped load, plant failure, instability or loss of control could affect live roads, pedestrians, cyclists, occupied buildings, public areas, operational University areas, rail corridors, water, excavations, trenches, voids, fragile surfaces or areas not controlled by the Contractor 12. the lifting activity may strike, overload, undermine, encroach on, damage or otherwise adversely interact with overhead services, underground services, structures, basements, suspended slabs, pits, culverts, retaining walls, tunnels, ground anchors or other University assets 13. outriggers, stabilisers, tracks, wheels, crane mats or other concentrated plant loads may impose loads on ground, pavements, suspended slabs, basements, underground services or structures that have not been verified as suitable for the proposed load 14. the lift involves tilt-up panels, precast elements, façade elements, structural steel, large mechanical plant, large pressure vessels, tanks, long structural members, modular units, prefabricated assemblies or other loads where failure could have a significant consequence 15. the lift has the potential to impact areas outside the construction site, work area, loading zone or established exclusion zone 16. environmental conditions, including wind, weather, visibility, lighting, ground conditions or surface conditions, may affect the stability	

or control of the lift 17. the lift, crane, boom, jib, load, lifting attachment or any part of the lifting plant may penetrate, approach or affect an aviation height control plane, protected airspace, crane approval envelope or other aviation-related restriction, including where it extends above the surrounding building fabric, roofline, structure or approved work envelope and requires approval from Sydney Airport, the relevant airport authority or another aviation authority 18. the lifting activity cannot be adequately controlled through a task-specific SWMS alone and requires a dedicated lift plan, lift study, engineered lifting methodology, temporary works design, geotechnical verification, structural verification or other specialist review 19. the lift is non-routine for the Contractor, the work crew, the plant being used, the location, the load type, or the surrounding operating environment 20. due to the nature, location, complexity or consequence of the activity - University determines that the activity requires a CSMS lifting permit	

A **CSMS Lifting Permit** is required for any lifting, crane or hoist activity classified as a **Complex Lift**.

The permit must be submitted and approved before the lift commences.

The permit submission must include, where applicable:

- type and details of the lifting equipment
- current inspection, maintenance, and test records for the lifting equipment
- competency and qualifications of workers involved, including relevant high-risk work licences where required for crane operators, doggers and riggers.
- approvals for cranes by Sydney Airport or the relevant airport authority, where applicable
- geotechnical or structural engineering reports confirming maximum soil or ground-bearing capacity.
- confirmation of any running rails, basements, embedded utilities, or assets that may be adversely affected by the crane operation.
- confirmation of overhead and underground services
- weather data and applicable wind limitations
- lift study or lift plan, including lift panels, steel erection or other relevant lift-specific documentation.
- task-specific SWMS, risk assessment and step-by-step lifting methodology
- exclusion zone, barricading and signage plan, including how the exclusion zone will be established, maintained and protected from access by persons not involved in the lift
- details of how the Contractor will manage the slew path.

- emergency and rescue arrangements.

All cranes must be registered with the relevant regulator where registration is required. Tower crane installation, commissioning, operation, inspection, maintenance, climbing, alteration and dismantling must comply with the **Tower Cranes Code of Practice 2025**, where applicable. Crane operations must comply with relevant SafeWork NSW guidance, manufacturer's instructions, applicable Australian Standards and inspection and maintenance requirements.

Contractors must follow manufacturer specifications for operation and use, including rated capacity, operational limits, inspection requirements and maintenance requirements. Lifting equipment, including chains, slings, hooks, shackles, lifting beams, spreader bars and other lifting components, must be inspected, tested where required, and verified as suitable before use.

4.21 Vaccinations

Vaccinations may be required for working in certain areas. For example, Q fever vaccination may be required as a control measure against Q fever infection, for certain workers on the University farms.

The Contractor may coordinate with the UI/COS Project/Contract Manager to determine whether vaccinations are required for the works to be undertaken, however the contractor is responsible for identifying any vaccinations that are required for their workers and ensuring they are properly vaccinated prior to commencement of works, or if not vaccinated, having appropriate and effective exposure controls in place.

4.22 Working Outdoors

Outdoor workers are exposed to many types of hazards that depend on their type of work, geographic region, season, and duration of time they are outside. Outdoor workers include farmers, foresters, landscapers, groundskeepers, gardeners, painters, roofers, pavers, construction workers, mechanics, and any other worker who spends time outside.

Contractors should train outdoor workers about their workplace hazards, including hazard identification and recommendations for preventing and controlling their exposures.

Outdoor hazards that should be considered as part of the works by Contractors are detailed below:

4.22.1 Working in extreme conditions (hot/cold)

Working in extreme conditions, both hot and cold, can expose workers to a range of risks that need to be identified and managed. Contractors need to consider such factors as air temperature, ground temperature, air movement, humidity, potential exposure periods and hot/cold locations and sources (e.g. wet/muddy ground, sun, hot plant or equipment) and the type of activity to be carried out.

Heat stress and cold stress harms range from UV exposure, dehydration, fainting, cramps, exhaustion, fatigue, hypothermia frostbite/trench foot, to having slower reaction times and poor judgment.

Contractors need to provide information and instruction for working in these conditions, along with training and supervision. Workers should be provided rest areas and breaks and encouraged to maintain appropriate hydration.

SafeWork NSW has many resources for working in hot and cold conditions and contractors are encouraged to utilise these resources in their planning and management of the work.

4.22.2 Snakes and other biological hazards

Outdoor workers without appropriate personal protective equipment (PPE) in snake-prone areas during summer can be at serious risk of being bitten by venomous snakes.

Although bite incidents are rare, gardeners and workers in agriculture and construction remain vulnerable to injury.

As with any other workplace hazard, it is essential Contractors take appropriate steps to protect workers from exposure to risks. Outdoors workers near creeks or rivers or open grassy areas need to be aware of potential danger and provided with PPE – ideally, puncture-proof gaiters, and thick gloves. First-aid trained staff and equipment, and an emergency plan are also crucial.

Workers should proceed with caution if near or picking up objects where snakes might be resting during daytime – things like large rocks, piles of timber and corrugated iron sheeting.

Before carrying out work in or around tall grass, piles of leaves or bushes, make some noise and use long-handled tools to disturb vegetation to move snakes on.

If encountering a snake, the best option is to freeze as the slightest movement can signal predator or prey reaction and trigger a strike.

In addition to puncture-proof gaiters, wear loose pants, thick socks and sturdy footwear and gloves to protect against bites. If bitten, don't panic and keep calm to help prevent venom spreading through the lymph gland system. Apply a firm bandage over the bitten limb area, immobilise it and call emergency services.

Never try to kill the snake or apply a tourniquet to the wound area or attempt to suck out venom or cut or wash the bite. Do not apply any chemicals or antiseptics to the wound or take medication or alcohol.

Ensure the bitten person stays as still as possible and does not try to dislodge the compression bandage, which must be removed by hospital or medical staff.

Always treat a snake bite, no matter how seemingly superficial, as a medical emergency.

In addition to snakes, workers should be wary of spider, bees and other biological hazards that may present a bite or sting risk for which medical assistance may be required. Any worker with allergies, such as to bees, must carry appropriate medical response equipment while working in these environments.

5 Environmental and Sustainability Requirements

5.1 Sustainability Commitments/Policy

The University's commitment to sustainability is set out in its Environmental Sustainability Policy.

5.1.1 Environmental Sustainability Policy

The Senate of the University of Sydney has communicated its environmental principles through the Environmental Sustainability Policy 2015. The Policy assigns responsibility to all occupants of University properties for:

(a) managing and reducing energy and water consumption demand in buildings and spaces they occupy.

(b) maintaining temperature ranges in buildings consistent with requirements to improve energy efficiency.

(c) avoiding use of non-renewable packaging and materials.

(d) maximising resource recovery and recycling.

(e) minimising waste disposal.

(f) managing their activities and products to safeguard the environment and prevent pollution.

(g) complying with relevant environmental legislation and regulations.

(h) complying with green lease clauses where applicable.

(i) promptly reporting incidents and impacts that may harm the environment, including near misses; and

(j) co-operating with environmental inspections, audits and investigations and supporting emergency response measures.

The full text of the Policy can be found on the University website here: http://sydney.edu.au/about-us/vision-and-values/sustainability.html

5.2 Environmental Management Requirements

The University has developed a range of strategies to improve the University's environmental footprint, including energy and water efficiency, waste management and resource recovery, sustainable procurement / supply chain and protecting ecological systems. The University is in the process of developing and implementing an Environmental Management System (EMS) to improve its environmental performance, control environmental risks and ensure compliance with its legal obligations. The EMS is based on AS/NZS ISO 14001, the Australian/New Zealand and international standard for EMS and its scope will cover all the operations managed by the University.

All consultants and contractors involved in projects and programs are required to follow the University Design Standards and Construction Guidelines which set minimum requirements for sustainability requirements.

Each individual has a duty of care to protect the environment and must exercise due diligence. Due diligence means that PCBUs and workers need to:

- Take all reasonable steps to prevent pollution and protect the environment
- Show that everything that could have been done to prevent a pollution incident, has been done
- Ensure that all necessary pollution control measures are in place and are regularly checked and maintained to minimise the risk of an environmental incident

- Turn off non-essential equipment that is not being used where possible

Individuals and corporations may be fined or imprisoned for seriously polluting the environment. Smaller incidents of environmental pollution can incur fines and/or penalties by littering or accidentally polluting the environment. In these instances, ignorance is not considered an excuse. Contractors working on University grounds must comply with all legislative environmental requirements.

5.2.1 Environmental Risk Assessment

A contractor must undertake and document an environmental risk assessment of their works to identify significant environmental aspects and impacts and measures and procedures to control them.

All Contractors must work through the hierarchy of control when managing environmental risk. In controlling risks, the priority is always to **eliminate** risks to the environment so far as is reasonably practicable.

Where environmental risks cannot be eliminated, they must be minimised by implementing, substitution, isolation and then engineering controls. If a residual risk remains, then it must be minimised by implementing documented operational (i.e. administrative) control procedures.

5.2.2 Environmental Management Plan

Where specifically required by contract or legislative requirement, contractors must develop a project-specific Environmental Management Plan (EMP), such as a construction environmental management plan (CEMP), a form of administrative control, based on the environmental aspects and impacts identified. The EMP should set objectives and targets to prevent or minimise and control the environmental impacts of the project.

5.2.3 Site Management

The Contractor must maintain a clean site throughout the contract period and ensure that the site is cleared of all rubbish, refuse and excess construction materials at the end of each day.

Progressively throughout the works and on completion of the contracted works, the Contractor is required to clean and clear away from the site all debris, rubbish, surplus building materials etc. to the satisfaction of the RUS and to leave the site in a condition that is safe for occupation. Should the University need to arrange additional cleaning to satisfy the requirements of the clause, the Contractor will be invoiced.

5.2.4 Stormwater Management and Soil Conservation

The release of contaminants or contaminated stormwater off site is considered a breach of the

Protection of the Environment Operations Act 1997 (POEO Act). Remember, 'The Drain is Just for Rain' and nothing else. Refer to the EPA Fact Sheet for more information – EPA 'The Drain is Just for Rain'.

Erosion and sediment controls must be installed for sediment runoff from disturbed areas to prevent the release of contaminated stormwater offsite or into stormwater drains or waterways. Erosion and sediment controls must be installed in accordance with the "Blue Book" – *Managing Urban Stormwater, Soils & Construction, Volume 1 Ed. 4 (Landcom 2004)*. Erosion and sediment controls need to be installed before commencing work and regularly checked and maintained to ensure they remain effective.

Where heavy rain is forecast, the Contractor must implement a wet weather procedure to prepare the site and reduce the risk of sediment runoff or contaminated stormwater leaving the site. This should include checking and securing erosion and sediment controls, protecting exposed or disturbed areas, managing stockpiles, clearing drains and flow paths, and confirming responsibilities for inspection and response before, during and after wet weather.

Roads, pathways and surrounding areas must be kept free of mud, sediment and debris.

5.2.5 Air Quality and Airborne Contaminants

Contractors must take all practicable precautions to minimise changes to the air quality of their work area and surrounding areas. Air quality can be affected by dust, odours, fires, hazardous chemicals, or exhaust fumes and work that may potentially produce these elements must be controlled or where applicable limited to after-hours operations with approval from the RUS.

Dust on and around a work site can cause health problems for workers and others on the campus as well as potentially impacting the surrounding community including nearby residents. Contractors must consider the generation of respirable crystalline silica and meet the requirements of the Code of Practice (refer Section 4.13). If a work site is generating dust, Contractors must ensure that:

- Materials and stockpiles that are generating dust are kept covered and wet down
- Sweepings are placed into bags or boxes and sealed before disposing of them into a skip to prevent dust from becoming airborne when the skip is emptied
- Appropriate personal protective equipment is worn by workers, such as face masks or respirators

The use of hazardous chemicals around the University can cause health problems for workers and others on campus. Potential activities include spray painting, powder coating, and abrasive blasting. If hazardous chemicals are being used, in addition to work procedures managing workers exposure to chemicals, Contractors must ensure that:

- Appropriate ventilation measures are in place
- Air quality monitoring including odour monitoring is conducted to manage odours and potential exposure levels for workers and the community
- Site protection measures including the erection of signs and physical barriers are in place to restrict access to others on campus

Exhaust fumes – if a vehicle or a piece of machinery emits visible exhaust fumes continuously for 10 seconds, the owner is liable to incur an infringement notice from the EPA. Vehicles and machinery should be regularly serviced so that air pollution emissions are kept to a minimum.

If a situation arises where work-related odours, dust and/or other emissions disturb normal activities, particularly if a complaint is made; this work must be stopped immediately and the RUS consulted at no cost to the University.

5.2.6 Hazardous Chemicals and Dangerous Goods

Contractors are responsible for:

- The safe keeping of all hazardous chemicals and materials used
- Correct storage when not in use in approved storage facilities (i.e. reliable, tightly sealed and labelled containers, indoors on an impervious floor with sufficient secondary containment / bunding to contain any spill, away from stormwater drains / waterways and appropriately ventilated)
- All hazardous chemicals/materials must be appropriately labelled and Safety Data Sheets (SDS's) held on site. Under no circumstance are any hazardous chemicals to be brought onto the site without an SDS.
- All hazardous chemicals must be handled safely and according to detailed instructions as outlined on the product labels at all times
- ensuring decanted hazardous chemicals are labelled within 24 hours
- A written risk assessment of the hazardous chemicals relating to its use
- Training details of those required to use the substance
- Spill containment must be provided for the chemicals being used on site.

To minimise risk, keep volume of dangerous goods held on site to a practical minimum. Clean-up materials must be provided in case of spillage. Liquid spills may be mopped up with rags, sawdust or commercially available absorbent products. Spill containment and clean-up material are to be disposed of appropriately as per Section 5.4. DO NOT wash chemicals or other hazardous substances down the drain or pour chemicals onto the ground.

The Contractor must ensure that the clean-up materials are appropriate for the chemicals used and that at least one person on the site at any time is trained to clean up a spill. This includes ensuring an adequate supply of clean-up materials is always available and easily accessible.

If a project requires the use of a portable tank for fuel or other hazardous chemical, the tank must be a self-bunded or double-skinned tank with a leak detection process. A procedure for dispensing from the tank is also required to prevent soil contamination during dispensing. The procedure is to be included in the EMP.

5.3 Energy and Resource Efficiency

The contractor should consider how their works can conserve and efficiently use energy, water and other natural resources, reduce climate change impacts and minimise waste. The hierarchy for considering efficient use of resources should follow these steps:

1. reducing or eliminating the resources consumed
2. internal reuse of resources
3. external reuse of resources
4. recycling, as described in Section 5.3
5. disposal, as described in Section 5.3

5.4 Waste Management

The University is committed to waste avoidance and has set a target to improve resource recovery to at least 60% with an aspirational target of 80% for all strip out, demolition and construction projects. Resource recovery is defined as any material that is diverted from landfill disposal and uses the Resource Recovery hierarchy as illustrated in the *UI/COS Resource Recovery & Waste Management Standard* (this standard is currently in draft format but available on request).

Contractors are to prepare a project-specific site Waste Management Plan (WMP) that is a sub-plan to the EMP. The WMP is required to document and demonstrate how strip out, demolition and construction waste will be diverted from landfill, recovered and reused, as applicable. The WMP must document:

- the waste streams and approximate weight or volumes anticipated to be generated for all stages of the project.
    - Note, containers and drums that are contaminated with residues of substances that are referred to in Part 1, Schedule 1 POEO Waste Regulation are trackable waste and must not be disposed of as General Solid Waste, unless the container has been triple rinsed, is clean of any residue and the label removed or otherwise defaced appropriately.
- how waste minimisation will be applied to the project including identify which waste stream(s) will be re-used, and/or recycled.
- how waste and recycling streams will be segregated and managed on site.
- for any equipment required to be disposed of, document:
    - the procedure to verify that it is not radiation apparatus or other specialised equipment subject to special disposal requirements. The RUS should consult the H&S Specialists team, as required.
    - the University requirements to complete asset disposal forms and update the UI/COS

plant and equipment asset register (to be coordinated with the University's FMS team and the RUS)

- if any of the waste streams identified are trackable under the Protection of the Environment Operations (Waste) Regulation 2014.
    - Waste streams (including liquid waste) containing substances listed in Schedule 1 of POEO Waste Regulations and trackable under Part 4 of the POEO Waste Regulation.
    - Waste tyres exceeding the thresholds and trackable under Part 6 of the POEO Waste Regulation.
    - Asbestos waste exceeding the thresholds and trackable under Part 7 of the POEO Waste.
- How trackable waste streams will be consigned in accordance with Part 4 of the POEO Waste Regulation, as applicable, in consultation with the University Project/Contract Manager.
- How asbestos waste will be managed and transported in accordance with Part 7 of the POEO Waste Regulation, as applicable, in consultation with the University Project/Contract Manager.
- How all waste streams will be classified in accordance with the Schedule 1, Part 3 of the POEO Act and the NSW EPA's Waste Classification Guidelines, Part 1: Classifying waste
- Record keeping requirements for all waste streams, including the use of the EPA's Integrated Waste Transport Solution (IWTS) for trackable waste and asbestos waste, as applicable. This includes obtaining and retaining records of Consignment Authorisation and Transport Certificates prior to the transportation of the waste from the site, as applicable.
- Any other legal waste management requirements for the project, such as Development Consent condition requirements
- Any other applicable requirements for the disposal or recycling of waste in accordance with the University's design standards and HSW – Hazardous Waste Disposal.
- The process/procedure to monitor and measure the types of waste materials generated and recycled during the project.
- The proforma waste register to be used during the project to record and manage information regarding the generation, handling transportation and disposal of waste materials.

The waste register must at a minimum include:

- The origin of the material
- The waste classification of the material in accordance with the NSW EPA's Waste Classification Guidelines, Part 1: Classifying waste (EPA, 2014)
- The estimated volume and/or weight of the material
- The waste transporter and in the case of trackable waste, their authorisation (i.e. Environment Protection Licence (EPL) Number) to transport the waste,
- The destination of the waste including the facility's authorisation (i.e. EPL Number) to receive that waste.

The disposal of waste on the University grounds is expressively forbidden. University rubbish bins must not be used for the disposal of construction and demolition waste.

The University has a strong commitment to environmental sustainability and encourages all Contractors and workers to identify waste minimisation options at the start of each job by:

- Working out costs and savings involved in minimising waste
- Avoiding over-ordering of materials
- Ensuring that Sub-contractors are aware of their responsibilities with regard to waste disposal
- Recycling materials where possible

- Purchasing materials with the minimum packaging, or ask suppliers to accept their packaging back
- Monitoring that waste is being managed in accordance with WMP.

There are many opportunities for waste reduction and Contractors should encourage their workers to adopt a team approach to this and to raise awareness as much as possible.

5.4.1 Bins and Skips

The type, quantity and location of waste bins/skips required for a project must be coordinated with the RUS at the relevant campus. Bins must not block any public ways or restrict traffic or access/egress to work areas and buildings. Project-related waste material must not be disposed of in University bins.

Debris and litter must not be stored within stairs, passageways or exits. All debris and litter must be removed from the site and placed in skips. The Contractor must ensure the site is kept clean and tidy, recyclables are separated from general or contaminated waste materials in dedicated bins/skips and bins/skips are not overfilled and are emptied on a regular basis.

An industrial rubbish skip is required on most work sites. Skips must have a lid in place when not being used, to prevent the rubbish from being blown away and to minimise any rainwater ingress.

Contractors must maintain an auditable log or Waste Tracking Register of the quantities of waste recycled and waste materials disposed of off-site.

5.4.2 Chemical Waste

Any chemical wastes must be stored in their original packaging (packaging must be maintained in good condition) and care must be taken to ensure that the containers are properly sealed. Chemical wastes must be classified in accordance to the NSW EPA Waste Classification Guidelines, disposed of to an appropriately licensed facility and tracked, as applicable.

It is expressively forbidden for chemical wastes to be tipped into sinks, onto the ground, or into sewers or stormwater drains e.g. paint, thinners, chemicals, solvents, detergents, oils etc.

Containers and drums that are contaminated with residues of substances that are referred to in Part 1, Schedule 1 POEO Waste Regulation are trackable waste and must not be disposed of as General Solid Waste, unless the container has been triple rinsed, is clean of any residue and the label removed or otherwise defaced appropriately.

5.4.3 Electrical Waste (E-Waste)

Electrical cables, fuses, devices such as switches and similar material, as well as all electrical equipment including computers and monitors, etc, must be disposed of as E-waste by a licensed Contractor. Contractors must report on the recycling and disposal of electrical waste.

5.4.4 Batteries

Batteries can be a fire hazard and contain hazardous chemicals. It is forbidden to dispose of batteries in General Solid Waste bins. Note that there are explicit legislative emergency planning provisions for the bulk storage of lithium ion/metal polymer batteries (more than 25,000kgs).

5.4.5 Building and Demolition Waste

Bricks, concrete, timber, plaster, glass, plastic and metal resulting from the demolition, refurbishment or construction works should be segregated when practical to allow for the reuse and/or recycling of materials.
When not practical, building and demolition must be disposed of at appropriately licensed facilities. Contractors must report on the recycling and disposal of building and demolition waste. Building and demolition waste must not contain soil, asbestos or other hazardous substances.

5.4.6 Asbestos Waste

Asbestos and asbestos-containing materials must be removed and disposed of by appropriately licensed asbestos Contractor and must be tracked, if applicable. Refer to Section 4.16 and the AMP.

5.4.7 Fluorescent Light Bulbs

Fluorescent light bulbs contain mercury and must not be disposed of as general waste. Transport and disposal must be undertaken by appropriately licensed contractors and requires tracking.

5.4.8 Contaminated Waste

Any pathological, biological and clinical wastes and sharps must be stored in purpose-built, specifically labelled, bright yellow contaminated waste bins. These bins must be serviced only by Contractors licensed to transport trackable waste and processed (for treatment, destruction or disposal) at appropriately licensed facilities. Clinical waste must be tracked.

Waste fuel, oils, lubricants or hazardous substance containers arising from construction/demolition activities must be stored in impervious bins/containers and stored in bunded areas and may require tracking.

The RUS or Protective Services should be contacted to assist with the most suitable location to place project-related contaminated waste bins.

5.4.9 Metals

Materials such as iron, steel, copper and lead must be disposed of only by suitable competent disposal Contractors. Advice should be sought from the Contractors with regard to correct labelling, packaging and storing of lead. Contractors need to report on the recycling and disposal of metal waste.

5.4.10 Electrical/Transformer Oils

These oils are trackable waste and must be stored in special containers provided by the licensed waste disposal companies. The containers must be collected only by such disposal companies. These containers must not be left on the University grounds by a contractor.

It is expressively forbidden to dispose of oils by pouring down sinks, onto the ground, or into stormwater drains.

Contractors must report on the recycling and disposal of liquid waste.

5.4.11 Recycling

The University requires recycling of appropriate materials, such as aluminium cans, glass and plastic, as well as paper and cardboard. The University also encourages recycling of other waste streams (e.g. demolition waste, metals, etc). Recyclable materials should be segregated where possible.

Contractors are to report on recycled waste materials.

5.5 Refrigerant Gases

Refrigerant gases can deplete the ozone layer and contribute to the greenhouse gas effect if allowed to escape. It is therefore the Contractor's responsibility to ensure that refrigerant gases are treated with appropriate caution to avoid contaminating the environment.

Refrigerant gases must not be released into the atmosphere; they should be collected in specially sealed cylinders by a licensed disposal operator. Contractors must report on the disposal of refrigerant gases.

Refer to the following Australian Standard and Code of Practice for further information:

- AS 4211.3 Gas recovery or combined recovery and recycling equipment - Fluorocarbon refrigerants from commercial/domestic refrigeration and air conditioning systems
- HB40.1 The Australian Refrigeration and Air-Conditioning Code of Good Practice – Reduction of emissions of fluorocarbon refrigerants in commercial and industrial refrigeration and air-conditioning applications

5.6 Vibration and Noise Management

The Contractor must liaise with building occupants in the vicinity and coordinate their activities to minimise disruption to normal operations of the building's occupants. If the work is outside, consider the potential impact on the surrounding community, whether it be other University occupants or the external community that may include local residents.

If a situation arises where work of a disruptive or noisy nature disturbs normal activities, particularly if a complaint is made, this work must be stopped immediately and the RUS consulted at no cost to the University. High noise level activities should be planned in advance as part of the risk assessment and planning process so that appropriate control measures can be identified and implemented, which may include notifying the community of the work. Compliance may result in (but not be restricted to) noisy or disruptive activities being postponed to a more suitable time and taking step to minimise the effects of future noisy and/or disruptive activities.

5.6.1 Vibration Management

Where Contractors are scheduled to carry out vibration activities, (for example piling, jackhammering) they must notify persons impacted by vibration in advance of the work commencing. High vibration and noise level activities should be planned in advance as part of the risk assessment and planning process, in consultation with the UI/COS Contract/Project Manager so that appropriate control measures can be identified and implemented, which may include notifying the community of the work.

5.6.2 Radios and Amplified Music

Contractors should be aware that as the Campus is an educational facility, noise must be kept to a minimum near buildings. Radios and other loud outdoor music are not permitted.

5.6.3 Noise Control

Contractors must take all practicable precautions to minimise noise. Any works (e.g. drilling) that will cause disruption to the University activities and guests must not commence without the prior permission of the RUS.

5.6.4 Noise Levels

Noise from equipment being used must not exceed prescribed levels for hearing conservation or recommended levels for areas of occupancy. Where high noise levels are expected to be produced by certain operations, consideration must be given to carrying out the process during a time outside of normal operating hours, although that may not be appropriate if the work is in close proximity to residences. Hearing protection should also be worn by Contractors working above the prescribed recommended noise level of 85 dB(A), as appropriate.

Safe Work Australia Code of Practice Managing Noise and Preventing Hearing Loss at Work advised the following common noise sources and their typical sounds levels.

Table 2 - Indicative dB Levels

Typical Sound level in dB	Sound Source
140	Jet engine at 30m
130	Rivet hammer (pain can be felt at this threshold)
120	Rock drill
110	Chain saw
100	Sheet-metal workshop
90	Lawn mower
85	Front-end loader
80	Kerbside heavy traffic, lathe
70	Loud conversation
60	Normal conversation
40	Quiet radio music
30	Whispering
0	Hearing threshold

5.7 Flora and Fauna

Native flora and fauna are protected in NSW under State legislation (Biodiversity Conservation Act 2016 and Local Land Services Act 2013) and in some instances Commonwealth legislation (Environment Protection and Biodiversity Conservation Act 1999). The Contractor must take appropriate actions to prevent the damage or destruction of native flora and fauna on University properties.

Specifically, Contractors must not:

- take, move, injure or kill a listed threatened species or community or a listed migratory species or listed marine species unless under a permit issued under the EPBC Act.
- damage areas of outstanding biodiversity value or habitat of threatened species or ecological communities unless under a Biodiversity Conservation licence.

Notify the RUS if any native fauna are encountered on the work site, particularly if, for example, a nest is encountered. Native fauna and their habitat (including nests, hollows, food sources) must not be harmed, damaged or disturbed.

For fauna that may be a hazard to workers in the area (e.g. snakes), they should be allowed to move along of their own accord or relocated by a professional holding the relevant biodiversity conservation licence. If injured, an appropriately licenced wildlife handler should be called.

Pets and other animals must not be brought onto campus, with the exception of animals for University farms with prior approval.

5.7.1 Tree Protection

The University has a Tree Management Plan, which provides strategic guidance for the protection and enhancement of trees on campus.

Tree Protection on construction and development sites is high priority. Australian Standard 4970 (Protection of trees on development sites 2009) sets out a framework for the assessment, integration

and management of trees within the development context.

Prior to any works within the Tree Protection Zone including the structural root system, the Contractor or Project Manager shall advise the Head of COS Open Spaces Manager or nominated representative to obtain instruction including the engagement of a consulting arborist.

Appendix 4 of the Tree Management Plan provides a checklist of the Protection procedures that must be adhered to.

Work sites must be established to avoid interaction with vegetation and potentially impacted vegetation should be protected with barricading. All trees in the vicinity of construction areas should be protected with fencing, ideally around the root zone and not just the trunk. Native vegetation clearance (cutting down, thinning, uprooting, killing or burning) must not be undertaken unless in accordance with the requirements of the Local Land Services Act and Land Management (Native Vegetation) Code 2018.

5.7.2 Pesticide Use

All contractors and staff must follow the University's Pesticide Use Notification Plan. Under the Pesticides Regulation 2017, the University must provide the public with notice of pesticide use in its public places such as gardens, ovals and walkways. The University's Pesticide Use Notification Plan explains the requirements for notifying the public, which may be as simple as displaying a mobile sign as pesticides are applied. There are extra requirements for pesticide use close to sensitive places such as schools, childcares and hospitals in the University's neighbourhood.

The Pesticide Use Notification Plan is available from the University website under the sustainability page.

Depending on the work activity, a licence may be required (e.g. Ground Applicator Licence to provide services that use pesticides (other than fumigants) to control weeds or pests affecting plants or soil). All contractors applying pesticides or preparing a Pesticide Use Notice must have at least an AQF3 Chemical Accreditation training and a ChemCert Card Urban Pesticide Safety certificate.

5.8 Heritage and Cultural Areas

The Contractor must take appropriate actions to prevent the damage or destruction of heritage items and structures. Heritage items and places are protected in NSW under State legislation (*Heritage Act 1977, National Parks and Wildlife Act 1974*) and Commonwealth legislation (*Environment Protection and Biodiversity Conservation Act 1999, Native Title Act 1993, Aboriginal and Torres Strait Islander Heritage Protection Act 1981*).

There are a number of registered heritage structures and items on the University campuses which require specific protection and management measures. Contractors working in and around heritage structures must adhere to any site-specific heritage protection measures.

Aboriginal heritage items and places identified must not be disturbed, damaged or removed. Where an Aboriginal heritage item is disturbed, or an Aboriginal heritage item is discovered during construction works, all works in the area must immediately cease and the RUS must be contacted, to notify the authorities, as may be appropriate.

5.8.1 Managing unexpected heritage finds

While many heritage items are known and registered within the University campuses, contractors must anticipate and be prepared to respond to unexpected heritage finds. Finds are typically categorised as either:

- Aboriginal objects
- Historic (non-Aboriginal) heritage items, and
- Human skeletal remains.

If a potential heritage artefact/item/object/site is encountered during construction the following steps

shall be taken.

- STOP ALL WORK in the vicinity of the find and immediately notify the relevant Site Supervisor. The Supervisor will then notify the Environment Manager and/or the Project Manager and demark the area to protect the artefact/item/object/site.
- The Environment Manager is to record the details, take photos of the find and ensure that the area is adequately protected from additional disturbance.
- The Environment Manager is to contact the University of Sydney and (if engaged) the Heritage consultant that approved the Permit to Dig, to notify them of the location of the find.
- If the University of Sydney or Heritage consultant advises that the find is not a potential Aboriginal object or significant historical relic, work will recommence in consultation with the Project Manager and/or Environmental Manager.

If the University of Sydney advises that the find is a potential Aboriginal object or significant historical relic, the Project Manager and Environmental Manager will then follow the notification requirements as regulated by the Heritage Act 1977 as follows:

- Under Section 146 of the Heritage Act 1977 the University must notify Heritage NSW if the University uncovers a "relic":
    - that was not identified or considered in the supporting documents for a section 140 or section 60 approval
    - that is unexpectedly uncovered when there is no section 140 excavation permit or section 60 approval in place
    - when a section 139(4) exception is being used.

Contractors may need to do additional assessment and be granted approval before the work or activity can continue in the affected area, depending on the nature of the discovery.

Contractors may also need to allow time to:

- liaise with the Permit approver to determine the significance of the potential Aboriginal object or significant historical relic. Note this may require liaison with Relevant Aboriginal Parties; and
- Implement the appropriate heritage mitigations dependent on the significance of the site as outline in the relevant Aboriginal and Cultural Heritage Management Plan (ACHMP).

All bones must be treated as potential human skeletal remains and work around them must stop so they can be protected and investigated. Investigation must identify them as either human or non-human and should be done by a qualified forensic or physical anthropologist. The RUS and University Environmental Manager must be notified immediately.

All human skeletal remains are subject to statutory controls and protections. All human skeletal remains will require notification to police and police may wish to take control of the site. Where the bones are identified as human a specialist must determine the likely ancestry and burial context to determine whether the find is archaeological or forensic.

This assessment is necessary to ensure the appropriate regulator is identified and urgent notification may take place, that is:

- Human bones less than 100 years old are notifiable under Coroners Act 2009 (NSW).
- Human bones more than 100 years old and likely to Aboriginal in nature are notifiable under the OEH (Planning and Aboriginal Heritage Section)
- Human bones more than 100 years old and unlikely to be Aboriginal must be notified through the OEH (Heritage Division)

5.9 Water Quality

It is against the law to place any material (other than rainwater) in a position where it is likely to leak, fall or be blown into any drain or gutter that is used to collect rainwater. Water pollution is an offence under the POEO Act.

Allowing this to occur may result in fines or legal proceedings against businesses or individuals, by the whether the pollution was accidental or not.

To prevent this from happening, the footpath and gutter around the work site should be kept free of litter, soil and sand, particularly at the close of each working day. Litter, leaves, or other debris must never be swept into drains or gutters and rubbish bins must be covered. No chemicals or wash water should be stored near drains, gutters or waterways. Control measures should be in place and regularly checked and maintained to contain any spills or wash water and prevent any material, whether solid or liquid, from entering a stormwater drain or waterway.

Notify the RUS if any substance enters stormwater, the sewer or surface water so that authorities can be contacted, as appropriate.

5.10 Contaminated Land

Soil, surface water and/or groundwater may become contaminated with oils, fuel, asbestos, cyanide, heavy metals or other hazardous chemicals. In the event of such contamination occurring or being discovered, the Contractor must inform the RUS, so that the contamination may be assessed by an environmental practitioner to determine how the contamination will be cleaned up, managed or remediated. Contamination unexpected finds are to be managed as other hazardous unexpected finds as per Section 4.16.1.

Contaminated soil must be classified in accordance with Section 5.3 Waste Management requirements including waste classification. Contaminated soil must not be removed from University grounds without the prior approval of the RUS.

Prior to intrusive works, the Contractor must check the applicable Hazardous Infrastructure Materials Registers and contaminated land environmental management plan (EMP) for the building and the University's AMP and HIMMP and determine whether works will disturb hazardous materials and/or contamination requiring specific management.

These Site Registers and associated reports/documentation are available on the Alpha Tracker website which can be accessed through CSMS.

Contamination management requirements specified in the EMP for the works area must be implemented and may include but are not limited to:

- Development of task-specific unexpected finds protocol
- Supervision of works by an appropriately qualified environmental consultant.
- Implementation of an air monitoring program for the duration of the works;
- Sampling and analysis of soil, water and/or vapour.

5.11 University Farms

Prior to commencing work on farms, contractors must meet with the designated site contact to cover any induction or relevant safety and environmental information and protocols relevant to the farm, such as for example, biosecurity or quarantine hazards. For works including pesticide use, refer to Section 5.7.2.

Contractors working on university farms must avoid interaction with stock/animals. This includes not feeding, patting or scaring animals and maintaining site fencing arrangements (keeping gates as originally found).

Contractors must be aware of the location of electric fences and take appropriate precautions when

working around electric fences.

Vehicles, plant and equipment must meet the farm biosecurity requirements before being introduced to or removed from site. This may include the wash-down of wheels / tracks / dirty equipment to remove all dirt and vegetative material. The biosecurity requirements will be provided by the designated site contact.

In the broader context of working on farms it is important to remind all staff and contractors about managing any risks to keep safe. Common hazards on farms to be aware of include:

- biosecurity hazards
- zoonosis (animal diseases that are transmissible to humans)
- hazardous chemicals including pesticides, herbicides and fuels, animals and insects, both herd and wild animals (e.g. snakes, spiders, bees)
- vehicles and road hazards (4WD, unsealed roads, kangaroos, wombats and deer)
- farming equipment (tractors and machinery)
- wet/dry wells
- unseen holes in the ground and uneven surfaces

Depending on the scope and location of work contractors may require inoculations as precaution against zoonotic diseases.

6 Emergency Preparedness and Response

6.1 University Emergency Procedures

The University emergency procedures are available on this page: Emergencies and Personal Safety.

University emergency procedures are displayed in all buildings describing the alarms, emergency exits, firefighting equipment, assembly areas and so on. Contractors must make themselves familiar with the local emergency procedures before starting works.

The University is a high-profile site which often accommodates large crowds. Contractors should remain alert to all security issues on the campus (including protests and armed or terrorist attacks) and contact Protective Services if they notice anything suspicious. Protective Services can be contacted in emergency situations when urgent support is required in managing pedestrian or vehicular traffic.

6.1.1 Emergency Evacuation

In some situations, contractors may be required to evacuate. All University staff, students, visitors and contractors are required to respond to emergency alarms and follow instructions.

1. Check for any sign of immediate danger
2. Shut down equipment/processes that cannot be left unattended
3. Locate your closest exit
4. Follow exit signs to find your way out of the building (do not use lifts)
5. Go to the assembly area

6.1.2 Medical Emergency

If a person is seriously ill or injured don't hesitate to call triple zero (000) and ask for an ambulance.

1. Call triple zero (000) and ask for an ambulance
2. Contact the closest first aider
3. If the person is unconscious, send for the closest Automatic External Defibrillator (AED)
4. Call Protective Services and Emergency Management (9351-3333)
5. Send people to flag and direct the ambulance on arrival

6.1.3 Sydney Uni App

UI/COS encourage all contractor workers to download on their mobile device the University of Sydney Mobile Application for emergency contact details and for access to maps, locations and amenities.

You can download the app now on Android or IOS.

6.2 First Aid

Contractors are responsible for providing first aid equipment and access to first aid facilities for their workers. They must also provide access to trained personnel to administer first aid.

First aid kits and access information may be kept in Contractor's or worker's vehicles. However, the Contractor must assess the storage location with consideration to the actual work location and/or distance of the vehicle.

6.3 Contractor Emergency Procedures

Contractors are required to prepare maintain and implement emergency procedures and plans for each of their various workplaces. Contractor emergency plans must provide the following:

- emergency procedures, including:
    - an effective response to an emergency, including lithium-ion battery fires
    - evacuation procedures
    - notifying emergency service organisations at the earliest opportunity
    - medical treatment and assistance
    - spills management where fuel or hazardous chemicals are stored on university grounds.
    - effective communication between the Contractor and the University to coordinate the emergency response and all persons at the workplace, including consultation with relevant building wardens
- testing of the emergency procedures, including the frequency of testing
- information, training and instruction to relevant workers in relation to implementing the emergency procedures

The Contractor emergency plans and procedures must consider all relevant matters, including the following:

- the nature of the work being carried out at the workplace
- the nature of the hazards at the workplace
- construction changes that may result in changes to emergency processes, including paths of travel, being reviewed and updated
- the size and location of the workplace
- the number and composition of the workers and other persons at the workplace
- the impact of the work area and emergency procedures on adjacent buildings and work areas (contractors are expected to liaise with wardens from adjacent work areas when there is a potential to impact emergency procedures of that work area)

When setting up workplaces Contractors are to ensure the following:

- the layout of the workplace allows, and the workplace is maintained to allow, for persons to enter and exit and to move about without risk to health and safety, both under normal working conditions and in an emergency
- lighting levels are maintained in a manner which enables safe evacuation in an emergency

For longer running projects, contractors are expected to periodically test their emergency procedures to ensure they remain effective. A schedule of dates and drill scenarios must be included in the emergency response plan.

6.4 Building Specific Evacuation Plans

Contractors must obtain building specific evacuation plans from their RUS.

6.5 Emergency Contact List

The emergency contact details in the table below must be included in all contractor emergency plans.

Table 3 - Emergency Contact List

Contact	Contact Number
Protective Services and Emergency Management (24 hours)	02 9351 3333 (from University landline 13333)
Protective Services and Emergency Management (general enquiries)	02 9351 3487
Emergency Services Ambulance / Fire / Police	000
Crime Stoppers (24 hours)	1800 333 000
Campus Assist	1300 226 787

6.6 Work on Isolated or Remote Locations

There will be times when a Contractor may be required to perform works in a remote or isolated situation (working alone on a University campus). The definition of remote/isolated work according to the WHS Regulation 2025 is 'work that is isolated from the assistance of other persons because of location, time or the nature of the work'.

Contractors are required to consult, co-ordinate and communicate with the workers and RUS when it is anticipated that remote and/or isolated works are required to be performed by the Contractor. The RUS will consult with the contracting company to ensure that a suitable risk management framework has been established to mitigate significant health and safety risks associated with the isolated and remote work.

The Contractor in consultation with the worker and RUS must establish an effective communication plan to ensure that communication lines between the contracting company, RUS and the Contractor performing the work are readily available to verify the Contractor has not sustained any injury during their works.

The communication plan, at minimum, must include a process to notify the RUS when works has commenced, and work has been completed. Depending on the scope of works, regular phone calls to an agreed stakeholder may be required to verify the worker has not sustained harm.

When a Contractor has not communicated to the RUS their whereabouts while working, The RUS is to contact security who can undertake a search for the Contractor.

Security will facilitate any first aid and/or medical requirements and inform the RUS and any other relevant stakeholders.

Where reasonably practicable, UI/COS will engage local project managers with experience of the area to assist implementing and verifying safe systems of work are established to minimise health and safety risks for workers.

7 Hazard and Incident Reporting

7.1 Hazard and Incident Reporting

The reporting of incidents and near misses and the identification of hazards is critical in achieving a safe workplace and protecting the environment, as it prompts action to prevent future incidents.

All incidents and/or near misses arising from the activities undertaken by Contractors must be reported to the responsible RUS in writing within 24 hours. Verbally communication of the incident is expected as soon as possible.

- **All contractor notifiable incidents are to be recorded in RiskWare,** the University incident and hazard reporting system, by the RUS, within 24 hours of occurrence.
- All contractor notifiable incidents must also be notified to the Regulator (i.e. SafeWork NSW or other relevant authorities in the case of a 'pollution incident'). Refer to section "Notifiable Incident" for more details on notification requirements.

Separate to notifiable incidents, all incidents, near misses and hazards that **affect the university community** are required to be entered in RiskWare, this means:

- Where a contractor has management and control of a workplace and events occur within the perimeter of the workplace, it is only required to be entered into RiskWare where it has a potential to affect the university community, i.e. infrastructure/essential services related, fire, event causing evacuation etc.
- Where a hazard or incident occurs (1) outside a designated contractor work perimeter, and (2) within the campus, and (3) has the potential to impact the university community, it must be entered into RiskWare, e.g. equipment and materials falling outside of the project site; lost load from a contractor vehicle potentially striking staff/students/visitor etc.

All hazards that do not satisfy one of these conditions should be reported and managed using the Contractor own hazard reporting system.

If in doubt about whether an identified hazard requires reporting:

- RUS or UI Health & Safety Partner or nominated representative will provide direction for UI Contractors.
- RUS or COS Health & Safety Partner or nominated representative will provide direction for COS Contractors.

7.2 Access to RiskWare

Only University employees can access RiskWare. All others, including external project managers, contractors and other affiliates don't have access to RiskWare.

Therefore, it is the responsibility of the relevant RUS to arrange for reporting of hazards and incidents into RiskWare on the Contractor behalf, after being informed on the hazard/incident.

7.3 Notifiable Incidents

Any notifiable incident (fatality, serious injury/illness and dangerous incident – potentially resulting in injury, or a pollution incident with potential to materially harm the environment) is to be reported immediately:

- To the Emergency Services on 000 and then to Protective Services and Emergency Management on 02 9351 3333 for incident response, first aid and preservation of the scene if required.
- In the instance of a notifiable incident as described below, SafeWork NSW must be contacted immediately on 13 10 50 as an urgent investigation may be needed. Where there are multiple duty holders involved, they should consult and coordinate to nominate the duty holder responsible

for notification. However, all duty holders are responsible for ensuring a notification is made to SafeWork NSW.

- UI Contractors must contact the RUS and UI Health & Safety Partner or nominated representative to advise the notifiable incident.
- COS Contractors must contact the RUS and COS Health & Safety Partner or nominated representative to advise the notifiable incident.

A notifiable incident includes the following in relation to a place of work:

a) Fatality.

b) immediate treatment as an in-patient in a hospital, or

c) immediate treatment for:

  - the amputation of any part of his or her body, or
  - a serious head injury, or
  - a serious eye injury, or
  - a serious burn, or
  - the separation of his or her skin from an underlying tissue (such as delving or scalping), or
  - a spinal injury, or
  - the loss of a bodily function, or
  - serious lacerations, or

d) medical treatment within 48 hours of exposure to a substance, or

e) an uncontrolled escape, spillage or leakage of a substance, or

f) an uncontrolled implosion, explosion or fire, or

g) an uncontrolled escape of gas or steam, or

h) an uncontrolled escape of a pressurised substance, or

i) electric shock, or

j) the fall or release from a height of any plant, substance or thing, or

k) the collapse, overturning, failure or malfunction of, or damage to, any plant that is required to be authorised for use in accordance with the regulations, or

l) the collapse or partial collapse of a structure, or

m) the collapse or failure of an excavation or of any shoring supporting an excavation, or

n) the inrush of water, mud or gags in workings, in an underground excavation or tunnel, or

o) the interruption of the main system of ventilation in an underground excavation or tunnel.

Any of the above incidents must be followed up with a full written report by the contractor detailing the incident, actions taken and recommendation to avoid a re-occurrence.

Non-disturbance provisions apply to the scene of a serious incident.

Where a notifiable incident has occurred on site, the Contractor must take measures to ensure, so far as is reasonably practicable, that the site where the incident occurred is not disturbed until an inspector arrives at the site or any earlier time that an inspector directs. This does not apply where interference is necessary to aid or revive any person involved in an accident or to prevent further injury to persons or property.

In the instance of a notifiable environmental *pollution incident*, University Security must be contacted to ensure compliance with the notification requirements of the POEO Act. A pollution incident includes a leak, spill or other escape of a substance, where pollution has occurred or is likely to occur. Pollution incidents do not include noise.

A pollution incident becomes notifiable when material harm to the environment is caused or threatened. *Harm* to the environment is *material* if it involves actual or potential harm to people or to ecosystems that is not trivial, or it results in actual or potential loss (includes clean up costs) or property damage exceeding $10,000 (in aggregate). A spill does not need to leave University premises to cause material harm to the environment.

A notifiable pollution incident is required to be notified to the relevant authorities ***immediately*** after becoming aware of the incident. There are significant penalties under the POEO Act ($4M for a corporation, $1M for an individual) if a pollution incident is not notified. Therefore, it is very important to ensure that the University notifies potential pollution incidents.

8 Definitions

Term	Definition
Contractor	A person, organisation or entity engaged to carry out work or provide services for the University under a contract for services arrangement. This includes the contractor's workers, subcontractors, consultants, suppliers and any nominated representative engaged or directed by the contractor to perform work on University land, buildings, infrastructure or other University-controlled work areas.
Construction Work	Any work carried out in connection with the construction, alteration, conversion, fitting-out, commissioning, renovation, repair, maintenance, refurbishment, demolition, decommissioning or dismantling of a structure and may include: a) any installation or testing carried out in connection with an activity referred to in the above paragraph. b) the removal from the workplace of any product or waste resulting from demolition. c) the prefabrication or testing of elements, at a place specifically established for the construction work, for use in construction work. d) the assembly of prefabricated elements to form a structure, or the disassembly of prefabricated elements forming part of a structure. e) the installation, testing or maintenance of an essential service in relation to a structure. f) any work connected with an excavation. g) any work connected with any preparatory work or site preparation (including landscaping as part of site preparation) carried out in connection with an activity referred to the first paragraph; and h) any of the aforementioned activities that are carried out on, under or near water, including work on buoys and obstructions to navigation.
Hazard	A source of potential harm, or a situation with potential for harm, to human health or wellbeing or damage to property or the environment.
High Risk Construction Work	High risk construction work includes: a) involves a risk of a person falling more than 2 metres, or b) is carried out on a telecommunication tower, or c) involves demolition of an element of a structure that is load-bearing or otherwise related to the physical integrity of the structure, or d) involves, or is likely to involve, the disturbance of asbestos, or e) involves structural alterations or repairs that require temporary support to prevent collapse, or f) is carried out in or near a confined space, or g) is carried out in or near a shaft or trench with an excavated depth greater than 1.5 metres, or a tunnel, or h) involves the use of explosives, or i) is carried out on or near pressurised gas distribution mains or piping, or j) is carried out on or near chemical, fuel or refrigerant lines, or k) is carried out on or near energised electrical installations or services, or l) is carried out in an area that may have a contaminated or flammable atmosphere, or m) involves tilt-up or precast concrete, or n) is carried out on, in or adjacent to a road, railway, shipping lane or other

Term	Definition
	traffic corridor that is in use by traffic other than pedestrians, or o) is carried out in an area at a workplace in which there is any movement of powered mobile plant, or p) is carried out in an area in which there are artificial extremes of temperature, or q) is carried out in or near water or other liquid that involves a risk of drowning, or involves diving work.
Principal Contractor	A Person Conducting a Business or Undertaking (PCBU) which has taken control and management of a construction site from the PCBU which commissioned the construction project. The construction project must be greater than $250,000 in value before a PCBU who commissioned the construction project can relinquish management and control of the project to another PCBU.
Responsible University Supervisor (RUS)	Where 'Responsible University Supervisor' is stated, it refers to 'University Facilities/Project Manager and includes Contract Managers, Supervisors, ICT Project Managers/contacts and anyone at the university managing contractors.
Structure	Structure means anything that is constructed, whether fixed or moveable, temporary or permanent, and includes: a) buildings, masts, towers, framework, pipelines, transport infrastructure and underground works (shafts or tunnels), and b) any component of a structure, and c) part of a structure Examples: a roadway or pathway; a ship or submarine; foundations, earth retention works and other earthworks, including river works and sea defence works; formwork, falsework or any other structure designed or used to provide support, access or containment during construction work; an airfield; a dock, harbour, channel, bridge viaduct, lagoon or dam; a sewer or sewerage or drainage works.
'must'	Any sentence within the Handbook containing 'must' is to be considered a mandatory requirement.

ENVIRONMENTAL POLICY

The environmental elements within FDC's integrated management system manage the provision of project and construction management for residential, industrial and commercial building, including ground up construction refurbishment or additions and interior fitout to existing builders.

FDC shall:

- "Reduce, re-use and recycle" wherever possible, be it on site or within the office environment;
- Promote environmentally friendly solutions;
- Ensure that environmental considerations form part of our business planning and decision-making processes;
- Promote a culture of responsible environmental management;
- Protect the natural environment and social surroundings, preserve biodiversity, prevent pollution and minimize waste;
- Comply with applicable environmental laws;
- Continually improve our environmental performance;
- Establish measurable objectives and targets; and
- Communicate with stakeholders on environmental matters.

FDC encourage, on a personal and corporate basis, sound environmental considerations for protection of our natural resources.

We discourage any practice or product selection that is knowingly detrimental to environmental protection. FDC Management and staff are committed to the implementation and maintenance of an environmental management system based on ISO14001.



Bentley Cottle
Managing Director

INCIDENT REPORT

This form is to be completed by the Project Manager or Site Manager and distributed to the HSEQ Manager and National HSEQ Systems Manager as soon as all factual evidence has been received and recorded within 24 hours. Upon successful closure of the investigation, the report must then be distributed to the Divisional General Manager and to Site for filing.

Note: Complete form in block capital letters and in ink.
Where there are multiple sick/injured persons, use one form for each person.

Incident Type			
Person(s) injured	☐	**Near miss, dangerous occurrence**	☐

Project: _____

Site Address: _____

Date of Incident: _____

Name of Person Completing this Form: _____

Incident Details					
Details of person involved in incident	**Surname:**				
	Given Names:				
	Home Address:				
	Contact numbers:	**Home:**		**Mobile:**	
	Date of Birth:			**Gender:**	
Employer Company Details	**Employer:**				
	Address:				
	Contact Name:			**Contact No:**	
Injury / Illness / Incident Details	**Did an Injury occur as a result of the Incident?**	Yes ☐		No ☐	
	Injury/Illness/Incident occurred	**Date:**		**Time:**	**am/pm**
	Injury/Illness/Incident reported to FDC site.	**Date:**		**Time:**	**am/pm**

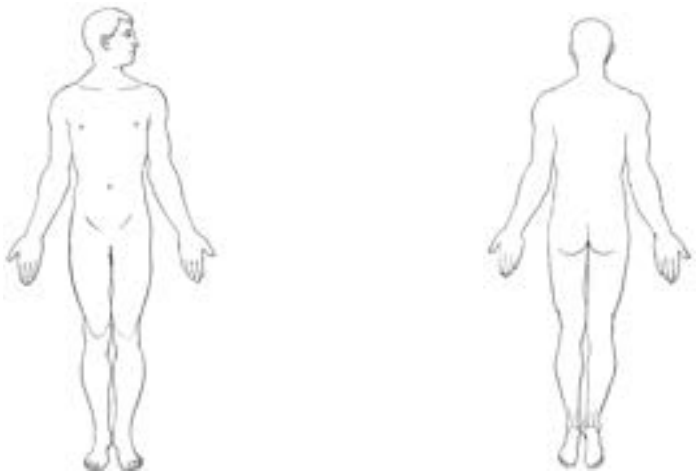
Portion of shift worked						
	25% of less		51% to 75%		Overtime	
	26% to 50%		76% to 100%			

Injury / Incident Details								
Where an injury has occurred, what is the nature of the Injury?		Fracture		Concussion		Contusion		Foreign body
		Dislocation		Laceration		Burn		Amputation
		Sprain		Abrasion		Strain		Multiple

Treatment Administered	**Initial Treatment**		**Initial Prognosis (see definition pg. 6)**		**Work consequences - immediate**		**Work consequences – after 24hrs**	
		Hospital		Class 1		Return to pre injury duties		Return to pre injury duties
		Medical care or doctor		Class 2		Alternative work		Alternative work
		First Aid		Class 3		Off work		Off work
		None						
	First Aid administered by:							

Body Location	**Head**		**Trunk**		**Arm**		**Leg**	
		Cranium		Chest		Shoulder		Hip
		Eye		Back		Upper arm		Thigh
		Ear		Abdomen		Elbow		Knee
		Mouth		Pelvis		Forearm		Shin
		Nose		Multiple		Wrist		Ankle
		Face				Hand		Leg
		Neck				Fingers		Foot
								Toes

Indicate Body Parts



Type of Incident								
		Handling object		Equipment		Stepping on etc.		Hazardous substance
		Striking against		Hand/power tools		Caught in etc.		Fall
		Struck by		Manual handling		Electricity		Other
		Slip/trip		Falling object		Structural failure		
		Contact with any services either: in ground, above ground or in a building						

Injury / Incident Details	
Details of incident	
What was the person doing at time of incident?	
Detail of damage to property equipment or plant?	
How did the incident occur?	
Please list the factors contributing to the incident (e.g. rain, wet or oily paths, faulty equipment, procedural failure).	

Influencing factors		Equipment failure		Sudden uncontrolled release of pressure		Contusion
		Plant failure		Mechanical failure		Burn
		Vehicle accident		Electrical fault		Strain
		Hazardous substance		Breakdown in safe work procedure		Other

Injury / Incident Details					
Environmental factors	Lighting		Good		Poor
	Ground conditions		Good		Poor
	Slippery conditions		Yes		No
	Wind conditions		Good		Poor
	Working at height		Yes		No
	Ground level		Yes		No
	Working below ground		Yes		No
	Other – provide brief description				

Diagram Provide a diagram of the incident. Where possible, also include photos of the incident scene.	
Witness(es) to incident Provide details of any witness(s) to the incident – names, address, employer and contact number. *Note: Where possible statements should be taken and attached to the report.*	

Incident Response	Details	Person/s Involved
Please ***describe*** the immediate response to the incident (e.g. Were emergency procedures activated, who was called, was the area evacuated, was plant locked out?).		

Prevention	Details	Person responsible	Target date	Completed / sign off
What action (immediate/within 48 hours) has been taken to prevent a reoccurrence of the incident (e.g. re-induction, rewrite SWMS, removal of persons from site)?				

Debriefing	Details	Person responsible:
Use a toolbox talk to follow up as soon as practicable informing the site of the incident and the outcome relaying important information on what steps have been taken to prevent a re occurrence. Where counselling is required, the National HSEQ Systems Manager shall facilitate counselling services through the FDC Employee Assistance Programme.		**Completed / sign off:**
		Date:

Other Information	Provide the following information with the incident report, as is relevant:	
		Copy of safe work method statement covering activity(ies) being carried out at the time of the incident
		Copy of injured/sick persons site induction form
		Copy of FDC register of injury entry
		Copy of any applicable certificates of competency, training records or experience references
		Copy of any applicable plant register, inspection and maintenance records
		Copy of witness statements
		Provide copy of any photographs or provide a diagram (as a minimum)
		Copy of any notices issued by a Statutory Authority, Council, etc.
		Relevant tool box records

Changes required to:					
Project Management Plan	☐	Inspections	☐	Communications	☐
SWMS	☐	Site Rules	☐	Permits	☐
Emergency Preparedness	☐	Management / Supervision	☐	Health Surveillance	☐
Engineering Controls	☐	Personal Protective Equipment	☐	Training	☐
Risk Assessment	☐	Consultation	☐		☐

Workers Compensation	If injury/illness to FDC employee, have workers compensation forms been completed and forwarded to the National HSEQ Systems Manager.	Yes ☐	No ☐

HSEQ Manager Comments	

Investigation successfully investigated, control measures in place preventing a reoccurrence have been reviewed and are effective and closed out by HSEQ Manager:		
Name (Please Print)	Signature	Date

Definition for Injury Prognosis:

Class 1 Safety Related Incident, Personal Damage (Injury):
Permanently alters the future of the individual (fatality, quadriplegia, amputation, impaired back, disfigurement, psychological disturbances).
Examples: amputation, loss or partial loss of sight, loss or partial loss of hearing, permanent injury to the brain, permanent damage to a nerve, muscle or tendon.

Class 2 Safety Related Incident, Personal Damage (A lost time or off site medical treated injury)
Temporarily alters the future of the individual *(normally personal damage from which the individual fully recovers.* This classification includes personal damage where the injured person returns to work on alternate duties in accordance with a 'return to work' plan **whether or not** there was any time lost.
Examples: broken bone that heals properly, sprained ankle that heals properly, concussion, sciatica arising from specific incident, back pain lasting more than one day and arising from a specific incident, deep laceration involving nerve, muscle or tendon this able to be repaired, major burn (bigger than a 20 cent piece) or an injury requiring off site medical treatment.

Class 3 Safety Related Incident, Personal Damage (a first aid injury)
An injury which temporarily inconveniences the individual and which may be painful and cause discomfort to the injured person, *but does not prevent person from carrying out their normal activities*.
Examples: minor laceration (does not require stiches), minor muscular strain, bruising, back pain lasting no more than one day and arising from a specific incident, minor burn (smaller than a 20 cent piece).

CONSTRUCTION (NSW)

250215 - A01 Ross Street (USYD)

Complaints Register **Date:** 09/09/2026

Item #	Date	Correspondence Type	From	To	Issue Raised	Action Required	Closed Date	Comments

ENVIRONMENTAL RISK ASSESSMENT

Date:	05/08/26		
Project:	USYD A01 – Ross Street Teaching & Learning Hub	**Project No.**	250215
Address:	Cnr Western Ave & Science Rd, Camperdown NSW 2050		

Environmental Aspect/Impact	Legal Requirements	Environmental Actions, Controls and Criteria	Operational Controls			Monitoring			Checking, Corrective & Preventative Action
			Induction and/or toolbox	FDC	Subcont. SWMS & contracts	Type	Frequency	Responsibility	NCR/ Refer PMP
Dust Generation Particulate Emissions (General)	NSW - POEO Act (Sections 124-126)	• Install shade cloth on perimeter fencing. • Vehicle corridors will be clearly identified and restricted to control vehicle access onsite. • Limit vehicle speed onsite to 10km/hr. • Fixed and mobile (water tanker) water sprays. • Reduce work activities /stop work during moderate to high wind velocity periods. • Maintain equipment. Smokey plant to be stopped until repair works completed. • Turn off vehicle engines whilst not in use (no long periods of idling).	Y	Y	Y	Visual Inspection	Daily Weekly	Diary Site Inspection Checklist	As required
Dust Generation (Demolition)	*NSW - POEO Act* (Sections 124-126)	• Breakers and crushing equipment to be fitted with dust filtration equipment or water sprays to control dust emissions.	Y	Plant/ Machinery Register	Y	Visual Inspection	Daily Weekly	Diary Site Inspection Checklist	As required
Dust Generation (Construction)	*NSW - POEO Act 1997* (s 124-126)	• Minimise areas of site disturbed and stage works where possible. • Dust suppression strategies to be used, i.e. water sprays, soil binders, hydro mulching, controlled speed onsite, road base + shaker grids. • Stockpiled topsoils and rubble will be restricted to 4m high. Stabilise if insitu for >4-6months. • On site drilling or coring operations will be undertaken by equipment fitted with air filtration equipment.	Y	Y	N	Visual Inspection	Daily Weekly	Diary Site Inspection Checklist	As required

Environmental Aspect/Impact	Legal Requirements	Environmental Actions, Controls and Criteria	Operational Controls			Monitoring			Checking, Corrective & Preventative Action
			Induction and/or toolbox	FDC	Subcont. SWMS & contracts	Type	Frequency	Responsibility	NCR/ Refer PMP
Odour	NSW - (POEO Act 1997 s 142	• If odorous materials uncovered, recover immediately. • Seek advice from consultant regarding soil /materials management.	N	Y	N	Visual	Daily	Diary	As required
Emissions to Air	NSW (*POEO Act* 1997, s 124-125	• Ensure machinery is maintained correctly.	Y	Y	Y	Visual	Daily	Diary	As required
Stormwater (Discharge from sedimentation basins, flooding)	*NSW - POEO Act* (Section 120) ANZECC Water Quality Guidelines NSW Department of Housing's Managing Urban Stormwater (2004)	• Water quality to meet ANZECC Water Quality Guidelines. → **PH 6.5- 8.5, Turbidity <50NTU, No visible oil & grease.** • Obtain advice for use of flocculants to settle sediment from water. • Sedimentation pond to be maintained at low levels to ensure capacity during rainfall event. • DO NOT DISCHARGE IF CONTAMINANTS SUSPECTED. Obtain advice.	Y	Stormwater & Sediment Control Plan	Y	Visual Inspection	Daily Weekly	Diary Site Inspection Checklist	As required
Adjoining waterways (dewatering, soil erosion & runoff)	*NSW - POEO Act 1997(s 120, 122)* *NSW - PEO (General) Regulation 1998,cl 55;* *NSW - Local Government Act 1993, s 638]* NSW Department of Housing's Managing Urban Stormwater (2004)	• Temporary drainage systems will be established to divert clean waters around the land development areas as appropriate. • Erect silt fences, bunds and construct swale drains. • Inspect at least weekly and after rainfall. • Maintain and/or replace as required. • Street sweepers will be employed on regular basis. • Install erosion and sediment controls before work starts. • Leave as much vegetation as possible. • Install temporary fences to define 'no go' areas in those areas that are not to be disturbed. Include the area under the canopy of trees so that tree roots will not be damaged by soil compaction.	Y	Stormwater & Sediment Control Plan	Y	Visual Inspection	Daily Weekly	Diary Site Inspection Checklist	As required

Environmental Aspect/Impact	Legal Requirements	Environmental Actions, Controls and Criteria	Operational Controls			Monitoring			Checking, Corrective & Preventative Action
			Induction and/or toolbox	FDC	Subcont. SWMS & contracts	Type	Frequency	Responsibility	NCR/ Refer PMP
	ANZECC Water Quality Guidelines	• Divert run-off from upslope away from the site, but ensure that you do not flood your neighbours. For example, dig drainage channels (catch drains sized to accommodate the upslope catchment). • Install sediment controls downslope of the site to catch sediment. • Check the erosion and sediment controls every day and keep them in good condition. • Leave or lay a kerbside turf strip (for example, the nature strip) to slow the speed of water flows and to trap sediment. • Limit vehicle entry and exit to one point, and lay geotextile and blue metal to stabilise it for all-weather access. • Clearly mark the access point and give an access map to all suppliers. • Protect all drains with a gravel sausage made from geotextile filled with blue metal. • Save the topsoil and stockpile it for use later in revegetation. Never place it around trees as this will kill them. • Store all stockpiles and building materials behind sediment fences. Cover them with plastic to prevent erosion by wind. • Get council approval before placing stockpiles or other materials on the nature strip or footpath. • Connect downpipes from the guttering to the stormwater drain as soon as the roof goes on. • Build a dam below the area used for cutting tiles, concrete and bricks. • Surround the wash-out area with a sediment fence that slows down the water flow. Site this area upslope of another sediment control.							

Environmental Aspect/Impact	Legal Requirements	Environmental Actions, Controls and Criteria	Operational Controls			Monitoring			Checking, Corrective & Preventative Action
			Induction and/or toolbox	FDC	Subcont. SWMS & contracts	Type	Frequency	Responsibility	NCR/ Refer PMP
		• Fill in all trenches immediately after services have been laid. • Spread the topsoil back when the work is finished and revegetate the site as soon as possible to control erosion. • Remove the sediment and erosion controls only after this is done. • Sweep the road and footpath every day. Washing down is unacceptable. • Never place any materials in the gutter or on the road. You will be fined for this. • Filter or settle-out all water pumped off the site. The water must be clear before it enters the stormwater system or creeks. Gypsum can be applied to muddy (turbid) water to help clay particles settle.							
Sewer (Trade waste)	Comply with the conditions of the trade waste consent or permit, or the local council approval, including acceptance standards	• No paints or other chemical to be poured down drains. • If required, obtain trade waste licence for discharge or local council approval.	Y	Stormwater & Sediment Control Plan	Y	Visual Inspection	Daily Weekly	Diary Site Inspection Checklist	As required
Land (Acid sulphate soils, contaminated soils, imported fill)	NSW - Contaminated Land Management Act 1997, s 60; NSW - Contaminated Land Management	• Stop work if unexpected potentially **contaminated soils** are encountered. • Obtain waste classification from consultant in accordance with OEH\EPACW\EPA guidelines Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-Liquid Wastes (June 2004) www.environment.nsw.gov.au/waste/envguidlns/index.htm.	Y	Acid Sulphate Soils Management Plan	Y				As required

Environmental Aspect/Impact	Legal Requirements	Environmental Actions, Controls and Criteria	Operational Controls			Monitoring			Checking, Corrective & Preventative Action
			Induction and/or toolbox	FDC	Subcont. SWMS & contracts	Type	Frequency	Responsibility	NCR/ Refer PMP
	Regulation 1998, cl 3 Acid Sulfate Soils Management Advisory Committee	• Where required a Remediation Action Plan will be developed and implemented. • Sign off by Site Auditor may be required to validate cleanup. • Any groundwater or ponded rainwater will be tested and classified by consultants prior to disposal. • Check Geotech requirements. Ensure soil classification suitable for land use i.e. Schools, residential, commercial etc.							
Land	NSW - Contaminated Land Management Act 1997, s 60 NSW - Contaminated Land Management Regulation 1998, cl 3	• Potential for **acid sulphate soils** will be assessed based on the sites proximity to low-lying coastal areas e.g. Coastal plains, wetlands and mangroves where the surface elevation is less than five metres above mean sea level. • If odorous soils (rotten egg gas) or grey/yellowed mottled soils encountered, stop work. • If suspected, consultant to prepare Acid Sulphate Soil Management Plan (ASSMP). • Excavation and neutralisation to be supervised by consultants as per ASSMP. • The requirements to **import fill** will be minimised by utilising on site cut material wherever possible. • All analysis certificates shall be handed over as part of the completion documents to the client. • Record all imported fill on Form F067 – Imported Fill Register. • Mark up locations where fill compacted in site plan. Survey if required		Y	Y				As required
Resources – water, materials, energy		• For design and construct jobs, refer to the design specification for ESD requirements and product choices. • Buy local wherever possible to reduce impacts of transport on environment.		Y					As required

Environmental Aspect/Impact	Legal Requirements	Environmental Actions, Controls and Criteria	Operational Controls			Monitoring			Checking, Corrective & Preventative Action
			Induction and/or toolbox	FDC	Subcont. SWMS & contracts	Type	Frequency	Responsibility	NCR/ Refer PMP
Noise	NSW - POEO Act (Sections 139, 140)	• Refer to DA for noise restrictions and working hours. • Use hoarding or acoustic mats as required. • Situate generators and plant away from sensitive receivers. • Turn off machinery. Maintain equipment and stop noisy plant until repaired. • No early deliveries.	Y	Noise Management Plan	Y	Visual Inspection	Daily Weekly	Diary Site Inspection Checklist	As required
Vibration		• Conduct dilapidation report prior to work starting. • Limit the use of vibratory rollers, rock breakers, impact piling etc. adjacent to buildings (>7m). • Regenerated noise may also transfer through bedrock and building structures. • Obtain advice if required.	Y		Y				As required
Community Concerns		• Provide information (e.g. Signage, letterbox drops) to community on programmed works. • Provide contact name for inquires. • Advice locals of “noisy” work. • If required in noise sensitive areas and/or in response to complaints, engage consultants to undertake monitoring at nominated receivers. • Vehicles will not be permitted to queue outside the site or in residential areas unless a defined area is established which does not adversely impact on neighbours.	Y	Y					As required
Flora	NSW - State Environmental Planning Policy No 14 - Coastal Wetlands, s 7(1, 5), 7A;	• Review planning documentation to determine the presence of any protected, threatened or significant flora. Obtain approvals as required. • Engage arborist to develop tree management plan or refer DA and arborist reports. • Education and training at site toolbox meetings and induction.	Y	Y Consultant Report		Visual Inspection	Daily Weekly	Diary Site Inspection Checklist	As required

Environmental Aspect/Impact	Legal Requirements	Environmental Actions, Controls and Criteria	Operational Controls			Monitoring			Checking, Corrective & Preventative Action
			Induction and/or toolbox	FDC	Subcont. SWMS & contracts	Type	Frequency	Responsibility	NCR/ Refer PMP
	NSW - Native Vegetation Act 2003, s 12; Forestry Act 1916, s27(1); NSW - National Parks and Wildlife Act 1974, s 117(1), 118(1)] Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth), s 12, 15B, 16, 18, 20, 21, 23	• Report all sightings to the Site Manager. • Fence or barricade protected flora at the drip zone. Erect Keep Out signage. • Do not stack materials under/against trees. • The potential for reuse of vegetative wastes by mulching, chipping or on-site placement of trunks or limbs shall be reviewed for each project.							
Fauna	NSW Environmental Planning and Assessment Act 1979, s 5A, 78A(8))(b), 79B, 111 & 112-112E NSW - Threatened Species Conservation Act NSW - 1995; National Parks and Wildlife Act 1974, Part 8A	• All native animals protected. • Review planning documentation to determine the presence of any protected, threatened or significant fauna. Obtain approvals as required. • Site rules/induction to include information regarding of the • For injured animals, to relocate call WIRES.	Y	Y Consultant Report		Visual Inspection	Daily Weekly	Diary Site Inspection Checklist	As required

Environmental Aspect/Impact	Legal Requirements	Environmental Actions, Controls and Criteria	Operational Controls			Monitoring			Checking, Corrective & Preventative Action
			Induction and/or toolbox	FDC	Subcont. SWMS & contracts	Type	Frequency	Responsibility	NCR/ Refer PMP
	Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth), s 12, 15B, 16, 18, 20, 21, 23								
Waste Litter	*NSW - POEO Act (Section 116, 142),* *NSW - Waste Avoidance and Resource Recovery Act 2007* *NSW –PEOAAct 1997, s 143, 144-146* *NSW Crown Lands Act 1989, s 155* *NSW Management of Waters and Waterside Lands Regulations - N.S.W., cl 13;* *NSW - PEO (Waste) Regulation 2005, cl 49*	• Hazardous materials surveys to be completed. • Materials to be removed prior to demolition. • Registers and waste disposal requirements as per WorkCover and OEH\EPACW\EPA requirements for removal, storage, transport and disposal. • General site wastes –use one bin system and sort in contractors yard to produce quantities of material for recycling, reuse, disposal etc. • Empty drums are to be taken off-site for disposal. • Empty drums shall be crushed prior to recycling/disposal. • Do not overfill skip bins. Provide plenty for use. Cover where potential for windblown litter.	Y	Waste Management Plan	Y	Visual Inspection	Daily Weekly	Diary Site Inspection Checklist	As required

Environmental Aspect/Impact	Legal Requirements	Environmental Actions, Controls and Criteria	Operational Controls			Monitoring			Checking, Corrective & Preventative Action
			Induction and/or toolbox	FDC	Subcont. SWMS & contracts	Type	Frequency	Responsibility	NCR/ Refer PMP
Landfilling	*NSW - POEO Act (Section 116, 142)*	• Reduce, reuse, and then dispose. • Dispose of hard construction wastes for recycled gravels and sands. • Do not send soil to landfill until alternatives for beneficial reuse have been explored as per consultants advice. • Consideration should be given to chipping of the vegetation and reuse. • Reuse packaging to protect works.	Y	Y					As required
Chemicals	*NSW - POEO Act (Section 116, 142,)* *NSW –* *Work Health and Safety Regulation 2025*	• Chemicals to be **stored** in bunded areas (impervious + 110% of largest container) away from stormwater drains & pits. • Refer Workcover Code of Practice for Storage & Handling of Dangerous Goods, OEH\EPACW\EPA Guidelines for Bunding & Spill Management. Appropriate chemicals storage is in conformance with: → AS 1940 The Storage and Handling of Flammable and Combustible Liquids → Managing Risks of Hazardous Chemicals in the Workplace – Code of Practice • OEH\EPA requirements *http://www.environment.nsw.gov.au/water/bundingspill.htm* • Ponded water within **bunds** will not be discharged to stormwater. • **Fuel and hydraulic leaks** to be cleaned up immediately. • **Drilling muds** to be contained within bunds and reused. • **Liquid paints** NOT to be poured down drains. Spread on waste cardboard or similar and leave to dry. Paint brushes to be rinsed and paint solids	Y	Y	Y	Visual Inspection	Daily Weekly	Diary Site Inspection Checklist	As required

Environmental Aspect/Impact	Legal Requirements	Environmental Actions, Controls and Criteria	Operational Controls			Monitoring			Checking, Corrective & Preventative Action
			Induction and/or toolbox	FDC	Subcont. SWMS & contracts	Type	Frequency	Responsibility	NCR/ Refer PMP
		allowed to settle. Container of paint solids to be disposed to liquid waste facility. • Construct **concrete washout** pit for washout, away from stormwater drains. Send back to batch plant where possible. • **Concrete cuttings** to be contained and wetvac to prevent runoff into stormwater drains. • Storage of **bulk fuels** (>200L) on site is prohibited. All refueling shall be undertaken by a mobile facility with appropriate spill control and containment control equipment. • MSDS's must be provided to the Foreman prior to a chemical being received on site and by subcontractors using chemicals/products.							
Traffic	*Local Government Requirements*	• Develop and implement traffic management plans. Submit to local council as required. • Signage and notices regarding disruptions. • Use crushed concrete, mulches etc. along site access roads. • Install shakers and wheel wash as required. • Organise regular street sweeping. • Haulage routes and rules will be provided to subcontractors prior to commencing on site. • All loads of soil, demolition wastes, general wastes etc. are to be tarped	Y	Traffic Management Plan	Y	Visual Inspection	Daily Weekly	Diary Site Inspection Checklist	As required
Hazardous Materials (Lead paint)	*NSW - POEO Act* (Section 142)	• If disturbing or removing dust or paint that could contain lead, wear a respirator or dust mask and protective clothing. • Seal the rooms with plastic. • Do not use open-flame torches on lead paint as they create lead fumes. If you must use a heat gun, use it on the lower setting to keep the paint temperature below 370 degrees C.	Y	Consultants Report	Y				

Environmental Aspect/Impact	Legal Requirements	Environmental Actions, Controls and Criteria	Operational Controls			Monitoring			Checking, Corrective & Preventative Action
			Induction and/or toolbox	FDC	Subcont. SWMS & contracts	Type	Frequency	Responsibility	NCR/ Refer PMP
		• Avoid using dry-sanding techniques: keep the surface wet to minimise dust. • Don't sweep or use a domestic vacuum cleaner to clean up; lead dust will pass right through it. Use a high-efficiency particulate air (HEPA) vacuum cleaner. These can be hired. • When finished, wipe all surfaces with a damp cloth and high-phosphate detergent. • Wash face and hands before eating, drinking, or smoking. • Refer to **Lead Safe: A Renovator's Guide to the Dangers of Lead** and the Australian Standard AS4361.2 Guide to Lead Paint Management: Part 2 Residential and Commercial Buildings 1998.							
Hazardous Materials (Asbestos)	NSW - POEO Act (Section 142) Protection of the Environment Operations (Waste) Regulation 2025	• A licence subcontractor must be used to demolish, remove, repair or disturb asbestos. • A WorkCover asbestos licence is required to remove 10 square metres or more of bonded asbestos. • A Workcover licence is required to remove, repair or disturb friable asbestos.	Y	Consultant Report	Y				
Aboriginal heritage	National Parks and Wildlife Act 1974, s 90-91 NSW - Heritage Act 1977, s 146	• Education and training at site toolbox meetings and induction. • **It is illegal to destroy heritage items.** • Review local or regional environmental plans, or on the State Heritage Register is to be consulted prior to work starting onsite. • Obtain excavation permit issued by the Heritage Council of NSW if required. • Any heritage relics or sites discovered during construction shall be reported to the Office of Environment and Heritage.	Y	Consultant Report	Y	Visual Inspection	Daily Weekly	Diary Site Inspection Checklist	As required

Environmental Aspect/Impact	Legal Requirements	Environmental Actions, Controls and Criteria	Operational Controls			Monitoring			Checking, Corrective & Preventative Action
			Induction and/or toolbox	FDC	Subcont. SWMS & contracts	Type	Frequency	Responsibility	NCR/ Refer PMP
		• Work in the subject area to cease until specialist advice is obtained. • The area will be fenced, and signs erected to restrict access. • Heritage consultants may be required to provide advice on demolition/construction processes and finishes.							
European heritage	NSW - Heritage Act 1977	• Education and training at site toolbox meetings and induction. • **It is illegal to destroy heritage items.** • Check the OEH\EPACW\EPA Aboriginal Heritage Information Management System (AHIMS). • Also check the register of the National Estate. • Obtain approval from NPWS (Section 90 consent). • Any evidence of Aboriginal relics discovered during construction shall be reported to the National Parks and Wildlife Service. • Local Land Council representatives may be required to monitor stripping/excavation. • Work in the subject area to cease until specialist advice is obtained. • The area will be fenced, and signs erected to restrict access.	Y	Consultant Report	Y	Visual Inspection	Daily Weekly	Diary Site Inspection Checklist	As required
Emergency Preparedness		• Spill kit onsite. • Refer to the MSDS for advice and procedures. • All spills must be reported to the Site Manager & cleaned up. **Complete FDC Incident Report (F035).** • Sediment pond pumped out regularly to maintain capacity in case of emergency. • Ensure you know where stormwater drains are and have materials to block them in case of a fire.	Y	Y	Y	Inspection	Weekly	Site Inspection Checklist	As required

USYD A01 Ross Street Learning Hub

Construction Noise and Vibration Management Sub-Plan

Project No.	P03294
Revision	003
Issued	03 September 2026
Client	USYD

Issue and Revision Record

Revision	Date	Comments	Engineer	Reviewer
001	04.08.2026	Issued for Information	OK	TA
002	17.08.2026	Issued for Information	OK	TN
003	03.09.2026	Issued for Information	OK	TN
004				

Information has been based on our understanding of the documented project within the information provided.

The project design and construction team are required to review and consider the implications of these recommendations on their design for the project. The design team shall coordinate with any specific condensation, acoustic, wind, structural, safety, constructability, maintenance or architectural design requirement for this particular project.

Engineering Lab NSW Pty Ltd

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Table of Contents

1. INTRODUCTION 1

1.1 DEVELOPMENT CONSENT 2
1.2 QUALIFICATIONS 2

2. PROJECT DESCRIPTION 3

2.1 SITE DESCRIPTION 3
2.2 APPROVED HOURS OF WORK 4

3. BACKGROUND AND AMBIENT NOISE MONITORING 5

4. PROJECT NOISE & VIBRATION CRITERIA 6

4.1 CONSTRUCTION NOISE CRITERIA 6
4.2 CONSTRUCTION VIBRATION CRITERIA 7

5. CONSTRUCTION NOISE ASSESSMENT 11

5.1 EXPECTED CONSTRUCTION EQUIPMENT 11
5.2 NOISE MODELLING AND ASSUMPTIONS 12
5.3 PREDICTED NOISE LEVELS 13

6. CONSTRUCTION VIBRATION ASSESSMENT 15

7. NOISE AND VIBRATION MANAGEMENT 17

7.1 PROJECT SPECIFIC RECOMMENDATIONS 17
7.2 GENERAL ACOUSTIC RECOMMENDATIONS FOR CONSTRUCTION 18
7.3 COMPLAINT HANDLING PROCEDURES AND STAKEHOLDER LIAISON 20
7.4 NOISE & VIBRATION MONITORING STRATEGY 21

8. CONCLUSION 22

APPENDIX A CONSTRUCTION NOISE CONTOUR MAP 23

We recognise the Traditional Custodians of the land on which the proposed development will be constructed. We respect their enduring cultural and spiritual connections to the land and waters, and celebrate their knowledge, kinship, and values. We acknowledge that these connections to the land and waters have existed for millennia and will continue into the future. We respect the Elders who have gone before, together with those of today for their guidance on our shared journey. We recognise that we are, and always will be, on Aboriginal land.

1. Introduction

This Construction Noise and Vibration Management Plan has been prepared for the new USYD A01 Ross Street Learning Hub. The approved development includes the construction of a new 5-storey teaching and learning building and ancillary works under SSD-57838709.

This Construction Noise and Vibration Management Plan provides:

- Identification of nearby noise sensitive receivers
- Determination of applicable guidelines and criteria for the noise and vibration generated during demolition
- A quantitative assessment of the airborne and ground-borne noise generated by the work for the proposed development and its impact on nearby receivers
- Strategies to mitigate the noise and vibration generated during the proposed stages of work
- Complaints handling and community liaison procedures

This report has been prepared with the following references:

- SSDA – Noise and Vibration Impact Assessment (NVIA), prepared by Acoustic Logic dated 3rd September 2024.
- Schedule of Draft Conditions and Responsibility Matrix for SSD-57838709 dated 10th November 2025
- FDC Tender Program – Rev B dated 28th May 2026.
- Construction Noise Strategy, Transport for NSW, 2013
- Interim Construction Noise Guideline (ICNG), NSW DECC, 2009
- Noise Policy for Industry (NPI), NSW EPA, 2017
- Assessing Vibration: A Technical Guideline, NSW DEC, 2006
- AS 2436:2010 Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites
- British Standard BS 5228: Part 1:1997 Noise and Vibration Control on Construction and Open Sites
- British Standard BS 7358:1993 Evaluation and Measurement for Vibration in Buildings – Part 2: Guide to Damage Levels from Ground-borne Vibration
- German Standard DIN 4150-Part 3 Structural vibration in buildings – Effects on structures

1.1 Development Consent

This report has been prepared to address condition B12 of the draft development consent, as provided in Table 1.

Table 1: Condition B12

Condition	Description	Section in Report
B12	***B12. The Construction Noise and Vibration Management Sub-Plan must address, but not be limited to, the following:***	
	(a) be prepared by a suitably qualified and experienced noise expert;	Section 1
	(b) describe procedures for achieving the noise management levels in EPA's Interim Construction Noise Guideline (DECC, 2009);	Section 7
	(c) describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;	Section 7
	(d) include strategies that have been developed with the community for managing high noise generating works;	Section 7.3
	(e) include a complaints management system that would be implemented for the duration of the construction; and	Section 7.3
	(f) include a program to monitor and report on the impacts and environmental performance of the development and the effectiveness of the implemented management measures in accordance with the requirements of condition B23	Section 7.4[1]

Note 1: A monitoring program has been provided in Section 7.4 to reduce construction noise and vibration impacts to surrounding sensitive receivers. Note that Condition B23 refer to operational plant noise and is not relevant to construction noise and vibration, and has not been addressed in this CNVMSP.

1.2 Qualifications

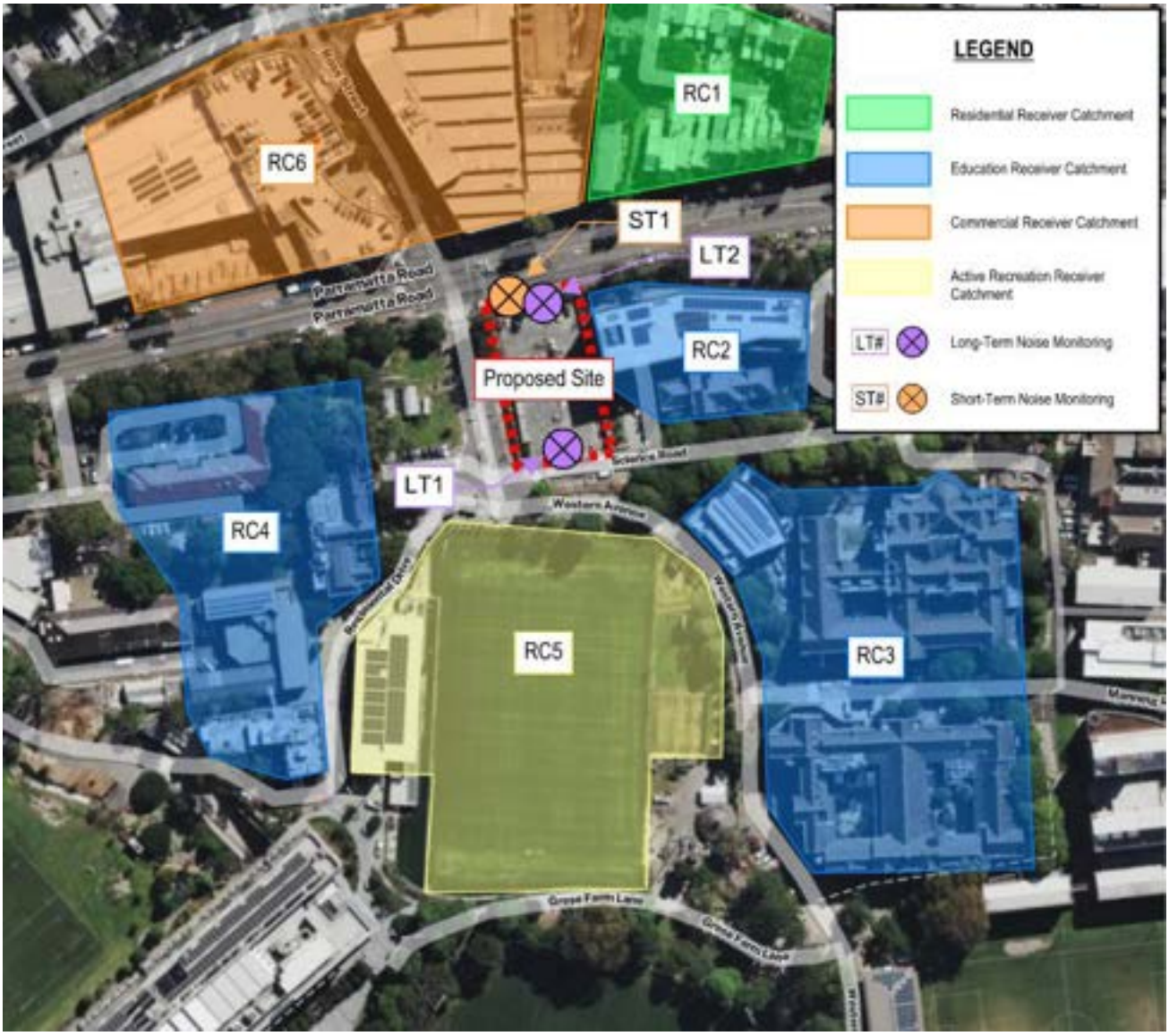
This Construction Noise and Vibration Management Sub Plan (CNVMSP) has been prepared by Teresa D Nguyen of E-LAB Consulting, a suitably qualified and experienced acoustics and vibration consultant. Teresa holds a Bachelor of Mechanical Engineering and has 11 years of experience in Acoustics. She is a member of the Australian Acoustical Society (AAS).

2. Project Description

2.1 Site Description

For the purposes of this construction noise and vibration management plan, the site location and surrounding noise and vibration sensitive receivers are shown below in Figure 1.

Figure 1: Site Map identifying sensitive receivers and monitoring locations



See below in Table 2 for the description of the nearest noise-sensitive receivers.

Table 2: Sensitive receivers (external)

Receiver	Land Use	Description
RC1	Residential	Collection of low-rise residential buildings to the north-east of the site across from Paramatta Road.
RC2	Educational	Existing educational receivers immediately east of the project site.
RC3		Existing educational receivers to the south-east of the project site.
RC4		Existing educational receivers to the south-west of the project site.
RC5	Active Recreation	University Oval 2 and associated grandstand to the south of the site.
RC6	Commercial	Grouping of existing commercial developments north of the site across from Paramatta Road.

2.2 APPROVED HOURS OF WORK

For the purpose of this assessment, we have assumed that all works are to be conducted in-line with the Draft Development Consent for SSD-57838709 approved construction hours. See Condition C4 and C5 pertaining to typical construction hours as outlined below in Table 3:

Table 3: Approved hours of work

Day of the Week	Approved Hours of Work
Mondays to Fridays	7:00am to 6:00pm
Saturdays	8:00am to 1:00pm
Sundays, Public Holidays	No work permitted

See Condition C7 pertaining to construction hours for noisy works such as; rock breaking, rock hammering, sheet piling, pile driving and similar activities as outlined below in Table 4.

Table 4: Approved hours of work for noisy works

Day of the Week	Approved Hours of Work
Mondays to Fridays	9:00am to 12:00pm & 2:00pm to 5:00pm
Saturdays	9:00am to 12:00pm
Sundays, Public Holidays	No work permitted

3. Background and Ambient Noise Monitoring

Long-term noise monitoring was undertaken as part of the SSDA Noise and Vibration Impact Assessment prepared by Acoustic Logic. Monitoring was undertaken on 23rd October 2024. Monitoring location can be seen in the site map in Figure 1. The noise survey results have been provided below in Table 5 for reference.

Table 5: Summary of long-term background noise monitoring

Location	RBL – Day (7am to 10pm) - dB(A)
LT1 – Demountable village roof south, close to Science Road.	53
LT2 – Demountable village roof north, facing Paramatta Road	62

Further to this, short-term ambient noise monitoring was also undertaken as part of the SSDA Noise and Vibration Impact Assessment prepared by Acoustic Logic. The attended ambient noise results have been provided below in Table 6 for reference.

Table 6: Summary of short-term background noise monitoring

Location	Measured Ambient Noise Level dB(A) $L_{eq(15min)}$
ST1 – Paramatta Road, 3m from kerb	75

4. Project Noise & Vibration Criteria

4.1 Construction Noise Criteria

Airborne Noise – Residential Receivers

The airborne noise criteria for surrounding residential receivers have been extracted from Table 2 in the ICNG and is presented in Table 7 below.

Table 7: NSW ICNG construction noise criteria for surrounding residential receivers

Time of Day	Management Level $L_{Aeq,15min}$	How to apply
Recommended Standard Hours: Monday – Friday 7am – 6pm Saturday 8am – 1pm No work on Sundays or public holidays	Noise Affected RBL + 10dB	The noise-affected level represents the point above which there may be some community reaction to noise. ▪ Where the predicted or measured $L_{Aeq,15min}$ is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. ▪ The proponent should also inform all potentially impacted residences of the nature of works to be carried out, the expected noise levels and duration as well as contact details.
	Highly Noise Affected 75 dB(A)	The highly noise affected level represents the point above which there may be strong community reaction to noise. ▪ Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur in, taking into account: – Times identified by the community when they are less sensitive to noise (such as before and after school, for works near schools, or mid-morning or mid-afternoon for works near residences) – If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside Recommended Standard Hours	Noise Affected RBL + 5dB	▪ The proponent should apply all feasible and reasonable work practices to meet the noise affected level. ▪ Where all feasible and reasonable practices have been applied and noise is more than 5 dB(A) above the noise affected level, the proponent should negotiate with the community. ▪ For guidance on negotiating agreements see section 7.2.2 (of ICNG).

The airborne noise criteria for surrounding educational receivers have been extracted from Table 3 in the ICNG as well as the airborne noise criteria for commercial premises and is presented in Table 8 below.

Table 8: Noise at Educational institutions

Land Use	Management Level, $L_{Aeq,15min}$
Classrooms at schools and other educational institutions	Internal noise level - 45 dB(A)
Active Recreation areas (characterised by sporting activities and activities which generate their own noise or	External noise level - 65 dB(A)

focus for participants, making them less sensitive to external noise intrusion)	
Offices, retail outlets	External noise level - 70 dB(A)

Based on the above, the following noise management levels in Table 9 should be applied to the noise sensitive receivers identified in Figure 1.

Table 9: Project Specific Construction Noise Management Levels

Receiver	RBL dB(A) L_{90}	Noise management level dB(A) L_{Aeq}	Highly Noise Affected Level dB(A) L_{Aeq}
RC1	62	62 dB(A) + 10 dB = 72 dB(A)	75 dB(A)
RC2, RC3, RC4	-	**Teaching Spaces** 45 (internal) [1] 55 (external with operable windows) [2,3] **Non-Teaching Spaces (Offices, Admin, Reception, Lobby/Foyer, etc)** 70 (external)	N/A
RC5	-	65 dB(A)	N/A
RC6	-	70 dB(A)	N/A

Note 1: We note that the ICNG provides specific noise management levels for classrooms within schools, which would only be applicable to teaching spaces within USYD. For other uses such as offices or common areas, a 70dB(A) noise management level as per the ICNG is applied.

Note 2: A conservative estimate of the difference between internal and external noise levels is 10 dB for buildings other than residences.

Note 3: For the FASS Lecture Theatre with no windows we have taken a conservative 30 dB reduction across the solid structural façade.

Further to the above, the following noise management levels in Table 10 should be applied to the residential noise sensitive receivers identified in Figure 1 for outside of recommended hours works. The noise management levels developed within Table 9 still apply for non-residential receivers. Noting that outside of recommended hours works are subject to approval from the Planning Secretary as per Draft Development Consent Condition C5.

Table 10: Outside of Recommended Hours for Residential Receivers

Receiver	RBL dB(A) L_{90}	Noise management level dB(A) L_{Aeq}	Highly Noise Affected Level dB(A) L_{Aeq}
RC1	62	62 dB(A) + 5 dB = 67 dB(A)	75 dB(A)

4.2 Construction Vibration Criteria

4.2.1 Human Comfort

The office of Environmental Protection Authority (EPA) developed a document, “Assessing vibration: A technical guideline” in February 2006 to assist in preventing people from exposure to excessive vibration levels from construction and operation of a development within buildings. The guideline does not however address vibration

induced damage to structures or structure-borne noise effects. Vibration and its associated effects are usually classified as continuous, impulsive or intermittent.

4.2.1.1 Continuous and Impulsive Vibration

Structural vibration in buildings can be detected by occupants and can affect them in many ways including reducing their quality of life and also their working efficiency. Complaint levels from occupants of buildings subject to vibration depend upon their use of the building and the time of the day.

Maximum allowable magnitudes of building vibration with respect to human response are shown in Table 11. It should be noted that the human comfort for vibration is more stringent than the building damage criteria.

Table 11: Preferred and maximum weighted RMS values for continuous and impulsive vibration acceleration (m/s^2) 1-80 Hz

Location	Assessment period[1]	Preferred values		Maximum values	
		z-axis	x- and y-axes	z-axis	x- and y-axes
Continuous vibration					
Residences	Daytime	0.010	0.0071	0.020	0.014
	Nigh time	0.007	0.005	0.014	0.010
Offices, schools, educational institutions and places of worship	Day- or night time	0.020	0.014	0.040	0.028
Workshops	Day- or night time	0.04	0.029	0.080	0.058
Impulsive vibration					
Residences	Daytime	0.30	0.21	0.60	0.42
	Night time	0.10	0.071	0.20	0.14
Offices, schools, educational institutions and places of worship	Day- or night time	0.64	0.46	1.28	0.92
Workshops	Day- or night time	0.64	0.46	1.28	0.92

Note 1: Daytime is 7:00am to 10:00pm and night time is 10:00pm to 7:00am

4.2.1.2 Intermittent Vibration Criteria

Disturbance caused by vibration will depend on its duration and its magnitude. This methodology of assessing intermittent vibration levels involves the calculation of a parameter called the Vibration Dose Value (VDV) which is used to evaluate the cumulative effects of intermittent vibration, as shown in Table 12. Various studies support the fact that VDV assessment methods are far more accurate in assessing the level of disturbance than methods which is only based on the vibration magnitude.

Table 12: Acceptable vibration dose values for intermittent vibration ($m/s^{1.75}$)

Location	Daytime[1]		Nighttime[1]	
	Preferred value	Maximum value	Preferred value	Maximum value
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80

Workshops	0.80	1.60	0.80	1.60

Note 1: Daytime is 7:00am to 10:00pm and night time is 10:00pm to 7:00am

4.2.2 Cosmetic Damage

Structural vibration thresholds are set to minimise the risk of cosmetic surface cracks and lie below the levels that have the potential to cause damage to the main structure. Table 13 presents guide values for building vibration, based on the vibration thresholds above which cosmetic damage has been demonstrated outlined within BS7385-Part 2:1993. These values are evaluated to give a minimum risk of vibration-induced damage, where minimal risk for a named effect is usually taken as 95% probability of no effect.

Table 13: Transient vibration guide values for cosmetic damage – BS 7385-2:1993

Type of Building	Peak Particle Velocity in frequency range of predominant pulse (PPV)	
	4 Hz to 15 Hz	15 Hz and above
Reinforced or framed structures Industrial or light commercial type buildings	50mm/s	N/A
Unreinforced or light framed structures Residential or light commercial type buildings	15mm/s	20mm/s (50mm/s at 40Hz and above)

4.2.3 Structural Damage

Ground vibration criteria is defined in terms of the levels of vibration emission from the construction activities which will avoid the risk of damaging surrounding buildings or structures. It should be noted that human comfort criteria are normally expressed in terms of acceleration whereas structural damage criteria are normally expressed in terms of velocity.

Most specified structural vibration levels are defined to minimise the risk of cosmetic surface cracks and are set below the levels that have the potential to cause damage to the main structure. Structural damage criteria are presented in German Standard DIN4150-Part 3 "Structural vibration in buildings – Effects on structures" and British Standard BS7385-Part 2: 1993 "Evaluation and Measurement for Vibration in Buildings". Table 14 indicates the vibration limits presented in DIN4150-Part 3 to ensure structural damage doesn't occur.

Table 14: Guideline value of vibration velocity, vi, for evaluating the effects of short-term vibration – DIN4150-3

Line	Type of Structure	Vibration velocity, v_i, in mm/s			
		Foundation			Plane of floor of uppermost full storey
		At a frequency of			
		Less than 10Hz	10 to 50Hz	50 to 100Hz*	All Frequencies
1	Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40
2	Dwellings and buildings of similar design and/or use	5	5 to 15	15 to 20	15
3	Structures that, because of their particular sensitivity to vibration, do not	3	3 to 8	8 to 10	8

		correspond to those listed in lines 1 and 2 and are of great intrinsic value (e.g. buildings that are under a preservation order)	

*For frequencies above 100Hz, at least the values specified in this column shall be applied

5. Construction Noise Assessment

5.1 EXPECTED CONSTRUCTION EQUIPMENT

The noise sources likely to be associated with the works listed are presented in Table 15, based on FDC's Tender Program – Rev B dated 28th May 2026. The equipment noise levels have been extracted from AS2436:2010 "Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites" and the "Construction Noise Strategy, Transport for NSW, 2013".

These equipment noise levels are provided as sound power levels (in-line with the documents referenced above) and are the estimated sound power emitted by the equipment, which differs to the sound pressure level rated for equipment at a particular distance.

Table 15: Construction Equipment Noise Levels

Stages	Equipment	Sound Power Level - dB(A)	Usage in 15-minute period (mins)	Time corrected sound power level - dB(A) $L_{Aeq, 15min}$
Demolition	Power Tools	102	7.5	99
	Jackhammer	113	3	106
	Bobcat	107	10.5	105
	Excavators 32 tonne (up to 65 tonne)	110	6	106
	General Truck	108	6	104
Bulk Excavation & Piling	CFA Piling Rig	104	10.5	102
	Bobcat	107	10.5	105
	Excavators 32 tonne (up to 65 tonne)	110	6	106
	Excavator breaker	115	6	111
	Power Tools (Rattle Gun)	104	7.5	101
	General Truck	108	6	104
	Tower Crane	105	10.5	103
Structural & Façade Works	Power Tools	102	7.5	99
	Concrete pump	109	7.5	106
	Concrete Truck	108	7.5	105
	Mobile crane	110	2.4	102
	Generator	104	3	97
	General Truck	108	6	104
	Tower Crane	105	10.5	103

5.2 NOISE MODELLING AND ASSUMPTIONS

In order to assess the noise impact from the site during the demolition stage, a desktop noise model was prepared using commercial software SoundPLAN v9.0. The noise model represents the 'reasonable' worst case periods of construction activities, meaning that all the equipment of each stage is operating simultaneously during a 15-minute observation period.

The assumptions that were made within the assessment include the following:

- The predicted noise levels represent the worst-case scenario for each receiver
- The predicted noise levels at the receivers have been assessed at a height of 1.5m above ground level in accordance with the assessment procedures of the ICNG.
- The predicted noise levels at the nearby sensitive receivers have been assessed with the noise mitigation measures provided in Section 7.1 which have been implemented.
- The noise levels have been assessed using neutral weather conditions.

5.3 PREDICTED NOISE LEVELS

The predicted noise levels have been presented in the below tables and have been assessed to the construction noise criteria established in Section 4.1, based on the movement of construction equipment around the project site. Construction noise contour maps are also provided in Appendix A.

Table 16: Predicted noise levels – Demolition works

ID	Receiver Type	Predicted Noise Level Range, LAeq,15min dB(A)	Noise Management Level LAeq,15min dB(A)	Noise Management Level Exceedance, dB	Exceeds Highly Noise Affected Level (YES/NO)
RC1	Residential	66	72	-	NO
RC2	Educational Offices	74	55 70	Up to 19 Up to 4	N/A
RC3	Educational	66	55 70	Up to 11 -	N/A
RC4	Educational	66	55 70	Up to 11 -	N/A
RC5	Active Recreation	67	65	Up to 2	N/A
RC6	Commercial	68	70	-	N/A

Table 17: Predicted noise levels – Bulk Excavation & Piling works

ID	Receiver Type	Predicted Noise Level Range, LAeq,15min dB(A)	Noise Management Level LAeq,15min dB(A)	Noise Management Level Exceedance, dB	Exceeds Highly Noise Affected Level (YES/NO)
RC1	Residential	68	72	-	NO
RC2	Educational Offices	75	55 70	Up to 20 Up to 5	N/A
RC3	Educational Offices	70	55 70	Up to 15 -	N/A
RC4	Educational Offices	68	55 70	Up to 13 -	N/A
RC5	Active Recreation	69	65	Up to 4	N/A
RC6	Commercial	70	70	-	N/A

Table 18: Predicted noise levels – Structural & Façade works

ID	Receiver Type	Predicted Noise Level Range, LAeq,15min dB(A)	Noise Management Level LAeq,15min dB(A)	Noise Management Level Exceedance, dB	Exceeds Highly Noise Affected Level (YES/NO)
RC1	Residential	67	72	-	NO
RC2	Educational Offices	74	55 70	Up to 19 Up to 4	N/A
RC3	Educational Offices	68	55 70	Up to 13 -	N/A
RC4	Educational Offices	66	55 70	Up to 11 -	N/A
RC5	Active Recreation	68	65	Up to 3	N/A
RC6	Commercial	68	70	-	N/A

6. Construction Vibration Assessment

Activities and machinery that are considered vibration intensive during the proposed demolition works include the following:

- Excavator mounted hammering during bulk-excavation
- Jackhammers

Safe working distances for vibration intensive plant and are quoted for both "cosmetic" damage (in accordance with BS 7385) and human comfort (in accordance with Assessing Vibration – a technical guideline), have been provided, based on the Transport for NSW's "Construction Noise Strategy (2013)". The recommended safe working distances for each of the plant listed above are provided in Table 19.

Table 19: Recommended safe working distances for vibration intensive plant

Activity	Safe Working Distance (metres)	
	Cosmetic Damage (BS 7385)	Human Response (OH&E Vibration Guideline)
Excavator Mounted Hydraulic Hammer (5 to 12 tonne)	2m	7m
Excavator Mounted Hydraulic Hammer (12 to 18 tonne)	7m	23m
Excavator Mounted Hydraulic Hammer (18 to 34 tonne)	22m	73m
Vibratory Roller (7 to 13 tonne)	15m	100m
Jackhammer	1m (nominal)	Avoid contact with structure

The approximate distances between sensitive receivers (as identified in Figure 1) to the project boundary where vibration intensive plant may be used during construction is provided in Table 20.

Table 20: Receiver distances from construction works

Receiver ID	Minimum distance from construction works
RC1	40m
RC2	Within 10m
RC3	40m
RC4	50m
RC5	20m
RC6	30m

We understand that mechanical demolition will be undertaken using excavators. On this basis, demolition works are expected to occur within the minimum setback distances identified in Table 19, and vibration impacts on adjacent structures and building occupants are considered likely. However, actual vibration levels are difficult to predict and will depend on:

- Ground composition
- Any physical connections between adjoining structures
- Structural condition and age of adjacent buildings
- Depth and stiffness of existing foundations

Accordingly, vibration monitoring should be carried out at the commencement of works to verify the safe working distances. If measured levels remain within the vibration limits outlined in Section 4.2, demolition may proceed in conjunction with the mitigation measures detailed in this report. If exceedances occur, additional reasonable and feasible mitigation measures must be implemented, along with continued vibration monitoring. Measures to prevent cosmetic damage to surrounding structures are provided in Section 7.1.2.

7. Noise and Vibration Management

7.1 PROJECT SPECIFIC RECOMMENDATIONS

Project specific recommendations and required mitigation methods have been listed below within Section 7.1. For general noise and vibration mitigation and management measures, refer to Section 7.2 of this report.

7.1.1 Noise

Intermittent exceedances of construction noise management levels are unavoidable due to the proximity of receivers which overlook the project site. Notwithstanding, the following noise management strategies shall be implemented;

- The contractor to use best endeavours to minimise the amount of noise intensive works
- The contractor to be in continual consultation with USYD ahead of all noise intensive works, so giving the best chance for USYD to reschedule classes to alternative locations when possible
- Construction equipment/machinery shall be suitably selected based on optimal size and power to minimise equipment sound power levels and associated noise emissions.
- Bored piles have been proposed for the shoring wall and main building piles in lieu of driven piles, greatly reducing vibration generation.
- The use of standard A-class/B-Class hoarding of the following materials and construction will suffice to mitigate the impact of the highest predicted noise levels.
    - The hoarding should be impervious of gaps and cracks which would compromise its performance
    - It should be comprised of acoustically suitable materials such as 15 mm plywood
    - Be a minimum of 2.1 to 2.4m high surrounding the site.
- Material drop zones shall be located internally within the site, behind perimeter hoarding and to maximise distance to nearby noise sensitive receivers.
- All demolition activities shall be undertaken in accordance with the DA approved construction hours.
- All truck operators are required to adhere to the following to minimise road traffic noise:
    - Engine brakes shall not be used near residences and built-up areas.
    - Reversing should be minimised as much as possible to reduce noise from reversing alarms.
    - Trucks are not to idle when near residential receivers. As much as feasible, engines should be switched off when not in use.
    - Vehicles to be fitted with straps, as opposed to chains to minimise noise impacts where possible.
    - Where night-time works are required and approved, trucks shall use broadband reversing alarms.

7.1.2 Vibration

There may be exceedances of the human comfort criteria due to the proximity of works to nearby occupied spaces. Notwithstanding, the following vibration management strategies shall be implemented:

- Where feasible, physical links from the structure to adjoining buildings will be broken prior to vibration intensive works (i.e. through concrete saw or similar equipment to minimise vibration generation).
- Use of lower vibration generation items/small capacity plant where the structure permits.
- Break-up of slabs/asphalt and other materials into smaller pieces to minimise vibration generation at material drop zones. Where feasible, material to be broken down to less than 300mm pieces to minimize vibration and impact during material handling. This will reduce the weight to less than 70kg.
- Use of material hoist to prevent dropping of heavy materials over long distances.

7.2 GENERAL ACOUSTIC RECOMMENDATIONS FOR CONSTRUCTION

According to AS 2436 – 2010 "Guide to noise and vibration control on construction, demolition and maintenance sites" the following techniques could be applied to minimise the spread of noise and vibrations to the potential receivers.

7.2.1 Noise

If a process that generates significant noise levels cannot be avoided, the amount of noise reaching the receiver should be minimised. Two ways of achieving this are to either increase the distance between the noise source and the receiver or to introduce noise reduction measures such as screens. Practices that will reduce noise from the site include:

- Increasing the distance between noise sources and sensitive receivers.
- Reducing the line-of-sight noise transmission to residences or other sensitive land uses using temporary barriers (stockpiles, shipping containers and site office transportables can be effective barriers).
- Constructing barriers that are part of the project design early in the project to introduce the mitigation of site noise.
- Installing purpose-built noise barriers, acoustic sheds and enclosures.
- Where certain construction equipment or plant allows, introduce the use of silencing devices. This could involve; engine shrouding or equipment exhaust silencers for example.
- Ensure tools and machinery are correctly maintained to complete tasks efficiently.
- Shut off equipment when not in use.
- Drilling pilot holes prior to drilling larger holes.

Physical methods to reduce the transmission of noise between the site works and residences, or other sensitive land uses, are generally suited to works where there is longer-term exposure to the noise. A few of these methods have been introduced below.

7.2.1.1 Screening

On sites where distance is limited, screening of noise may be beneficial or even the only way to reduce construction noise impacts on the nearby receivers. Below, screening options for various situations have been introduced. Constructing and utilising these screening methods should be taken into account already during the planning stages.

Temporary buildings: One option to introduce screening is to position structures such as stores, storage piles, site offices and other temporary buildings between the noisiest part of the site and the nearest dwellings. Due to shielding provided by these buildings, some of the noise emission from the site can be reduced. If the buildings are occupied, however, sound insulation measures may be necessary to protect site workers inside the buildings.

Hoarding: Another way of implementing screening is to build hoarding that includes a site office on an elevated structure. This option offers superior noise reduction when compared with a standard, simple hoarding. The acoustic performance is further enhanced when the hoarding is a continuous barrier.

Equipment operating 24h: When it comes to water pumps, fans and other plant equipment that operate on a 24-hour basis, they may not be an irritating source of noise during the day but can be problematic at night. They should therefore be effectively screened by either situating them behind a noise barrier or by being positioned in a trench or a hollow in the ground. Again, generated reverberant noise must be minimised and adequate ventilation should be ensured.

General remarks:

In many cases, it is not practical to screen earthmoving operations effectively, but it may be possible to partially shield a construction plant at the early stages of the project with protective features required to screen traffic noise.

The usefulness of a noise barrier will depend upon its length, its height, its position relative to the source and the receiver, and the material of which it is made. A barrier designed to reduce noise from a moving source should extend beyond the last property to be protected by at least ten times the shortest distance from the said property

to the barrier. A barrier designed to reduce noise from a stationary source should, where possible, extend beyond the direct line of sight between the noise source and the receiver by a distance equal to ten times the effective barrier height, which is the height above the direct line between source and receiver.

If the works are already predominantly located within nominally closed structures, careful consideration should be given to reducing noise breakout at any openings.

7.2.1.2 Reversing and warning alarms

Community complaints often involve the intrusive noise of alarms commonly used to provide a safe system of work for vehicles operating on a site. Beeper reversing alarm noise is generally tonal and may cause annoyance at significant distances from the work site.

There are alternative warning alarms capable of providing a safe system of work that are equal to or better than the traditional "beeper", while also reducing environmental noise impacts. The following alternatives should be considered for use on construction sites as appropriate:

- Broadband audible alarms incorporating a wide range of sound frequencies (as opposed to the tonal-frequency 'beep') are less intrusive when heard in the neighbourhood.
- Variable-level alarms reduce the emitted noise levels by detecting the background noise level and adjusting the alarm level accordingly.
- Proximity alarms that use sensors to determine the distance from objects, such as people or structures, and generate an audible alarm in cabin for the driver.
- Spotters or observers.

The above methods should be combined, where appropriate.

7.2.2 Vibration

Vibration can be more difficult to control than noise, and there are few generalizations that can be made about its control. It should be kept in mind that vibration may cause disturbance by causing structures to vibrate and radiate noise in addition to perceptible movement. Impulsive vibration can, in some cases, provide a trigger mechanism that could result in the failure of building components that had previously been in a stable state.

During the demolition works and the erection of new structures, some vibrations (transmitted through the structure from the demolition sites) are expected, being more of a concern for the surrounding sensitive receivers. Vibrations can also trigger annoyance, which might get elevated into action by occupants of exposed buildings, and should therefore be included in the planning of communication with impacted communities.

It should be remembered that failures, sometimes catastrophic, can occur as a result of conditions not directly connected with the transmission of vibrations, e.g. the removal of supports from retaining structures to facilitate site access. BS 7385-2 provides more information on managing ground-borne vibration and its potential effects on buildings. Where site activities may affect existing structures, a thorough engineering appraisal should be made at the planning stage.

General principles of seeking minimal vibration at receiving structures should be followed in the first instance. Predictions of vibration levels likely to occur at sensitive receivers are recommended when they are relatively close, depending on the magnitude of the source of the vibration or the distance associated. Relatively simple prediction methods are available in textbooks, codes of practice and standards, however, it is preferable to assess site transmission and propagation characteristics between source and receiver locations through measurements.

Guidance for measures available for the mitigation of vibration transmitted can be sought in more detailed standards, such as BS 5228-2 or policy documents, such as the NSW DEC *Assessing Vibration: A technical guideline*. Identifying the strategy best suited to the control of vibration follows a similar approach to that of noise: avoidance, control at the source, control along the propagation path, control at the receiver, or a combination of these. It is noted that vibration sources can include stationary plants (pumps and compressors), portable plants (jackhammers and pavement vibrators), mobile plants, pile-drivers, tunnelling machines and activities, and blasting, amongst others. Unusual ground conditions, such as a high water-table, can also cause a difference to expected or predicted results, especially when considering the noise propagated from piling.

7.3 COMPLAINT HANDLING PROCEDURES AND STAKEHOLDER LIAISON

7.3.1 Stakeholder Consultation to be Undertaken

The contractor shall directly contact the stakeholders and adjacent noise sensitive receivers and provide them with the following information:

- The contact details for a nominated representative in order to make noise / vibration complaints
- Explain the timeframe for the construction works and the proposed activities, i.e. the proposed start / stop dates of work and a description of the noise producing equipment that will be used
- Notify the noise sensitive receivers and relevant local / state authority in a timely manner should there be any need for an extension to the proposed arrangements
- A specification notification protocol that reaches facilities managers and relevant faculty administrators ahead of high-impact activities so that staff and students in scheduled classes are notified in advance.
- Continual consultation with USYD ahead of all noise intensive works, so giving the best chance for USYD to reschedule classes to alternative locations when possible
- Provide them with a copy of this report as approved by the relevant local / state authority
- Provide real-time noise and vibration monitoring data feeds accessible to the site manager (and USYD if preferred) so corrective action can happen within the same period not just retrospective reporting
- Where noise is demonstrated as being compliant with criteria, this should not limit the proponent in undertaking further additional reasonable and feasible steps to reduce noise emissions.

7.3.2 Complaint Handling Procedures and Stakeholder Liaison

To assist in the management of noise and vibration complaints various procedures are to be followed. These include:

- Clearly visible signage identifying any key personnel along with their contact details to be erected along the perimeter of the building site including:
    - A 24-hour contact name, phone number and email address provided for the resident to address any complaint. The signage will declare; “For any enquiry, complaint or emergency relating to this site at any time please contact...”
- Relevant local / state authority should be notified of the nature and details of complaints received (time, complainant etc.) and what remedial action has taken place, if any
- Have a documented complaints process, including an escalation procedure so that if a complaint is not satisfied there is a clear path to follow
- Call back as soon as possible to keep people informed of action to be taken to address noise problems. Call back at night time only if requested by the complainant to avoid further disturbance
- Implement all feasible and reasonable measures to address the source of the complaint
- A register is to be kept by the contractor to keep a record of complaints and detail any information associated with them. The contents of the register will include:
    - The name and the address of the complainant
    - Time and date of the complaint
    - The nature of the complaint (Noise/Vibration)
    - Subsequent details
    - Remedial action undertaken

The contents of the register will be maintained and updated on a monthly basis with any new complaint without delay. The complaints will be reported to both the relevant local / state authority and the Contractor. The investigation of the complaint and any remedial actions will be performed by the builder and/or client representative on a monthly basis.

7.4 NOISE & VIBRATION MONITORING STRATEGY

7.4.1 General Methodology

Noise and vibration levels should be monitored from time to time to ensure that noise generated as a result of remediation and construction activities does not disturb local businesses and residents.

Monitoring may be in the form of regular checks by the builder or indirectly by an acoustic consultant engaged by the builder and in response to any noise or vibration complaints. Where noise and vibration criteria are being exceeded or in response to valid complaints, noise and / or vibration monitoring should be undertaken. This would be performed inside the premises of the affected property and on site adjacent to the affected receivers.

Monitoring is to be undertaken by an experienced noise and vibration monitoring professional or an acoustic consultant. The results of any noise or vibration monitoring are to be provided to the relevant party or person in a timely manner allowing the builder to address the issue and respond to the complaints.

Noise and vibration monitoring can take two forms:

- Short-term monitoring
- Long-term monitoring

Both of these approaches are elaborated below.

7.4.2 Short-term Monitoring

Short-term monitoring consists of attended monitoring when critical stages of the construction are occurring. This normally provides real-time assistance and guidance to the subcontractor on site, telling them when the noise and vibration criteria are exceeded. Thus, the selection of alternative methods on construction or equipment selection is allowed in order to minimise noise and vibration impacts.

7.4.3 Long-term Monitoring

Similarly to short-term monitoring, long-term monitoring provides real-time alerts to the builder / site manager when the noise and vibration criteria are exceeded. Instead of someone being on site measuring, noise and vibration loggers are used.

Typically, the noise and vibration loggers stay on site for a period of several months for the critical construction stages of the project, such as the demolition and excavation phases.

Both methodologies are complementary and normally used simultaneously providing a significant amount of data via the long-term monitoring but also providing information on the sources of noise and vibration generating exceedances via the short-term or attended monitoring.

7.4.4 Noise & Vibration Monitoring Program

Noise and vibration monitoring is to be carried out for the two nearest receiver within USYD being the Social Sciences Building (A02), specifically the SSB Lecture Theatre and the RD Watt Building. A noise monitor and vibration monitor is proposed to be installed on the external façade wall of the SSB lecture theatre nearest to the site. A noise monitor and vibration monitor is proposed to be installed externally to the RD Watt Building to minimise potential damage to the heritage aspects of the building.

The monitoring programme is to be carried out at the nominated receiver locations during the most noise / vibration intensive periods during each construction phase as agreed with the Acoustic Engineer, Head Contractor and University of Sydney.

Locations shall be discussed and agreed between the Acoustic Engineer, Contractor and the University prior to start of works and shall be reviewed regularly as construction works progress.

As construction vibration levels drop further away from the works zone, monitors will be rationalised where possible.

8. Conclusion

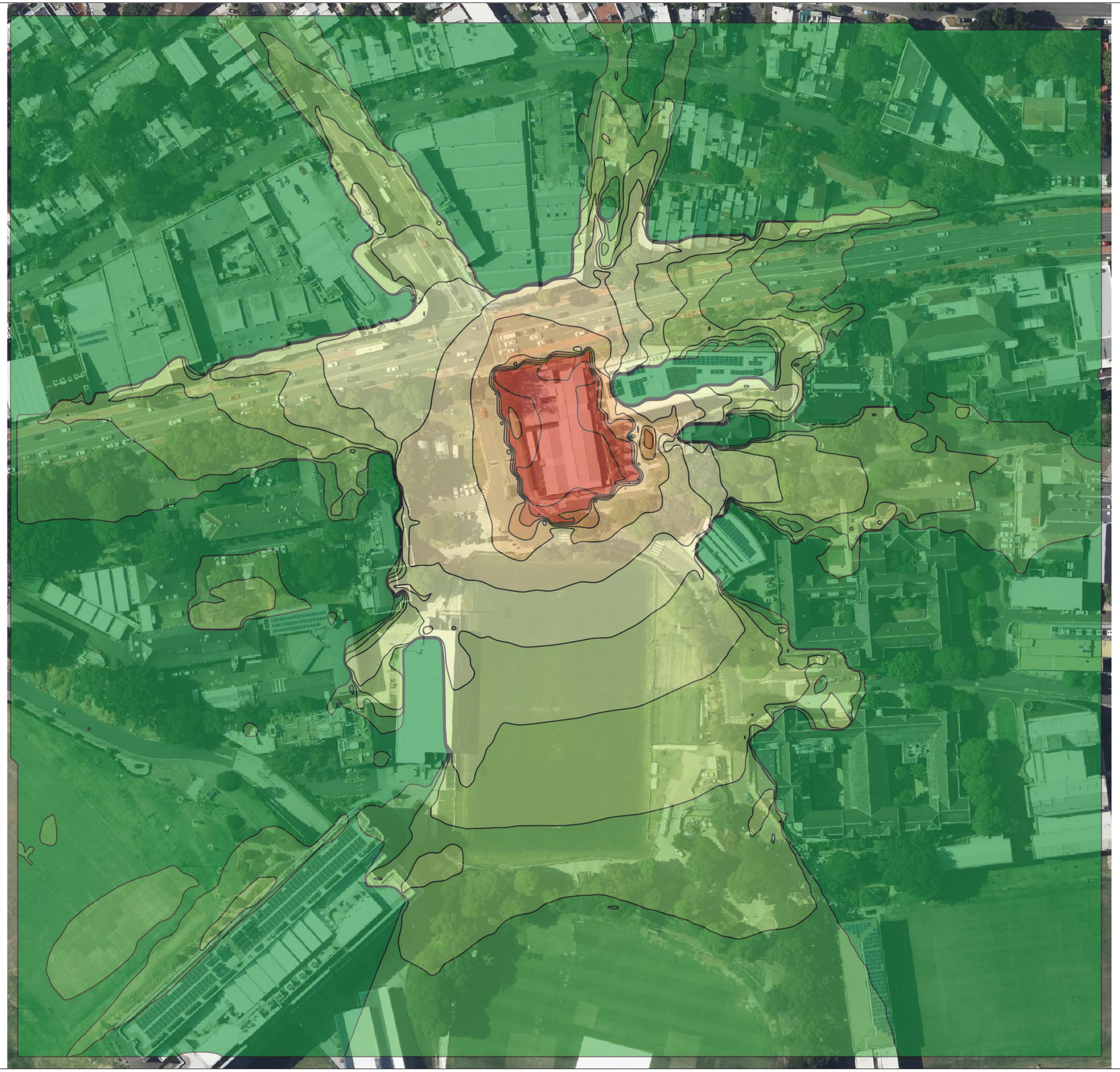
A Construction Noise and Vibration Management Plan has been provided for the works associated with the new USYD A01 Ross Street Education Building under SSD-57838709.

The details of the noise and vibration modelling and assessment undertaken to predict the impacts on sensitive receivers have been presented in Sections 5 and 6.

To reduce the noise and vibration impacts on the sensitive receivers, noise and vibration management strategies have been proposed in Section 7. Vibration monitoring strategies have been proposed to ensure the risk of exceeding vibration limits on sensitive equipment is minimised. Furthermore, the verification of safe working distances through attended noise measurements and/or long-term noise monitoring will ensure on-going vibration impacts are within safe limits.

The information presented in this report shall be reviewed if any modifications to the features of the development specified in this report occur, including and not restricted to selection of equipment/machinery and modifications to the construction program.

Appendix A Construction Noise Contour Map



E-LAB CONSULTING

ISSUE	DATE	STATUS
1	04/09/2026	FOR INFORMATION

LEGEND

Predicted Noise Level, $L_{Aeq,15min}$ dB(A)

- < 50
- 50 - 53
- 53 - 56
- 56 - 59
- 59 - 62
- 62 - 65
- 65 - 68
- 68 - 71
- 71 - 74
- 74 - 77
- 77 - 80
- > 80

NOTES

PROJECT
A01 ROSS STREET TEACHING & LEARNING HUB

PROJECT NO.
P03294

ARCHITECT
BVN

CLIENT
USYD

SCALE
NTS

STATUS
FOR INFORMATION

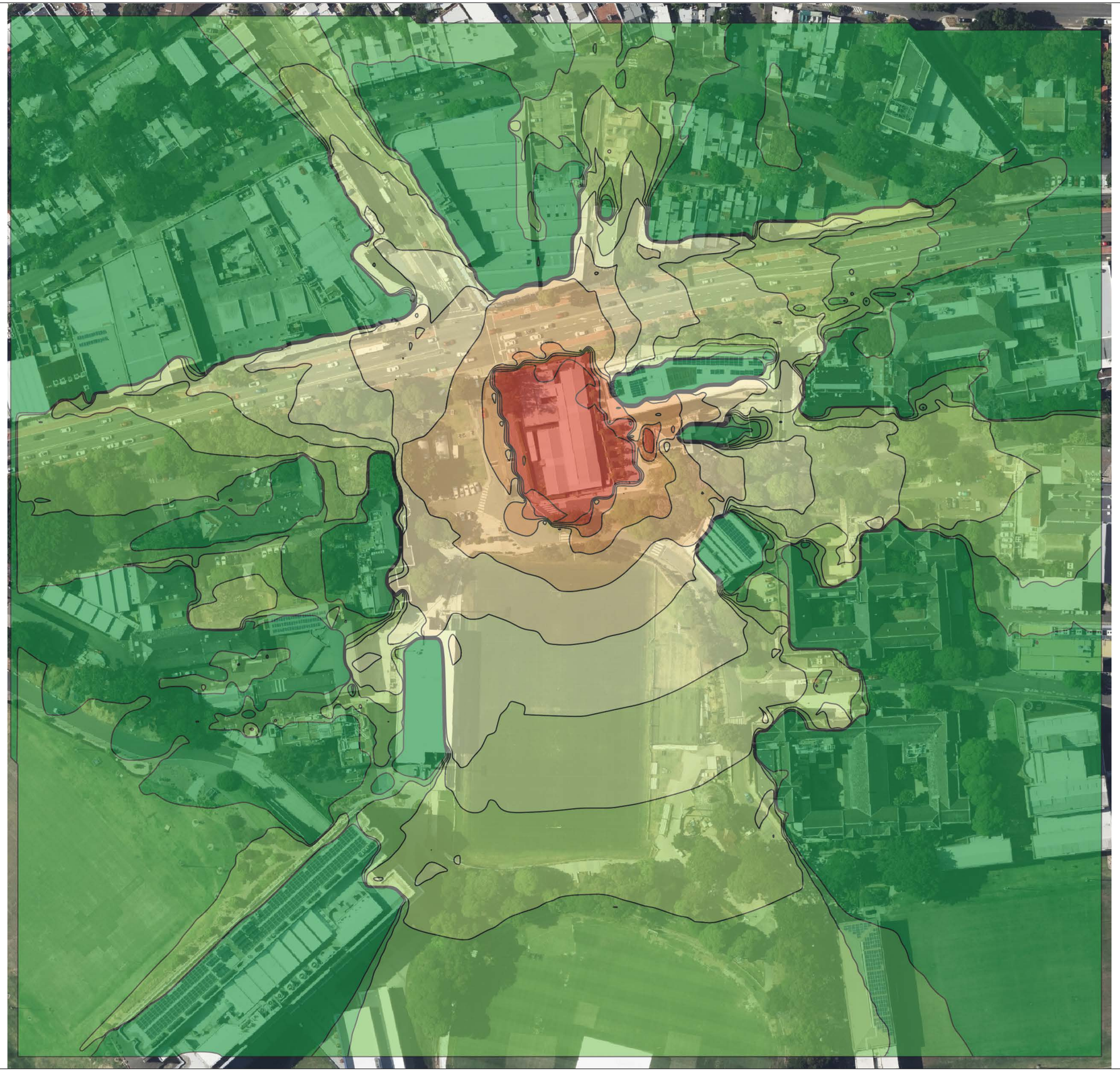
DRAWING
CONSTRUCTION NOISE CONTOUR MAP

DEMOLITION WORKS

DISCIPLINE
ACOUSTICS AND VIBRATION

DRAWING NUMBER
AC-DWG-100-01-01

REVISION
001



E-LAB CONSULTING

ISSUE	DATE	STATUS
1	04/09/2026	FOR INFORMATION

LEGEND

Predicted Noise Level, $L_{Aeq,15min}$ dB(A)

- < 50
- 50 - 53
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- 56 - 59
- 59 - 62
- 62 - 65
- 65 - 68
- 68 - 71
- 71 - 74
- 74 - 77
- 77 - 80
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NOTES

PROJECT
A01 ROSS STREET TEACHING & LEARNING HUB

PROJECT NO.
P03294

ARCHITECT
BVN

CLIENT
USYD

SCALE
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STATUS
FOR INFORMATION

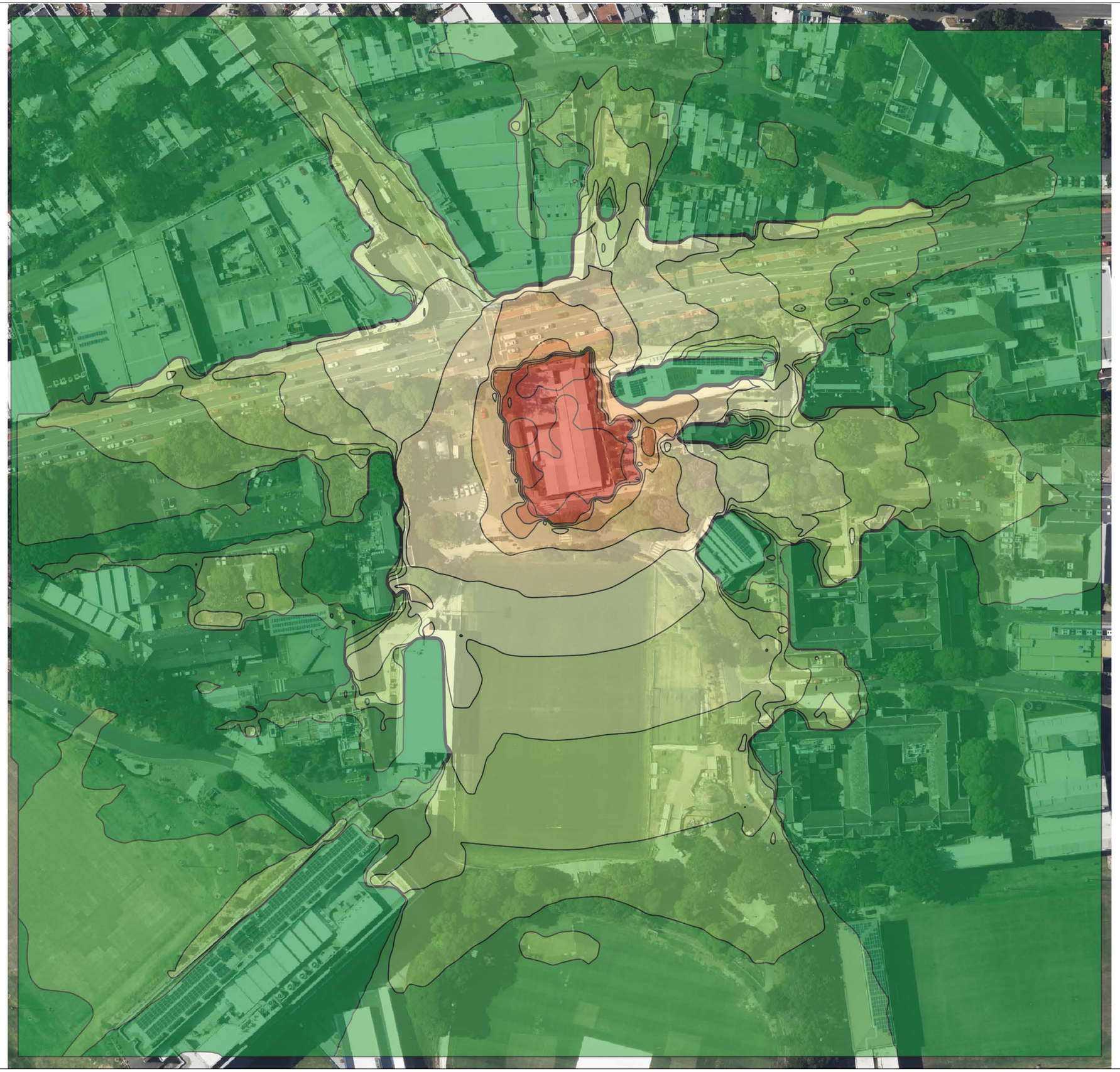
DRAWING
CONSTRUCTION NOISE CONTOUR MAP

BULK EXCAVATION & PILING WORKS

DISCIPLINE
ACOUSTICS AND VIBRATION

DRAWING NUMBER
AC-DWG-100-02-01

REVISION
001



E-LAB CONSULTING

ISSUE	DATE	STATUS
1	04/09/2026	FOR INFORMATION

LEGEND

Predicted Noise Level, $L_{Aeq,15min}$ dB(A)

- < 50
- 50 - 53
- 53 - 56
- 56 - 59
- 59 - 62
- 62 - 65
- 65 - 68
- 68 - 71
- 71 - 74
- 74 - 77
- 77 - 80
- > 80

NOTES

PROJECT
A01 ROSS STREET TEACHING & LEARNING HUB

PROJECT NO.
P03294

ARCHITECT
BVN

CLIENT
USYD

SCALE
NTS

STATUS
FOR INFORMATION

DRAWING
CONSTRUCTION NOISE CONTOUR MAP

STRUCTURAL & FACADE WORKS

DISCIPLINE
ACOUSTICS AND VIBRATION

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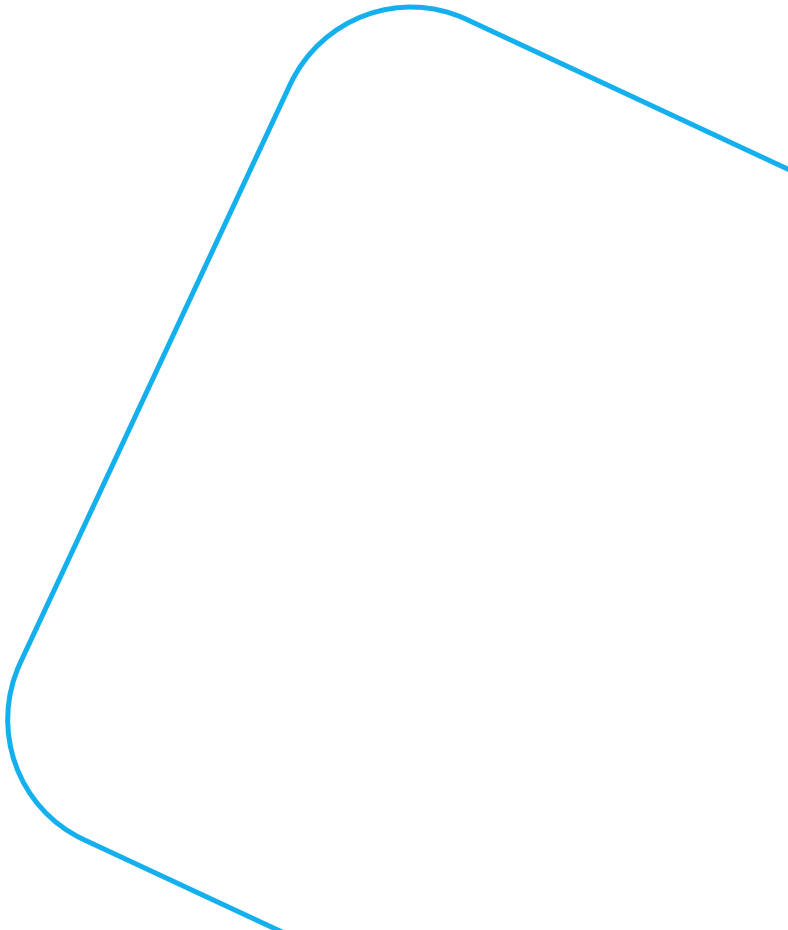
SCT Consulting

UNIVERSITY OF SYDNEY A01

Stage 1 Construction Traffic and Pedestrian Management Sub-Plan

18 AUGUST 2026

SCT Consulting acknowledges
the traditional owners of the lands
on which we work.
We pay our respects to Elders
past, present and emerging.



Quality Assurance

Project:	University of Sydney A01		
Project Number:	SCT_00956		
Client:	FDC Construction & Fitout	**ABN:**	44 120 295 034
Prepared by:	SCT Consulting	**ABN:**	53 612 624 058

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Contents

1.0 Introduction 1
1.1 Project background 1
1.2 Conditions of consent 1
1.3 TfNSW's Traffic control at work sites Technical Manual 2
1.3.1 Personnel must be appropriately qualified 3
1.3.2 Hierarchy of controls 3
1.3.3 Risk evaluation 4
1.4 Consultation 5

2.0 Existing conditions 6
2.1 Site context 6
2.2 Surrounding road network 7
2.3 Public transport 8
2.4 Walking and cycling 9
2.5 Car parking 10

3.0 Proposed construction activities 11
3.1 Construction methodology and duration of works 11
3.2 Construction traffic generation 13
3.3 Construction vehicle types 14
3.4 Construction work hours 15
3.5 Construction vehicle access 15
3.6 Construction vehicle haulage route 16
3.7 Construction works zone 17
3.8 Construction workers and parking 17
3.9 Materials and handling area 17
3.10 Pedestrian bridge over Western Avenue 18
3.11 Truck marshalling 18
3.12 Large construction plant and cranes 19
3.13 Notifications of works 19

4.0 Construction traffic impacts 20
4.1 Road network impacts 20
4.2 Nearby construction projects and cumulative impacts 20
4.3 Parking impacts 21
4.4 Pedestrian impacts 21
4.5 Cycling impacts 22
4.6 Public transport and University shuttle service impacts 22
4.7 Emergency services impacts 23
4.8 Impacts on adjoining properties and local access 23

5.0 Construction traffic management measures 24
5.1 General management measures 24
5.2 Traffic Guidance Scheme 25
5.3 Monitoring of the plan 25
5.4 Site inspections and record keeping 25
5.5 Hazard and incidents register 26
5.6 Vehicular access 26
5.7 Construction haulage routes 27

6.0 Conclusion..... 28

Appendices

Appendix A Swept path analysis
Appendix B Driver Code of Conduct
Appendix C Construction worker transportation strategy
Appendix D City of Sydney CTMP Standard requirement
Appendix E Traffic Guidance Scheme

1.0 Introduction

1.1 Project background

SCT Consulting has prepared this Stage 1 Construction Traffic and Pedestrian Management Sub-Plan (CTPMSP) on behalf of FDC Construction & Fitout for the A01 Ross Street Teaching and Learning Hub at the University of Sydney's Camperdown Campus.

The project was approved under SSD-57838709 on 17 December 2025 and comprises the construction of a new five-storey teaching and learning building with approximately 6,200 m² of gross floor area. The development also includes enhanced public domain areas, landscaping, a new University shuttle bus stop, an accessible pick-up and drop-off loop, and future changes to Western Avenue.

This Stage 1 CTPMSP applies to construction activities undertaken while Western Avenue remains operational as a two-way road and no significant changes are required to the existing campus traffic arrangements. It may apply from the commencement of site establishment and enabling works through to completion of the primary building structure, including excavation, piling, inground services and structural works.

The Stage 1 CTPMSP documents the construction vehicle access arrangements, heavy vehicle routes, pedestrian and cyclist management measures, loading and unloading procedures, worker travel and parking arrangements, and other controls required to maintain safe and efficient movement around the site during this period.

A separate Stage 2 CTPMSP will be prepared for the subsequent phase of construction when one-way operation of Western Avenue is required. The Stage 2 CTPMSP will address the revised campus circulation arrangements, later construction and public-domain activities, and any associated measures affecting Western Avenue and the intersections with Ross Street and Parramatta Road. It will be finalised once the relevant construction methodology, traffic arrangements and stakeholder requirements have been confirmed.

1.2 Conditions of consent

This Stage 1 CTPMSP has been prepared to address the relevant construction traffic, driver conduct and worker parking requirements of the Development Consent (SSD-57838709). The applicable conditions are summarised in **Table 1-1**.

Table 1-1 Conditions of consent

Condition	Requirement	Where addressed
B11	A Construction Traffic and Pedestrian Management Sub-Plan must be prepared to ensure the safety and efficiency of the road network and address, but not be limited to, the matters listed below.	This document
B11(a)	The CTPMSP must be prepared by suitably qualified and experienced person(s).	**Section 1.3.1**
B11(b)	The CTPMSP must be prepared in consultation with Council and Transport for NSW.	**Section 1.4** - consultation to be completed prior to finalisation post comments from CoS and TfNSW
B11(c)(i)	Detail measures to ensure road safety and network efficiency during construction, considering potential impacts on general traffic, cyclists, pedestrians and bus services.	**Section 4.0** and **5.0**
B11(c)(ii)	Detail measures to ensure the safety of vehicles and pedestrians accessing adjoining properties where shared vehicle and pedestrian access occurs.	**Section 5.0**
B11(c)(iii)	Detail heavy vehicle routes and site access and parking arrangements.	**Section 3.1**, **3.5**, **3.6** and **3.8**
B11(c)(iv)	Detail the swept path of the longest construction vehicle entering and exiting the site in association with the proposed works, as well as manoeuvrability through the site, in accordance with the latest version of AS 2890.2.	**Appendix A**

Condition	Requirement	Where addressed
B11(c)(v)	Detail arrangements to ensure construction vehicles enter and leave the site in a forward direction, except in specific exceptional circumstances under the supervision of accredited traffic controller(s).	**Section 3.5**
B15(a)	The Driver Code of Conduct must require heavy vehicle drivers to minimise the impacts of earthworks and construction on the local and regional road network.	**Appendix B**
B15(b)	The Driver Code of Conduct must require heavy vehicle drivers to minimise conflicts with other road users.	**Appendix B**
B15(c)	The Driver Code of Conduct must require heavy vehicle drivers to minimise road traffic noise.	**Appendix B**
B15(d)	The Driver Code of Conduct must require heavy vehicle drivers to use specified routes.	**Appendix B**
B16	Prior to the commencement of construction, sufficient on-campus parking, including for heavy vehicles, must be provided so that construction traffic does not utilise public or residential streets or public parking facilities.	**Section 4.3**
B17	Prior to the commencement of construction, a Construction Worker Transportation Strategy must be submitted to the Certifier. The Strategy must provide sufficient parking or alternative travel arrangements for construction workers to minimise demand for parking in nearby public and residential streets or public parking facilities.	**Appendix C**
C9	All construction vehicles (excluding site personnel vehicles) are to be contained wholly within the site, except if located in an approved on-street work zone, and vehicles must enter the site or an approved on-street work zone before stopping.	**Section 3.5, 3.6, 3.7** and **3.11**
C20	During construction, the Applicant must ensure that: (a) activities are carried out in a manner that minimises dust including emission of windblown or traffic generated dust; (b) all trucks entering or leaving the site with loads have their loads covered; (c) trucks associated with the development do not track dirt onto the public road network; (d) public roads used by these trucks are kept clean; and (e) land stabilisation works are carried out progressively on site to minimise exposed surfaces.	**Section 5.4** and **5.6**

1.3 TfNSW's Traffic control at work sites Technical Manual

The *Traffic control at work sites technical manual* outlines TfNSW's expectations for how Traffic Management Plan (TMP's) and Traffic Guidance Schemes (TGS's) are prepared. As a construction activity that interfaces and uses the state road network, this document applies to the preparation of this CTPMSP.

The key objective for a TMP is to ensure that works are arranged such that:

– Road workers can work safely

– Road users can travel around, past or through the work site safely

– Road workers and road users are separated wherever possible

– The activity does not impact or cause delay to road users or, if not reasonably practicable, it is minimised.

1.3.1 Personnel must be appropriately qualified

As of 1 July 2020, traffic control training in NSW is prescribed under the WHS Regulation 2017 and is managed by SafeWork NSW. As a requirement of the WHS Regulation 2017, a person undertaking traffic control work must hold the relevant qualification for the work they are performing. The three qualifications outlined in the WHS Regulation 2017 are as follows:

– Traffic Control (TC)

– Implement Traffic Control Plans (ITCP)

– Prepare Work Zone Traffic Management Plans (PWZTMP).

Implication for this project: Any Traffic Guidance Schemes must be pre-prepared by an individual who is qualified to prepare a Work Zone Traffic Management Plan (PWZTMP), and Traffic Control must only be conducted by appropriately qualified individuals.

The Traffic Guidance Scheme for the Stage 1 works has been prepared by:

– James Goodman, Senior Consultant — PWZTMP Ticket No. TCT1036878

Traffic control must only be implemented by appropriately qualified and accredited personnel.

1.3.2 Hierarchy of controls

TfNSW identifies a hierarchy of controls (**Table 1-2**) that should inform the way that interventions are developed.

Table 1-2 Hierarchy of traffic controls

Traffic management method	Description	Examples
Around (elimination)	An around method is where traffic is completely separated from the work area. An around method is the preferred Temporary Traffic Management method where achievable, as a majority of risks associated with Temporary Traffic Management are eliminated and it generally provides the lowest overall net risk option. This method must be considered as the first option, however, if it cannot be achieved, justification must be provided in the TMP.	Examples of around methods include: – A road closure requiring a detour of all traffic. – Construction of a sidetrack. – Contraflow of traffic via a separated median.
Past (isolation or engineering)	A past method is where substitution, isolation and engineering controls are used to guide traffic along an adjacent path to the work area. A past method includes the use of a barrier or shifting of traffic to provide complete separation of workers and traffic.	Examples of past methods include: – Contraflow without a separated median. – A lateral shift taper. – Use of an accepted temporary barrier system.
Through (administration and PPE)	A through method relies on administrative, training and PPE controls only. A through method does not provide separation of traffic to the work area and requires the passage of traffic through the work area. A through method must only be considered when around and past strategies are not achievable or the risk generated by installing those options outweighs the safety benefit.	Examples of through method include: – Directing road users immediately over the work area. – Separation is only achieved by the use of cones or bollards. – Pilot vehicle used to platoon road users.

Source: Transport for NSW, 2022

For the proposed construction activity, traffic from the site can't be eliminated, isolated or engineered away. Waste materials need to be transported from site and the only access points are the public road network.

1.3.3 Risk evaluation

TfNSW prescribes a risk management approach to identify and control hazards for traffic management. The list of hazards is identified in **Table 1-3**.

Table 1-3 Traffic management hazards and risks

Hazards and risks	
Moving traffic	Driver fatigue and inattention
Speed of vehicles	Non-compliance with temporary speed limits
Queued traffic (this increases the risk of end-of-queue collisions)	Reduced lane and shoulder widths
High-volume traffic	Compromised or changed access points
Vulnerable road user (pedestrians, cyclists and other non-vehicles) activity	Emergency vehicles travelling through the work site
Other construction activity or roadworks in proximity to proposed work site	Overhead power lines or other utilities
Restricted visibility due to the rising and setting of the sun	Restricted sight (and stopping) distance due to changes in the horizontal road alignment
Driver behaviour directed towards workers (psychosocial hazards)	Restricted sight (and stopping) distance due to changes in the vertical road alignment
Traffic composition	Site vehicle access and egress points
Number and location of traffic control points	Landform constraints
Exposure and proximity of workers to moving traffic	Crash history
Length of delays for road users	Non-compliance with regulatory signs, STOP/SLOW bats and PTCD
Roadside design or roadside hazards	Weather conditions

Source: Transport for NSW, 2022

The risk matrix which is used to evaluate the need for intervention is provided in **Figure 1-1**.

Figure 1-1 Risk matrix



Risk Matrix							
			Consequence					
	Description		Insignificant	Minor	Moderate	Major	Severe	Catastrophic
			C6	C5	C4	C3	C2	C1
Likelihood	Almost Certain	L1	D	C	B	A	A	A
	Very Likely	L2	D	C	B	B	A	A
	Likely	L3	D	C	C	B	B	A
	Unlikely	L4	D	D	C	C	B	B
	Very Unlikely	L5	D	D	D	C	C	B
	Almost Unprecedented	L6	D	D	D	D	C	C

Source: Transport for NSW, 2026

The key risks for the site are associated with truck collisions, particularly with vulnerable user groups. Controls are required to manage the potential conflicts caused by trucks, which are outlined in this plan.

1.4 Consultation

This Stage 1 CTPMSP will be submitted to the City of Sydney and Transport for NSW for review and comment.

This section will be updated following receipt of comments from the City of Sydney and Transport for NSW to document the consultation undertaken and any resulting amendments to the proposed construction traffic management arrangements.

This Stage 1 CTPMSP has been developed in accordance with the City of Sydney's standard Construction Traffic Management Plan requirements, which are included in **Appendix D**.

2.0 Existing conditions

2.1 Site context

The A01 Ross Street Teaching and Learning Hub construction site is located at the northern edge of the University of Sydney's Camperdown Campus, immediately south of Parramatta Road and adjacent to the Ross Street Gates. The site is bounded by Parramatta Road to the north, Western Avenue to the west and existing University buildings and pedestrian areas to the south and east.

The primary site frontage is to Western Avenue, which provides access between Parramatta Road and the broader internal campus road network. The site also has a prominent northern frontage to Parramatta Road; however, direct vehicle access is not available from Parramatta Road. The Ross Street Gates and the signalised Parramatta Road | Ross Street | Western Avenue intersection is located immediately north of the site and form a major pedestrian and vehicle entrance to the campus.

A separate site compound and construction storage area has been established on the western side of Western Avenue, opposite the principal construction site. This area will accommodate site facilities, material storage and other construction-related activities that cannot be contained within the main worksite. Construction activities will therefore occur on both sides of Western Avenue, with personnel, equipment and materials requiring controlled movement across or along the road between the two areas.

Western Avenue will remain an important internal campus connection during Stage 1 and carries pedestrians, cyclists and authorised local vehicle traffic. The subsequent CTPMSP for the later construction stages will document any structural or civil changes to Western Avenue and the associated traffic and pedestrian management measures.

An aerial view showing the construction site and associated site compound within the broader context of the University of Sydney campus and Royal Prince Alfred Hospital (RPA Hospital) is provided in **Figure 2-1**.

Figure 2-1 Site context



2.2 Surrounding road network

The road network surrounding the site comprises a combination of classified State roads, local streets and internal University roads. The University campus operates as a 10 km/h shared-zone environment, reflecting the high level of pedestrian and cyclist activity and the priority afforded to vulnerable road users.

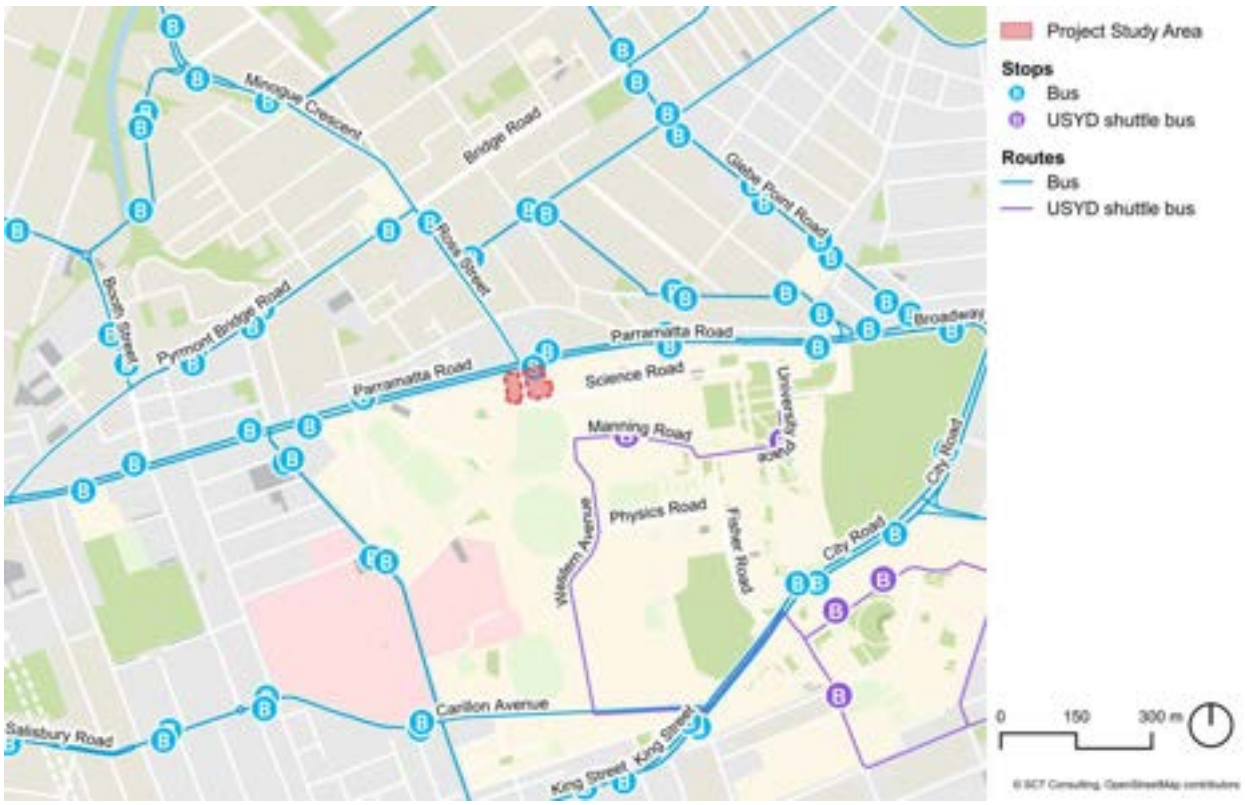
- **Western Avenue** is a two-way internal campus road extending in a generally north–south direction within the University of Sydney campus. It connects with Parramatta Road and Ross Street at a signalised intersection to the north and with Carillon Avenue at a priority-controlled intersection to the south. The road generally provides one traffic lane in each direction. Kerbside parking is prohibited along most of its length, except for the 90-degree parking area opposite the University Sports and Fitness Centre. Western Avenue is restricted primarily to local campus traffic and operates as a 10 km/h shared zone, with high levels of pedestrian and cyclist activity.
- **Science Road** is a two-way internal campus road extending generally east–west through the University. It provides local access to adjoining University buildings, service areas and internal campus roads. Science Road is restricted primarily to local campus traffic and operates as a 10 km/h shared zone. Pedestrians and cyclists frequently use the carriageway and adjoining paths, and vehicle movements are expected to give priority to people moving through the campus.
- **Parramatta Road** is a classified State road providing a major east–west connection through the surrounding area. Near the site, it generally comprises three traffic lanes in each direction, including bus lane and clearway operations during applicable periods. Kerbside parking is not permitted. Parramatta Road has a posted speed limit of 60 km/h near the site and connects with Western Avenue and Ross Street at a signalised intersection adjacent to the Ross Street Gates.
- **Carillon Avenue** is a two-way local collector road extending generally east–west. It connects with City Road to the east and Missenden Road to the west at signalised intersections, before continuing west as Salisbury Road. Carillon Avenue generally provides one traffic lane in each direction, with time-restricted kerbside parking available along parts of both sides of the road. It has a posted speed limit of 50 km/h, with a 40 km/h school zone applying along relevant sections during the signposted school-zone periods.
- **Ross Street** is a two-way local road extending north from Parramatta Road through Forest Lodge and Glebe. It connects with Parramatta Road and Western Avenue at the signalised intersection adjacent to the site and the Ross Street Gates. Ross Street generally provides one traffic lane in each direction, with kerbside parking available along parts of the road subject to time restrictions, resident parking controls and other signposted restrictions. It provides an important local connection between Parramatta Road and the surrounding residential street network.
- **City Road** is a classified state road extending generally north–south along the eastern side of the University campus. It connects with Parramatta Road and Broadway at a signalised intersection to the north and continues south towards King Street beyond Carillon Avenue. City Road generally provides three traffic lanes in each direction, with kerbside parking prohibited along most sections to maintain traffic capacity. It has a posted speed limit of 50 km/h and forms a key arterial connection between the Sydney CBD, the University precinct and the Inner West.

2.3 Public transport

The nearest public transport services are provided by buses operating along Parramatta Road. **The** University of Sydney, Ross Street Gate bus stops are located immediately adjacent to the site and serve buses travelling in both directions. Parramatta Road is a major bus corridor, with most services operating along the corridor stopping at this location. During peak periods, the combined frequency exceeds 30 services per hour in each direction.

Additional bus stops are located on City Road to the south-east and Missenden Road to the west. These stops provide access to further routes; however, they are located at a greater walking distance from the site. The surrounding public transport network is shown in **Figure 2-2**.

Figure 2-2 Public transport network



Rail services are available from Redfern Station, approximately 1.9 kilometres or a 25-minute walk from the site, and Macdonaldtown Station, approximately 1.6 kilometres or a 20-minute walk away. Both stations are accessible via the surrounding pedestrian network and provide practical walking connections to the University campus. Redfern Station offers the broader range and frequency of rail services, while Macdonaldtown Station provides an additional option for passengers using services that stop there.

The University of Sydney also operates a campus shuttle service between the campus and Redfern Station. The nearest shuttle stop is the Education Building stop, located less than 200 metres from the site. The shuttle operates throughout the year, with increased service levels during semester periods. Two shuttle routes serve the campus, each generally operating at 30-minute intervals.

2.4 Walking and cycling

The University of Sydney is predominantly a walking-based campus, with most internal trips undertaken on foot. The campus operates as a 10 km/h shared zone and has an extensive pedestrian network, frequent raised crossings, speed-control devices and generally limited vehicle access. These measures establish a low-speed environment in which pedestrians and cyclists have priority over motor vehicles.

Western Avenue forms a key north–south connection through the campus and provides direct access to the site. The site is also located adjacent to the Ross Street Gates, one of the University's main entrances, with connections to the footpaths along Ross Street and Parramatta Road. Approximately 700 students per hour enter or exit through the Ross Street Gates during the morning and afternoon peak periods.

Western Avenue is identified as a low-traffic or "quiet street" on the City of Sydney Bike Network map and forms the main cycling approach to the site from the south. Other streets within the campus are also low-traffic environments, and shared paths are provided through parts of the University grounds. There are no dedicated cycling facilities along Parramatta Road near the site. However, the broader network connects to local low-traffic streets to the north and to the dedicated cycling facilities along Bridge Road. The surrounding cycling network is illustrated in **Figure 2-3**.

Figure 2-3 Nearby cycling facilities



2.5 Car parking

There are no existing formal car parking spaces within the Stage 1 construction site.

Parking elsewhere within the University of Sydney's Camperdown/Darlington Campus is limited and is provided through a combination of designated outdoor parking areas, off-street spaces and structured car parks. The campus operates as a paid parking area at all times, with access subject to the applicable University parking arrangements and the availability of spaces. The Western Avenue underground car park, which is located near the site, is currently closed as a result of construction works.

Additional off-street parking is associated with RPA Hospital to the south and south-west of the campus. This includes paid visitor and staff parking accessed from Hospital Road, off Carillon Avenue, as well as paid parking behind the King George V Building accessed from Missenden Road. Other privately operated paid parking facilities are also located around the hospital precinct, including near Missenden Road and St Johns College.

Public on-street parking is available within the surrounding suburbs of Forest Lodge, Glebe and Camperdown. Parking controls vary by street and generally comprise a combination of:

– one-hour and two-hour time-restricted parking
– resident permit-holder exemptions, generally within Area G
– ticketed or metered parking
– unrestricted parking in limited locations
– dedicated loading, mobility, car-share, No Parking and No Stopping areas.

The City of Sydney identifies Glebe, Forest Lodge and the part of Camperdown north of Parramatta Road as being within Parking Permit Area G. Parking demand across these neighbourhoods is generally high, with time restrictions and permit controls used to encourage turnover and limit commuter parking in residential streets. Restrictions vary between individual street sections and are subject to the installed signage.

3.0 Proposed construction activities

3.1 Construction methodology and duration of works

The Stage 1 works for the A01 Ross Street Teaching and Learning Hub comprise the construction activities undertaken while Western Avenue continues to operate as a two-way road and no significant changes are required to the existing campus traffic arrangements. Stage 1 may extend from initial site establishment and enabling works through to completion of the main structural frame.

FDC mobilisation is scheduled to commence on 26 August 2026, with services relocation and enabling works expected to commence in September 2026. Civil, excavation, substructure and structural works will progressively follow in accordance with the construction program.

The principal Stage 1 construction activities are expected to include, but are not limited to:

– site establishment, remediation and enabling works
– piling and construction of shoring systems
– bulk and detailed excavation and spoil removal
– construction of inground services and the building substructure
– construction of the slab-on-ground and main structural frame
– other associated works that can be undertaken while maintaining two-way operation of Western Avenue.

The current construction program indicates that the broader project is scheduled to continue through to practical completion in February 2028. The key project milestones are summarised in **Table 3-1**.

Table 3-1 Indicative construction program

Milestone	Indicative date
Project commencement	16 June 2026
FDC mobilisation on site	26 August 2026
Construction Certificate 1 – services relocation	1 September 2026
Construction Certificate 2 – civil, substructure and in-ground services	15 September 2026
Construction Certificate 3 – structure	29 January 2027
Bulk excavation complete	13 January 2027
Tower crane erection	10 February 2027
Ground-floor podium slab poured	24 March 2027
Construction Certificate 4 – façade, fitout, services and external works	15 April 2027
Structure complete	21 June 2027
Façade installation commences	22 July 2027
Building envelope complete	20 September 2027
Tower crane removal	16 November 2027
Internal fitout and finishes complete	6 January 2028
External works complete	6 January 2028
Occupation Certificate / nett practical completion	24 January 2028
Practical completion	28 February 2028

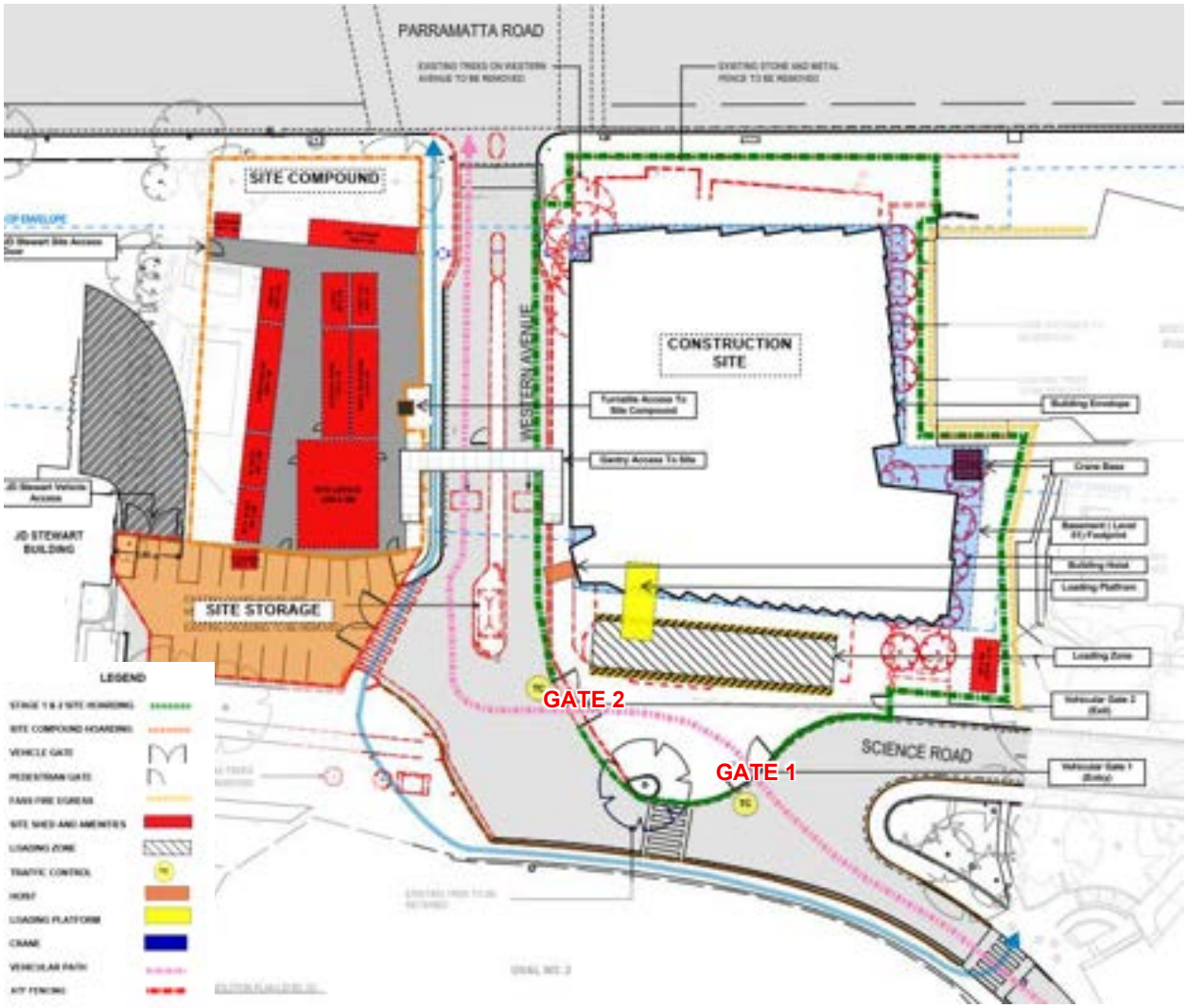
This Stage 1 CTPMSP applies to construction activities undertaken while Western Avenue remains operational as a two-way road and no significant changes are required to the existing campus traffic arrangements. A subsequent Stage 2 CTPMSP will document the construction traffic arrangements for the later phase of works when one-way operation of Western Avenue is required.

Class A hoarding will be installed along the eastern side of Western Avenue for the duration of the Stage 1 works. A minimum trafficable lane width of 3.5 metres will be maintained for southbound vehicles adjacent to the hoarding. The northbound lane will not be affected,

Jersey kerbs will be installed at the north-western corner of the construction site and along the bends adjoining the southern portion of the site, where the hoarding is located directly adjacent to trafficable lanes. These barriers will provide additional protection to the hoarding at locations where vehicles are more likely to track close to the site boundary.

A site plan of the proposed Stage 1 works is shown below in **Figure 3-1**.

Figure 3-1 Site plan Stage 1



Source: FDC Construction & Fitout, 2026

3.2 Construction traffic generation

Construction traffic volumes will vary according to the activities being undertaken. Under typical Stage 1 conditions approximately 10 deliveries per day are expected. Higher traffic volumes may occur during bulk excavation and concrete activities associated with piling, shoring and structure works, when up to approximately 40 deliveries per day are anticipated.

Each delivery would generally generate one inbound and one outbound movement. Construction vehicle movements are expected to be distributed across the 11-hour weekday construction period, rather than concentrated within the road network peak periods. The indicative daily and hourly traffic generation is summarised in **Table 3-2**.

Table 3-2 Indicative construction traffic generation

Construction activity	Maximum deliveries per day	Approximate one-way vehicle movements per day	Indicative peak-hour one-way movements
Typical construction activities	10	20	2
Bulk excavation	40 rigid truck deliveries	80	8
Concrete pours	40 concrete agitator deliveries	80	8

The hourly estimates assume that deliveries are broadly distributed across the working day. On this basis, the busiest activities would generate approximately eight one-way construction vehicle movements during a typical peak hour, equivalent to around four vehicles arriving and four vehicles departing.

Deliveries will be managed through FDC's internal site delivery coordination process, having regard to site capacity, loading and unloading requirements, excavation productivity and concrete-pour sequencing. Delivery times may be allocated where required to avoid off-site queuing or unnecessary clustering of construction vehicles. FDC will use reasonable endeavours to manage semi-trailer movements during quieter periods of campus activity, where practicable, having regard to site operations, supplier availability, approved construction hours, access conditions and information provided by the University.

Deliveries will be scheduled progressively to reflect site capacity, loading and unloading requirements, excavation productivity and concrete pour sequencing. Some short-term variation may occur; however, delivery booking and site coordination procedures will be used to avoid unnecessary clustering of construction vehicles, particularly during the surrounding road network peak periods.

The construction workforce is expected to comprise fewer than 20 workers between August and November 2026, fewer than 50 workers between December 2026 and January 2027 and fewer than 150 works between February 2027 and July 2027. Worker arrival and departure movements would be more concentrated around the start and end of the working day; however, these movements would be limited by the use of public transport, walking, cycling and other non-car travel modes.

3.3 Construction vehicle types

Construction traffic during Stage 1 will comprise a range of heavy and light vehicles associated with site establishment, plant mobilisation, excavation, spoil removal, piling and material deliveries. The principal construction vehicle types are summarised in **Table 3-3**.

Table 3-3 Anticipated construction vehicle types

Vehicle type	Typical use
Concrete agitator	Delivery of concrete during piling, shoring and concrete pours
Rigid truck	General construction materials, equipment, waste and smaller deliveries, removal of excavated material and spoil.
Semi-trailer, up to approximately 19 metres long	Delivery of earthmoving plant, mobile cranes, reinforcing steel and other large materials or equipment
Oversize or non-standard delivery vehicle	Delivery of piling rigs, site sheds, earthmoving equipment and tower crane components
Light commercial vehicle	Small tools, equipment and contractor deliveries
Passenger vehicle	Site management, consultants and authorised visitors

Rigid trucks and concrete agitators are expected to account for the majority of construction vehicle movements. Semi-trailers will be used as required for the delivery of large plant, reinforcing steel, cranes and other large materials or equipment.

The largest standard vehicle expected to access the site during Stage 1 is a 19-metre semi-trailer. Swept path assessments for this vehicle are provided in **Appendix A**.

Semi-trailer access is expressly contemplated by SSD document D5.20, which states in Section 2.11 that the site establishment arrangements are to provide for semi-trailer truck access to and from the site.

Routine semi-trailer loading and unloading will occur within the designated loading and unloading area inside the principal construction site.

Swept path analysis indicates that the 19-metre semi-trailer can exit through Gate 2 without encroaching on the existing raised median on Western Avenue or conflicting with the existing gatehouse. Accordingly, removal of these features is not required to facilitate the assessed vehicle movement. Notwithstanding this, the gatehouse and affected section of raised median are proposed to be removed as part of future works.

While the existing gatehouse and raised median remain in place, the vehicle's northbound exit path passes close to the pedestrian path on the western side of Western Avenue. A trained site person will therefore temporarily hold pedestrians while a 19-metre semi-trailer, or another vehicle requiring an equivalent swept-path envelope, exits through Gate 2. The hold will be limited to the duration of the vehicle manoeuvre, with pedestrians released once the vehicle has cleared the affected section of path. This measure will no longer be required once the gatehouse and affected section of raised median have been removed.

FDC will use reasonable endeavours to manage semi-trailer movements during periods of lower pedestrian and vehicle activity where practicable, having regard to site operations, supplier availability, approved construction hours, access conditions and information made available by the University.

Oversize or non-standard vehicle deliveries will be separately planned where required, taking account of vehicle dimensions, access constraints, permit requirements and the need for traffic control or escort arrangements. Before any oversize or non-standard vehicle enters Western Avenue, the delivery contractor must provide the overall travelling height of the vehicle and load to FDC and complete the relevant permit processes with the National Heavy Vehicle Register. Vehicles exceeding the available clearance beneath the temporary pedestrian bridge will not be permitted to enter Western Avenue and must use an alternative approved delivery arrangement.

3.4 Construction work hours

Construction activities will be undertaken during the approved working hours summarised in **Table 3-4**.

Table 3-4 Approved construction hours

Day	Permitted working hours
Monday to Friday	7:00 am to 6:00 pm
Saturday	8:00 am to 1:00 pm
Sunday and public holidays	No work permitted

Construction activities, deliveries and vehicle movements will generally occur during the approved hours identified in **Table 3-4**. Activities outside these hours will only occur where permitted under condition C5 of SSD-57838709 and will be subject to the applicable assessment, approval and notification requirements. Where reliance is placed on condition C5(c), the proposed activity will be supported by advice from the project acoustic consultant. Any applicable approval and notification requirements, including those under condition C6, will be addressed in accordance with the development consent.

3.5 Construction vehicle access

Construction vehicle access during Stage 1 will be provided from Western Avenue, as shown in **Figure 3-1** above.

All construction vehicles will approach the site from the south via Carillon Avenue and travel north along Western Avenue. Vehicles will enter the principal construction site through Gate 1, manoeuvre within the designated loading and unloading area and exit through Gate 2. Vehicles will then continue north along Western Avenue to the signalised intersection with Parramatta Road.

Western Avenue will remain operational as a two-way 10 km/h shared zone. Short-duration traffic holds may be implemented where required to allow a large construction vehicle to enter or leave the site safely.

During entry, traffic and cyclists may be temporarily held while the vehicle completes the turning manoeuvre into the site. During exit, traffic, cyclists and pedestrians may be temporarily held where required by the vehicle swept path. Road users will be released once the vehicle has cleared the affected area. This measure will no longer be required following removal of the gatehouse and affected section of raised median.

Where reasonably practicable, semi-trailer movements will be planned during periods of lower pedestrian and vehicle activity on Western Avenue.

The proposed one-way circulation through the site is intended to allow construction vehicles to enter and leave in a forward direction. Reversing movements will be contained within the worksite and undertaken under the direction of site personnel where required.

3.6 Construction vehicle haulage route

The nominated construction vehicle haulage route will use the arterial and collector road network before entering the University campus from Carillon Avenue. Construction vehicles will approach the site via Carillon Avenue, turn into Western Avenue and travel north to Gate 1. Following loading or unloading, vehicles will exit through Gate 2 and continue north along Western Avenue to Parramatta Road.

The indicative route is summarised below:

– **Inbound route:** Construction vehicles will travel from King Street or City Road via Carillon Avenue, then continue north along Western Avenue to enter the site through Gate 1.

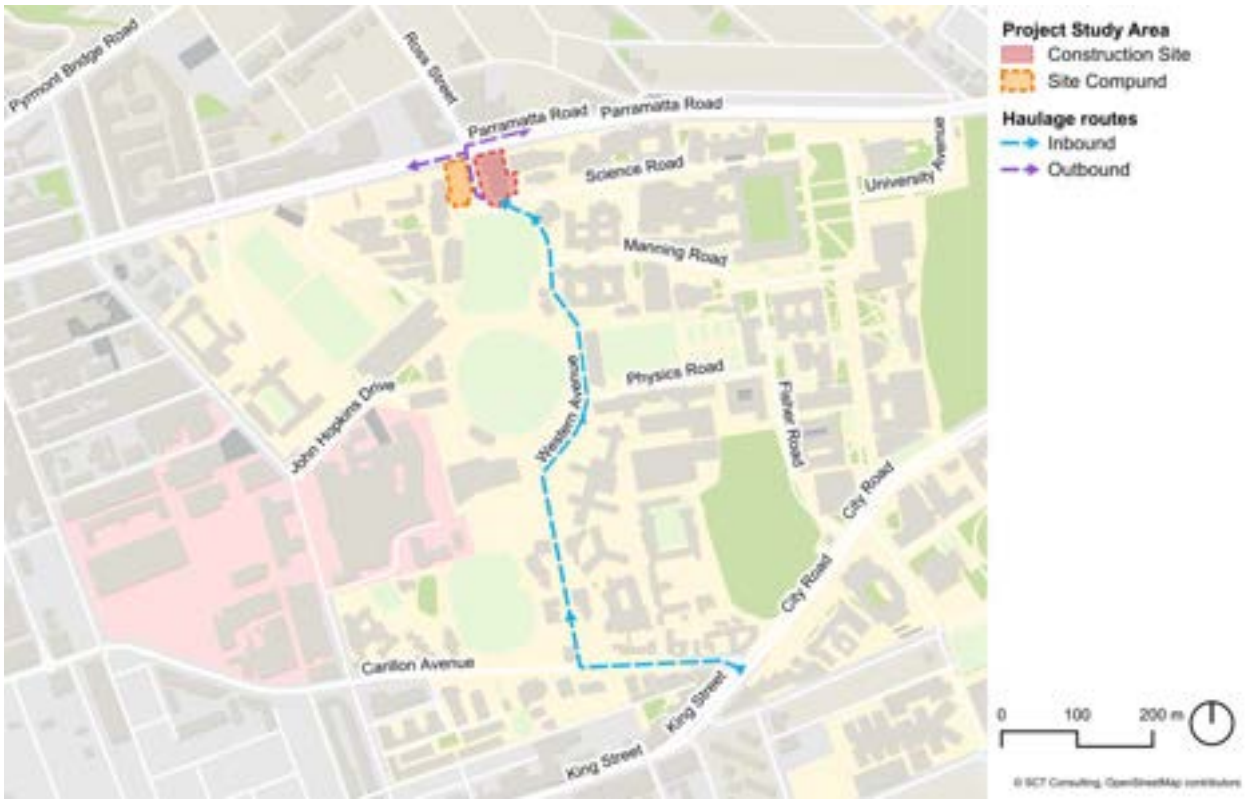
– **Outbound route:** Construction vehicles will exit the site through Gate 2, continue north along Western Avenue to Parramatta Road, and then join the surrounding road network.

The nominated route avoids construction vehicles travelling southbound along Western Avenue between the site and Carillon Avenue after leaving the site and establishes a consistent forward-moving circulation arrangement.

The construction vehicle haulage route is shown in **Figure 3-2**. Final routes beyond Parramatta Road will depend on the origin or destination of each delivery and any applicable heavy vehicle restrictions.

Drivers will be required to use the nominated routes in accordance with the Driver Code of Conduct provided in **Appendix B**.

Figure 3-2 Vehicle haulage route



3.7 Construction works zone

A formal construction work zone is not proposed on Parramatta Road, Western Avenue or any other surrounding public or campus road during Stage 1.

All routine loading and unloading activities will occur within the designated loading area inside the principal construction site. The area identified as the loading zone on the construction site plan is an internal construction loading and plant setup area and is not a kerbside work zone.

Temporary traffic control may be implemented for individual oversized deliveries or crane activities where necessary, subject to the relevant approvals.

3.8 Construction workers and parking

The anticipated Stage 1 construction workforce is summarised below:

– August to November 2026 Fewer than 20 workers

– December 2026 to January 2027 Fewer than 50 workers.

– February 2027 to July 2027 Fewer than 150 workers

No construction worker parking is proposed within the principal construction site or the site compound on the western side of Western Avenue.

Construction workers will be encouraged to travel by public transport, active transport, car pooling and other non-private vehicle modes. Any allocated parking used by construction personnel will need to be provided through approved University arrangements and must not rely on surrounding public or residential streets.

Detailed worker travel and parking arrangements are provided in the Construction Worker Transportation Strategy in **Appendix C**.

3.9 Materials and handling area

Loading, unloading and material handling will primarily occur within the designated loading zone inside the principal construction site, as shown in **Figure 3-1**. This area will also be used for the setup of mobile cranes and concrete boom pumps when required.

A separate site compound and storage area will be established on the western side of Western Avenue opposite the main construction site. This area will accommodate site sheds, amenities and construction material storage that cannot be contained within the principal worksite.

A telehandler may be used to transfer materials between the site compound on the western side of Western Avenue and the principal construction site on the eastern side.

The telehandler will cross Western Avenue at the nominated controlled transfer point and will not travel longitudinally along Western Avenue or any other publicly accessible road. Each crossing will be undertaken under direct traffic control. Pedestrians, cyclists and authorised campus vehicles will be temporarily held while the telehandler crosses the footpath and carriageway.

Before each movement, the operator and traffic controllers will confirm that the route is clear, the load is secure and the receiving area is available. Road users will only be released once the telehandler has fully entered the controlled construction area and the carriageway and footpath are clear.

Telehandler movements are expected to be limited to approximately two transfer movements per day, subject to construction requirements. Wherever practicable, movements will be scheduled outside periods of high pedestrian activity and will not coincide with a construction vehicle entering or leaving the principal worksite.

Movements between the compound and the principal site will be managed to minimise interactions with pedestrians, cyclists and authorised campus vehicles.

3.10 Pedestrian bridge over Western Avenue

A temporary pedestrian bridge is proposed between the site compound on the western side of Western Avenue and the principal construction site on the eastern side. The location of the pedestrian bridge is shown in the site plan in **Figure 3-1**. The bridge will provide a physically separated route for workers moving between the two construction areas, eliminating the need for routine worker crossings of Western Avenue at road level.

The bridge will span an active campus road used by authorised University vehicles, construction vehicles and vehicles associated with nearby projects, including the Sydney Biomedical Accelerator. The bridge will therefore be designed and installed to provide a minimum clear opening of 5.0 metres above the trafficable carriageway.

General-access heavy vehicles operating in NSW are generally limited to a maximum height of 4.3 metres, inclusive of their load. Certain restricted-access vehicles may operate at heights of up to 4.6 metres but are subject to applicable access conditions and must use approved routes. The proposed 5.0-metre clearance would therefore exceed the maximum height of general-access vehicles by 0.7 metres and the height of eligible 4.6-metre restricted-access vehicles by 0.4 metres.

The nominated 5.0-metre clearance must be verified by the bridge designer and surveyor following installation. The verified clearance must account for the lowest structural element, any services or temporary attachments beneath the bridge, construction tolerances, bridge deflection and the crossfall and vertical profile of Western Avenue.

The following controls will be implemented to manage the risk of a vehicle or load striking the bridge:

– bridge clearance signs displaying “5.0 m” will be installed on the bridge and on both approaches

– sacrificial over-height warning bars, hanging indicators or equivalent height-detection devices will be installed on both approaches to the bridge, sufficiently in advance to allow an over-height vehicle to stop before reaching the structure

– advance warning signs stating “CAUTION – BRIDGE AHEAD – MAXIMUM VEHICLE HEIGHT 5.0 m” will be installed along Western Avenue, including three advance signs on the approach from the Sydney Biomedical Accelerator project

– all construction deliveries using Western Avenue will be subject to pre-booking, with the vehicle and loaded travelling height confirmed for oversize, non-standard or unusually high deliveries

– drivers of oversize or non-standard vehicles will be advised of the bridge and its available clearance before entering the University campus

– vehicles or loads exceeding the verified clearance, or where the travelling height cannot be confirmed, will not be permitted to travel beneath the bridge

– warning devices, signage and the bridge clearance will be inspected regularly and following any vehicle contact, bridge adjustment, pavement work or modification to the structure.

The over-height warning devices are intended to provide advance warning and must be positioned so that contact with the warning device does not create a hazard to vehicles, pedestrians or workers. The final form and supporting arrangement of the bridge, signage and warning devices will be subject to structural design, installation certification and acceptance by the University.

3.11 Truck marshalling

No dedicated on-street or off-site truck marshalling area is proposed for Stage 1.

The internal loading and unloading area will provide short-term standing space for the vehicle currently being serviced. Construction vehicles will not be permitted to enter the campus until site management confirms that sufficient internal space is available.

Where the site cannot receive a delivery, the vehicle must remain at its origin, at an approved commercial holding facility or at another location lawfully suitable for heavy-vehicle standing. Public streets, residential streets, public parking areas and the University road network must not be used as informal holding or marshalling areas.

Construction deliveries will be scheduled and coordinated by the site management team to ensure that vehicles do not arrive until sufficient space is available within the site. Drivers will be required to contact the site before arrival and proceed to the site only when instructed.

The site management procedures will include:

- pre-booking of deliveries
- allocation of delivery times
- confirmation that the loading area is available before vehicles enter the campus
- direct communication between drivers and site management
- rescheduling or holding vehicles at their origin where the site is unable to receive a delivery
- additional coordination for oversized vehicles, plant deliveries and concrete pours.

3.12 Large construction plant and cranes

A range of cranes and large construction plant will be required during the project, including:

- piling rigs
- excavators
- mobile cranes
- concrete boom pumps
- a tower crane.

During Stage 1, mobile cranes and concrete boom pumps may be positioned within the designated internal loading zone. These activities will be planned to ensure that plant setup, lifting operations and delivery vehicles can be accommodated within the worksite.

The project program indicates that the tower crane is expected to be erected in February 2027 and removed in November 2027. Delivery and erection of the tower crane will involve non-standard vehicle movements and will require a separate detailed delivery and lifting plan.

Mobile cranes may also be required from Western Avenue during later structural steel installation. Any crane setup or lifting activity affecting Western Avenue falls outside the scope of this Stage 1 CTPMSP and will be documented in the subsequent CTPMSP for the structural and civil stages.

Crane operations will be subject to the contractor's lift plans, exclusion zones, permits and applicable traffic and pedestrian management requirements.

3.13 Notifications of works

Advance notification will be provided where construction activities have the potential to affect access, traffic, pedestrians, cyclists, public transport services or adjoining University operations.

Notifications will be coordinated by FDC and the University of Sydney and may include:

- notices to affected University faculties, facilities and campus users
- notifications to adjoining properties and stakeholders
- signage and notices at relevant campus entry points
- updates through University communication channels
- direct notification of changes to pedestrian or cyclist access
- advance notice of oversized deliveries, crane activities or temporary access restrictions
- consultation with the City of Sydney, Transport for NSW and relevant public transport operators where required.

Where relevant, information regarding these activities will be provided to the University for distribution to affected campus stakeholders and nearby construction projects.

Notifications will identify the nature of the works, the expected timing and duration, the area affected, any changes to access or movement arrangements, and a contact for further information.

Urgent or unplanned changes will be communicated as soon as practicable through the project's established communication and incident management procedures.

4.0 Construction traffic impacts

4.1 Road network impacts

Construction traffic generated by the Stage 1 works will vary according to the activity underway. Typical construction activities are expected to generate approximately 10 deliveries per day, increasing to a maximum of approximately 40 deliveries per day during bulk excavation or concrete pours.

Each delivery represents one truck visit, comprising one inbound and one outbound vehicle movement. On the basis that deliveries are distributed across the 11-hour weekday construction period, the busiest activities are expected to generate an average of approximately four truck visits per hour, equivalent to approximately eight one-way vehicle movements per hour.

Construction vehicles will approach from Carillon Avenue, travel north along Western Avenue, enter through Gate 1 and depart through Gate 2 before continuing north to Parramatta Road. Western Avenue will generally remain open to two-way traffic and will continue to operate as a 10 km/h shared zone during the Stage 1 works.

Short-duration traffic-control holds may be required for individual large-vehicle movements. During a semi-trailer entry movement, traffic and cyclists may be temporarily held while the vehicle enters the site. During an exit movement, traffic, cyclists and pedestrians may be temporarily held where required by the vehicle swept path. These interruptions will be intermittent and limited to the time required for the relevant manoeuvre.

Approximately 45 m of vehicle storage is available on Western Avenue between the site and Parramatta Road, sufficient to accommodate around seven light vehicles. Given the generally low traffic volumes and short duration of the proposed holds, queuing is not expected to extend back to Parramatta Road under normal operating conditions. Nevertheless, there remains a possibility that an extended hold or an unexpected concentration of vehicles could cause a queue to approach the intersection.

Traffic controllers must monitor queue lengths during each hold and release traffic before the queue reaches Parramatta Road where possible. Where sufficient storage is not available, construction vehicle movements must be delayed until Western Avenue has cleared. Traffic controllers must not commence a hold where it is likely to obstruct the Parramatta Road intersection or interfere with vehicles entering Western Avenue.

The proposed traffic management arrangements are expected to maintain the existing function of Western Avenue while safely managing interactions between construction vehicles and the high levels of pedestrian and cyclist activity within the campus.

The low-speed shared-zone environment reduces vehicle speeds but also requires construction drivers and traffic controllers to account for high and potentially unpredictable pedestrian and cyclist activity. Construction vehicles must give way to pedestrians and cyclists except while a specific movement is being undertaken under active traffic control.

Class A hoarding will be installed along the eastern side of Western Avenue to separate the construction site from the road and adjoining pedestrian environment. Jersey kerbs will be installed at the north-western corner of the construction site and along the bends adjoining the southern portion of the site, where the hoarding is located directly adjacent to trafficable lanes. These barriers will provide additional protection to the hoarding at locations where vehicles are more likely to track close to the site boundary.

4.2 Nearby construction projects and cumulative impacts

Several major construction projects are occurring or proposed within the University of Sydney and RPA Hospital precinct and may overlap with the Stage 1 works. These include the Sydney Biomedical Accelerator and the RPA Hospital redevelopment.

The Sydney Biomedical Accelerator is currently under construction near the intersection of Western Avenue and Cadigal Lane and is expected to be completed in 2028. Its construction access arrangements use Western Avenue, resulting in a direct cumulative interface with the A01 construction route.

The RPA Hospital redevelopment includes construction of a new 15-storey tower and extensions to existing hospital buildings, with works expected to continue until 2028. Based on the Construction Traffic Management Plan prepared for the RPA works, the main works and refurbishment stages may generate up to approximately 70 truck visits per day, equivalent to approximately six to seven truck visits per hour across an 11-hour weekday. Access for these works is principally provided from John Hopkins Drive and Missenden Road and does not use Western Avenue.

A summary of the potential cumulative construction traffic demand is provided in **Table 4-1**.

Table 4-1 Cumulative construction traffic activity

Project	Indicative maximum truck demand	Equivalent one-way movements	Principal construction access	Direct overlap with Western Avenue
A01 Ross Street Teaching and Learning Hub – Stage 1	Approximately 4 truck visits per hour	Approximately 8 movements per hour	Carillon Avenue and Western Avenue	Yes
Sydney Biomedical Accelerator	Up to approximately 8 truck visits per hour	Up to approximately 16 movements per hour	Western Avenue	Yes
RPA Hospital redevelopment	Approximately 6–7 truck visits per hour	Approximately 12–14 movements per hour	John Hopkins Drive and Missenden Road	No

The maximum combined demand on Western Avenue associated with the A01 and Sydney Biomedical Accelerator projects could therefore reach approximately 12 truck visits per hour, equivalent to up to approximately 24 one-way truck movements per hour, in the conservative circumstance that the peak activity of both projects coincides.

This estimate represents a maximum combined condition rather than the expected demand throughout the day. Deliveries for both projects would vary according to construction activity and would generally be distributed across the working day.

FDC will liaise with the University regarding major deliveries or activities requiring special traffic management or separate authority approval, including oversize movements and crane activities. Relevant information may be provided by the University to the Sydney Biomedical Accelerator contractor to assist with the management of construction interfaces on Western Avenue.

Where a potential conflict is identified from the information available, FDC will use reasonable endeavours to manage the relevant movement to minimise unnecessary overlap, having regard to the construction program, site requirements and prevailing access conditions.

4.3 Parking impacts

There are no existing formal parking spaces within the Stage 1 construction site, and no construction worker or construction vehicle parking is proposed within the main worksite or the compound on the western side of Western Avenue.

The works will not require the establishment of an on-street construction work zone. Loading, unloading and routine construction vehicle standing will occur within the site.

The Class A hoarding alignment and construction compound will occupy areas already unavailable for general parking. The Western Avenue underground car park is also currently closed due to construction and is not available to support the Stage 1 works.

Construction workers will be directed to use public transport, walking, cycling, car pooling or parking specifically authorised by the University. Surrounding public streets in Camperdown, Forest Lodge and Glebe are not to be relied upon for construction worker parking. Detailed measures are provided in the Construction Worker Transportation Strategy in **Appendix C**.

Accordingly, the Stage 1 works are not expected to directly remove public on-street parking or materially affect the available parking supply surrounding the site.

4.4 Pedestrian impacts

The University campus experiences high levels of pedestrian activity, particularly near the Ross Street Gates and along Western Avenue. Approximately 700 students per hour enter or leave the campus through the Ross Street Gates during the morning and afternoon peak periods.

The eastern footpath along Western Avenue, adjacent to the principal construction site and its vehicle access points, has been closed to pedestrians for several months and will remain closed throughout the Stage 1 works. Accordingly,

the principal construction site does not have an active pedestrian frontage, and pedestrians will continue to use the western side of Western Avenue and the established alternative routes through the campus.

The western pedestrian path will remain available during the Stage 1 works. However, the path passes close to the northbound exit path of a 19-metre semi-trailer leaving the site through Gate 2. A site person will therefore temporarily hold pedestrians at the affected section of path where required during the exit manoeuvre. The hold will be short and limited to the duration of the manoeuvre, with pedestrians released once the vehicle has cleared the affected section of path. Where reasonably practicable, these movements will be planned during periods of lower pedestrian activity. This control will no longer be required once the gatehouse and affected section of raised median have been removed.

The site compound and storage area on the western side of Western Avenue front the active western footpath. Where construction vehicles enter or leave these areas, traffic controllers will temporarily hold pedestrians and only release them once the vehicle manoeuvre has been completed and the footpath is confirmed to be clear.

Movements of the telehandler between the compound and the principal construction site will also be controlled and coordinated. The telehandler will not travel longitudinally along Western Avenue or any other publicly accessible road. Where it crosses the western footpath or Western Avenue, the movement will occur under direct traffic control, with pedestrians, cyclists and vehicles held as necessary.

As the eastern footpath is already closed, the Stage 1 works will not introduce a new pedestrian diversion. The existing arrangement will be retained and supported by hoarding, signage, delineation and active traffic control at the site compound, storage area and material transfer points.

4.5 Cycling impacts

Western Avenue operates as a 10 km/h shared zone and forms part of the low-traffic cycling network through the University campus. Cyclists currently share the roadway with authorised vehicles and pedestrians.

Two-way cyclist access along Western Avenue will generally be maintained during Stage 1. Cyclists may be temporarily held when construction vehicles enter or leave the site or when materials are transferred between the site compound and the principal worksite.

The temporary holds will be short and limited to the duration of the relevant construction movement. Traffic controllers will ensure cyclists are visible to construction vehicle drivers and will not release cyclists through a gate interface until the vehicle manoeuvre is complete.

Construction vehicles will be required to give way to cyclists, observe the 10 km/h campus speed limit and comply with the Driver Code of Conduct. Warning signage will be provided where required to alert drivers and cyclists to the construction access points.

No permanent closure or diversion of the existing cycling route along Western Avenue is proposed as part of the Stage 1 works.

4.6 Public transport and University shuttle service impacts

The University of Sydney, Ross Street Gate bus stops are located on Parramatta Road immediately adjacent to the site. The construction works do not require relocation or closure of these stops, and construction vehicles will not access the site directly from Parramatta Road.

Construction vehicles leaving the site will travel north along Western Avenue and enter Parramatta Road at the existing signalised intersection. These movements will occur under the normal operation of the traffic signals and are not expected to materially affect bus services along Parramatta Road.

The University shuttle service operates within the campus and connects with Redfern Station. The nearest shuttle stop is the Education Building stop, located less than 200 metres from the site. Existing shuttle routes and stops will remain operational during construction. No scheduled bus or University shuttle route travels directly past the Stage 1 construction access gates. Direct impacts at the access points are therefore expected to be negligible.

FDC will coordinate with the University where an oversized delivery, crane activity or other work has the potential to affect a University shuttle route or stop.

4.7 Emergency services impacts

Emergency vehicle access through the University campus and along the surrounding public road network will be maintained at all times.

The site gates, loading area and internal construction routes will be managed so that emergency access is not obstructed. Construction vehicles will not be permitted to queue or stand on Western Avenue, Carillon Avenue or Parramatta Road.

Traffic controllers will immediately cease construction vehicle movements and clear the route where an emergency vehicle approaches. Any temporary traffic control arrangement will give priority to emergency services.

Emergency contact details, site access procedures and the location of gates will be communicated to relevant site personnel. In the event of an incident within the site, a nominated person will meet emergency services at the relevant gate and direct them to the incident location.

4.8 Impacts on adjoining properties and local access

The Stage 1 works are located within the University campus and are not expected to restrict vehicle access to surrounding residential or commercial properties.

Access to adjoining University buildings and facilities will generally be maintained. The construction site boundary, hoarding, gates and compound will be managed to ensure that entrances, emergency access points and established pedestrian routes outside the approved construction area remain available.

Short-duration holds will occur on Western Avenue when construction vehicles enter or leave the site. These holds will be managed by traffic controllers and will not prevent ongoing access to adjoining campus facilities.

FDC will liaise with the University regarding oversize deliveries, crane operations, temporary access changes or other activities with the potential to materially affect local access. Relevant information may be distributed by the University to affected campus stakeholders and nearby construction projects. Where a potential interface is identified, reasonable endeavours will be made to minimise conflicting movements while maintaining access through the campus.

5.0 Construction traffic management measures

5.1 General management measures

The Stage 1 traffic management arrangements have been developed to maintain safe and efficient access along Western Avenue while minimising impacts on pedestrians, cyclists, authorised campus vehicles and surrounding University operations.

The key management measures are summarised in **Table 5-1**.

Table 5-1 General traffic management measures

Matter	Management measure
Delivery management	Construction deliveries will be managed through FDC's internal site delivery coordination process having regard to the availability of the internal loading and unloading area. Delivery planning will have regard to surrounding road-network and campus peak periods where reasonably practicable.
Western Avenue operation	Two-way traffic will generally be maintained. Short-duration traffic holds may be implemented where necessary to allow construction vehicles to safely enter or leave the site.
Site access	Vehicles will enter the principal construction site through Gate 1 and exit through Gate 2 in a forward direction.
Pedestrian management	The existing closure of the eastern footpath adjacent to the principal construction site will remain in place. The western pedestrian path will generally remain available, subject to short-duration holds associated with access to the site compound and storage area. While the existing gatehouse and raised median remain in place, a trained site person may temporarily hold pedestrians where required to safely manage a 19-metre semi-trailer, or another vehicle requiring an equivalent swept-path envelope, exiting through Gate 2. Any hold will be limited to the duration of the vehicle manoeuvre.
Cyclist management	Cyclist access along Western Avenue will generally be maintained. Cyclists may be temporarily held during construction vehicle or telehandler movements.
Site separation	Class A hoarding will be provided along the principal construction site frontage. Crash barriers will be installed at corners, constrained locations and other areas where additional protection is required.
Truck queuing	Construction vehicles will not queue, wait or marshal on Western Avenue, Carillon Avenue, Parramatta Road or surrounding local streets.
Worker travel	Workers will be encouraged to use public transport, walking, cycling, car pooling and other non-private vehicle travel modes.
Stakeholder coordination	FDC will liaise with the University regarding major deliveries or activities requiring special traffic management or separate authority approval. Relevant information may be distributed by the University to affected campus stakeholders and nearby construction projects.
Emergency and local access	Emergency vehicle access and access to adjoining University buildings and facilities will be maintained at all times.
Temporary pedestrian bridge	The temporary pedestrian bridge over Western Avenue will provide a minimum verified clearance of 5.0 metres. Clearance signage, advance warning signs and sacrificial over-height warning devices will be installed on both approaches. Oversize and non-standard deliveries will be pre-booked and their travelling height confirmed before entering Western Avenue.

These measures will be implemented in conjunction with the Traffic Guidance Scheme, the Driver Code of Conduct and FDC's site safety procedures.

5.2 Traffic Guidance Scheme

A Traffic Guidance Scheme has been prepared for the Stage 1 construction access arrangements and is provided in **Appendix E**. It has been prepared by an appropriately accredited person in accordance with the Transport for NSW *Traffic Control at Work Sites Technical Manual*, AS 1742.3 and applicable SafeWork NSW requirements.

The Traffic Guidance Scheme identifies the construction access points, traffic controller locations, warning signage and pedestrian and cyclist controls required during the works.

Traffic controllers will be provided where required to:

- Assist construction vehicles entering and leaving the principal construction site
- Manage vehicle access across the western footpath to the site compound and storage area
- Control telehandler movements between the compound and principal construction site
- Temporarily hold pedestrians, cyclists and authorised campus vehicles while construction movements occur.

The principal construction site does not have an active pedestrian frontage because the eastern footpath along Western Avenue is already closed. Traffic control will therefore be focused on the western footpath adjacent to the site compound and storage area and at the material transfer route between the two construction areas.

Short-duration holds may also be required on Western Avenue while vehicles enter or exit the site. Traffic, pedestrian and cyclist movements will be released as soon as the manoeuvre is complete and the route is safe.

Advisory signage will be installed on the approaches to the construction access points to warn road users of construction vehicles entering and leaving the site. Signage and traffic control devices will be inspected regularly and removed, covered or relocated when they are no longer applicable.

5.3 Monitoring of the plan

FDC will monitor the implementation and effectiveness of this CTPMSP throughout the Stage 1 works. Monitoring will be undertaken through routine site observations, inspections and review of construction activities.

The monitoring program will focus on:

- Construction vehicle compliance with the nominated access and haulage routes
- The operation of Gate 1, Gate 2 and the site compound access
- The safety of pedestrians, cyclists and vehicles near construction access points
- The condition and visibility of signage, barriers, hoarding and delineation
- The condition of Western Avenue and the adjoining footpath
- Compliance with delivery booking and truck marshalling procedures
- Access to adjoining University buildings and facilities
- Impacts on University shuttle and public transport services
- Impact to the operation of Parramatta Road, particularly at the Parramatta Road | Ross Street | Western Avenue signalised intersection.
- Coordination with nearby construction projects.

Any deficiency identified through monitoring will be rectified as soon as practicable. This CTPMSP and the associated Traffic Guidance Scheme will be reviewed where there is a material change to the construction methodology, staging, site access arrangements, vehicle types or surrounding traffic conditions.

5.4 Site inspections and record keeping

The construction traffic arrangements will be inspected before work commences each day and periodically throughout the working day. The purpose of these inspections will be to confirm that the approved arrangements remain suitable and that no new hazards have arisen.

Daily inspections will include checks that:

- Site gates are operational and unobstructed
- Signage and traffic control devices are correctly positioned and visible
- Hoarding, crash barriers and delineation remain secure

- The western footpath is clear outside controlled construction movements
- Vehicle manoeuvring and loading areas are available
- Construction vehicles are not queued on surrounding roads
- Western Avenue and adjoining footpaths are free from mud, debris and other hazards.

FDC will maintain records of site inspections, identified defects, corrective actions, delivery bookings, major vehicle movements, complaints, incidents, near misses and stakeholder notifications. These records will be retained for the duration of the works and made available to the University, Certifier or relevant authority upon request.

5.5 Hazard and incidents register

FDC will maintain a hazard and incident register as part of the project Work Health and Safety Management Plan. The register will cover traffic, pedestrian, cyclist, environmental and access-related matters arising during construction.

Relevant hazards and incidents may include vehicle conflicts, near misses at site access points, incorrect use of haulage routes, truck queuing, materials deposited on the roadway, damage to traffic control devices and obstruction of pedestrian or vehicle access.

All workers, subcontractors and visitors will be required to report hazards and incidents to the Site Supervisor or Construction Manager. Where safe and practicable, an immediate hazard will be controlled when first identified. Where this is not possible, the affected area will be secured until the issue can be resolved.

Incidents and near misses will be investigated and any required corrective actions recorded. Where an incident indicates that the existing traffic management arrangements are inadequate, this CTPMSP and the Traffic Guidance Scheme will be reviewed and amended as required.

5.6 Vehicular access

Construction deliveries will be pre-booked and managed through the site delivery coordination process. Drivers will contact site management before approaching the site and will not proceed until the relevant loading or unloading area is available.

Construction vehicles will enter and leave the principal construction site in a forward direction. Reversing movements will be contained within the site and undertaken under the direction of trained site personnel where required.

Two-way traffic will generally be maintained along Western Avenue. Traffic controllers may temporarily hold road users where a construction vehicle requires additional road space to enter or leave the site safely.

Swept path analysis confirms that a 19-metre semi-trailer can use the access without encroaching on the existing raised median on Western Avenue or conflicting with the existing gatehouse. Routine semi-trailer loading and unloading will occur within the designated area inside the principal construction site. The gatehouse and affected section of raised median are nevertheless proposed to be removed as part of future works.

While these features remain in place, a trained site person will temporarily hold pedestrians at the affected section of the western pedestrian path where required during the semi-trailer exit manoeuvre. The hold will be short and limited to the duration of the manoeuvre, with pedestrians released once the vehicle has cleared the affected section of path. Where reasonably practicable, semi-trailer movements will be planned during periods of lower pedestrian and vehicle activity.

The following access requirements will apply:

- Construction vehicles must not queue or marshal on surrounding roads
- Vehicle loads must be secured and covered where required
- Loose material must be removed from vehicles before they leave the site
- Mud, spoil or debris deposited on the road or footpath must be removed promptly
- Emergency vehicle access must be maintained at all times.

Oversize vehicles, large plant deliveries and tower crane components will be subject to separate planning, including any permits, escorts or additional traffic control required.

5.7 Construction haulage routes

All construction vehicle drivers will be required to use the nominated haulage routes described in **Section 3.6**.

The access strategy has been arranged so that construction vehicles travel in a consistent northbound direction along Western Avenue. Vehicles will approach the site from Carillon Avenue, enter through Gate 1, pass through the site and exit through Gate 2 before continuing north to Parramatta Road.

This arrangement provides several operational and safety benefits, including:

– Minimising opposing construction vehicle movements along Western Avenue.

– Reducing the likelihood of large construction vehicles needing to pass each other within the constrained campus road environment.

– Supporting forward entry and exit movements through the principal construction site.

– Reducing reversing and turning movements on Western Avenue.

– Providing a clear and predictable route for drivers, traffic controllers and other campus users.

– Simplifying coordination with construction traffic associated with nearby projects.

Deliveries will be scheduled to reduce the potential for simultaneous arrivals and departures, particularly where larger vehicles are involved. Where required, traffic controllers will coordinate vehicle movements so that a construction vehicle is not released from the site while another large vehicle is approaching along Western Avenue.

The nominated routes will be communicated to drivers through the delivery booking and site induction processes, with the detailed driver requirements provided separately in the Driver Code of Conduct in **Appendix B**.

The haulage routes will be reviewed if nearby road works, campus construction activity or changes to the construction methodology affect access to the site.

6.0 Conclusion

This Stage 1 Construction Traffic and Pedestrian Management Sub-Plan has been prepared for construction activities associated with the A01 Ross Street Teaching and Learning Hub that can be undertaken while Western Avenue remains operational as a two-way road.

The principal conclusions and traffic management arrangements are as follows:

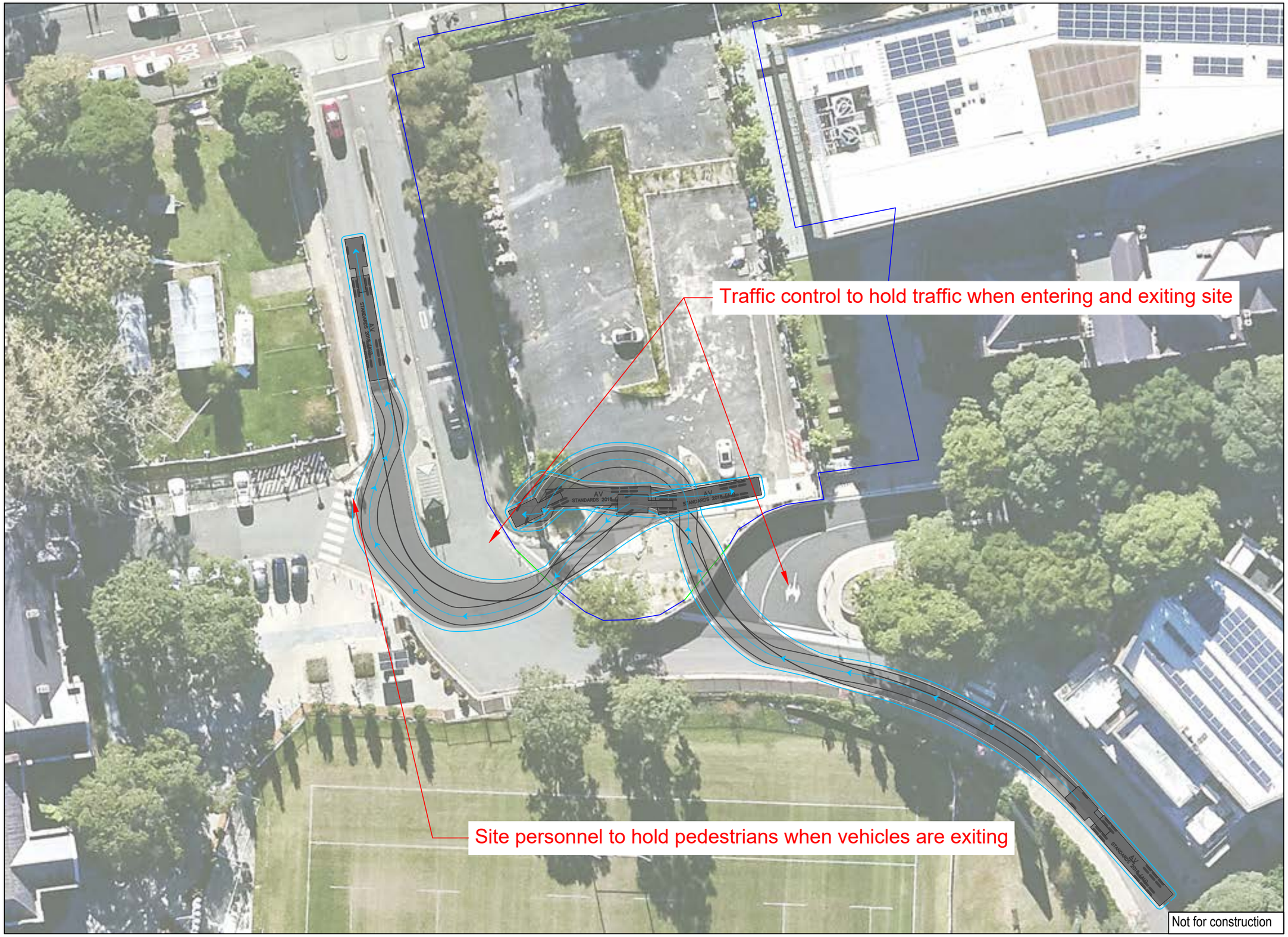
- Construction vehicles will approach the site from Carillon Avenue and travel north along Western Avenue, entering through Gate 1 and exiting through Gate 2 before continuing north to Parramatta Road.
- The one-way circulation arrangement through the site will enable construction vehicles to enter and leave in a forward direction and minimise reversing and opposing heavy-vehicle movements on Western Avenue.
- Typical Stage 1 activities are expected to generate approximately 10 deliveries per day, increasing to a maximum of approximately 40 deliveries per day during bulk excavation or concrete activities.
- The busiest Stage 1 activities are expected to generate an indicative average of approximately four truck visits per hour, equivalent to approximately eight one-way construction vehicle movements per hour.
- Western Avenue will generally remain open to two-way traffic and continue to operate as a 10 km/h shared zone, with short-duration traffic-control holds implemented where required for construction vehicle and material-transfer movements.
- Class A hoarding will be installed along the eastern side of Western Avenue, with a minimum 3.5-metre trafficable width maintained for southbound vehicles adjacent to the hoarding.
- A temporary barrier system will be installed at the north-western corner of the construction site and along the bends adjoining the southern portion of the site where the hoarding is directly adjacent to trafficable lanes.
- A temporary pedestrian bridge will provide separated worker access between the western compound and the principal construction site, with a minimum verified clearance of 5.0 metres, advance warning signage, bridge clearance signs, over-height warning devices and delivery height-verification procedures implemented to manage the risk of vehicle impact.
- The eastern footpath adjacent to the principal construction site is already closed, while pedestrian and cyclist access along the western side of Western Avenue will generally be maintained, subject to short-duration holds under active traffic control.
- Construction deliveries will be pre-booked, and vehicles will not be permitted to queue, wait or marshal on Western Avenue, surrounding University roads, public streets or residential streets.
- No construction worker parking will be provided within the principal construction site or western compound, with workers directed to use public transport, walking, cycling, car pooling or parking specifically authorised by the University.
- Emergency access and access to adjoining University buildings and facilities will be maintained throughout the works.
- FDC will liaise with the University regarding major deliveries or activities requiring special traffic management or separate authority approval. Relevant information may be distributed by the University to affected campus stakeholders and nearby construction projects to assist with the management of construction interfaces on Western Avenue.
- The traffic management arrangements will be monitored throughout Stage 1 and reviewed where there is a material change to the construction methodology, vehicle types, site access arrangements or surrounding traffic conditions.

Subject to implementation of the measures contained in this CTPMSP, the Driver Code of Conduct, the Construction Worker Transportation Strategy and the approved Traffic Guidance Scheme, the Stage 1 works are expected to be undertaken while maintaining the safe and generally continuous operation of Western Avenue for pedestrians, cyclists, authorised vehicles and adjoining University activities.

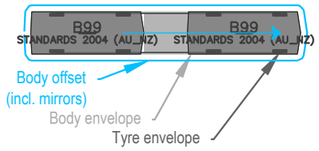
A subsequent CTPMSP will be prepared for the later structural, civil and external works, including any revised construction access arrangements or changes affecting Western Avenue and the Ross Street, Western Avenue and Parramatta Road intersection.

APPENDIX A

SWEPT PATH ANALYSIS

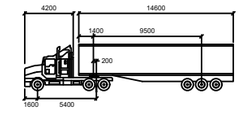


Legend



This swept path assessment is based on:

- 450mm body offset
- Vehicle speed of 5-10km/h
- An AS2890.2 articulated vehicle



AV

mm

Tractor Width	: 2500	Lock to Lock Time	: 6.0
Trailer Width	: 2500	Steering Angle	: 28.3
Tractor Track	: 2500	Articulating Angle	: 72.0
Trailer Track	: 2500		

Gates

A Class hoarding

Not for construction

SCT Consulting

V	Description	Date
1.0	PRELIMINARY DRAFT	27/07/2026
2.0	REVISED FOR CONSULTATION	07/08/2026

Prepared for: FDC

Quality information	
Date	08/26
Prepared	J.G
Reviewed	M.C
Authorised	J.B

Scale @ A3

0 50 100

Scale 1:500

Project: University of Sydney A01 Ross Street Teaching and Learning Hub

Title: Swept path analysis
Articulated vehicle access and egress

Project Number: SCT_00956_CAD_A01 Construction - FDC

Sheet number: 01

A3

P:\Projects\SCT_00956 A01 Construction - FDC\4. Tech Work\5. Engineering\SCT_00956 A01 Construction - FDC_Swept path_CAD_v2.0

APPENDIX B

DRIVER CODE OF CONDUCT

Driver Code of Conduct

This document sets out the requirements for all employees, contractors and subcontractors of FDC Construction & Fitout who operate vehicles travelling to or from the A01 construction site on Western Avenue within the University of Sydney campus.

General Requirements

In accordance with Condition B15 of SSD-57838709, this Driver Code of Conduct requires heavy vehicle drivers to:

a. minimise the impacts of earthworks and construction on the local and regional road network

b. minimise conflicts with other road users

c. minimise road traffic noise

d. ensure truck drivers use specified routes.

The Driver Code of Conduct will be distributed to all contractors and subcontractors whose vehicles access the site. Each driver must read the Code before attending the site.

Drivers travelling to and from the site must:

– Hold a valid driver licence for the class of vehicle being operated.

– Operate a registered and roadworthy vehicle and comply with all applicable road rules, traffic regulations and heavy vehicle requirements.

– Only operate an oversize or overmass vehicle where all required permits and approvals have been obtained, and comply with all permit conditions, including approved routes, operating times, vehicle configurations and escort requirements.

– Wear a seatbelt whenever the vehicle is moving.

– Comply with posted speed limits, including the 10 km/h shared-zone speed limit on Western Avenue, and reduce speed further where required by road, pedestrian, traffic or weather conditions.

– Follow the directions of authorised site personnel, traffic controllers and University representatives.

– Remain alert for pedestrians, cyclists, students, staff, buses, service vehicles and other road users.

– Report any incident, near miss, breakdown, spill or unsafe condition to the Site Manager.

Site Access, Parking and Queuing

Construction vehicles must use the approved access arrangements identified in the Construction Traffic and Pedestrian Management Sub-Plan. Deliveries will be pre-booked, and drivers must contact the nominated site representative before arrival where required.

Drivers must:

– Arrive only during the allocated delivery period and enter or leave the site only when directed.

– Enter through Gate 1 and leave through Gate 2 in a forward direction.

– Not queue, wait, stand or park on Western Avenue or surrounding University and public roads.

– Not obstruct intersections, driveways, pedestrian paths, cycle routes, loading areas or emergency access.

– Follow the directions of the Site Manager if the site is unable to receive the vehicle.

Speed and Safe Driving

The posted speed limit is the maximum permitted speed. Drivers must reduce speed where required and exercise particular caution within the University campus, where pedestrian and cyclist activity is high.

Drivers must also be aware of shared zones, pedestrian crossings, restricted sight distances, temporary traffic controls and changing site access arrangements. Drivers must give way where required to ensure the safe passage of other road users.

Heavy Vehicle Haulage Routes

All heavy vehicle drivers must use the designated arrival and departure routes as detailed below and shown in **Figure 1**:

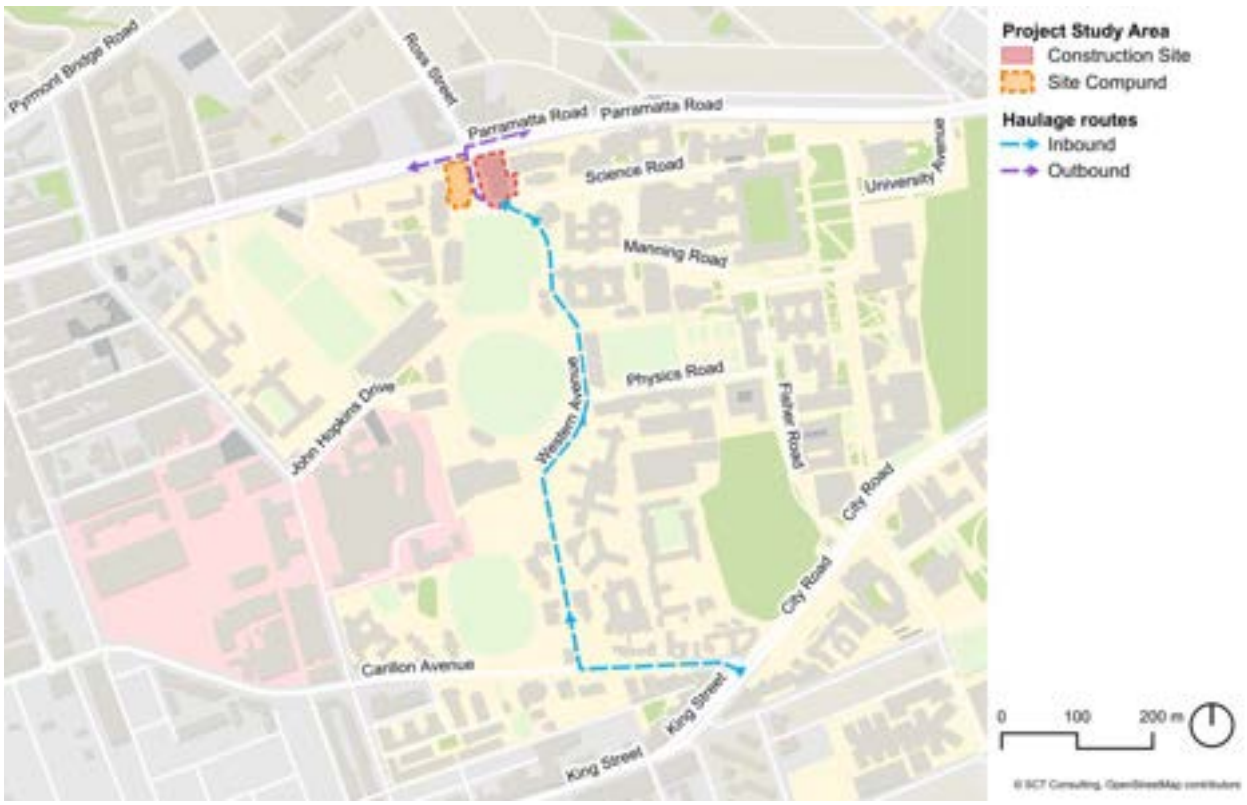
– **Inbound route:** Construction vehicles will travel from King Street or City Road via Carillon Avenue, then continue north along Western Avenue to enter the site through Gate 1.

– **Outbound route:** Construction vehicles will exit the site through Gate 2, continue north along Western Avenue to Parramatta Road, and then join the surrounding road network.

The routes provide access between the site and the surrounding arterial road network while minimising travel on local streets and maintaining a consistent northbound movement along Western Avenue.

Drivers must not deviate from the approved routes unless directed by Police, emergency services, an authorised traffic controller or FDC Construction & Fitout.

Figure 1 Haulage routes



Noise and Driver Conduct

Drivers must minimise road traffic noise when travelling to, from and within the site. Compression braking or engine braking is not permitted within the University campus or near the site unless required for safety.

Drivers must:

- Avoid unnecessary horn use, engine revving and prolonged idling.
- Turn off engines during extended loading, unloading or waiting periods where safe and practical.
- Close doors, tailgates and equipment carefully.
- Comply with the approved construction and delivery hours.
- Behave calmly, courteously and professionally when interacting with University users, residents and other road users.

Driver Fatigue

Heavy vehicle drivers must comply with all applicable fatigue management requirements, take required rest breaks and must not commence or continue driving when fatigued. Delivery schedules must not encourage speeding, missed rest breaks or breaches of fatigue requirements.

Load Restraint and Road Cleanliness

All loads must be appropriately restrained and comply with applicable mass and dimension limits. Loose or potentially windblown materials must be securely covered for the duration of the journey, with covers removed only within the approved loading or unloading area.

Before leaving the site, drivers must ensure that tailgates, doors, chains and restraints are secure and that wheels, tyres and vehicle bodies are free of loose soil, mud and debris. Any material deposited on Western Avenue or surrounding roads must be reported immediately so it can be removed safely.

Reversing and Manoeuvring

Construction vehicles must enter and leave the site in a forward direction. Reversing at a site access is only permitted in specific exceptional circumstances under the supervision of an accredited traffic controller.

Reversing within the site must be minimised. Where it is required, drivers must follow the directions of an authorised spotter or traffic controller and stop immediately if visual or radio contact is lost.

Non-compliance

Failure to comply with this Driver Code of Conduct may result in removal from the site, withdrawal of site access or notification to the driver's employer.

APPENDIX C

CONSTRUCTION WORKER TRANSPORTATION STRATEGY

Technical Advisory Note

Project	A01 Construction	**Project Number**	00956
Client	FDC Construction & Fitout		
Document Name	Construction Worker Transport Strategy		
Version	1.0	**Date**	27 July 2026
Author	James Goodman	Senior Consultant	
Reviewer	Jonathan Busch	Director	
Authoriser	Jonathan Busch	Director	

1.0 Introduction

This Construction Worker Transportation Strategy has been prepared by SCT Consulting on behalf of FDC Construction & Fitout for the Stage 1 works associated with the A01 Ross Street Teaching and Learning Hub at the University of Sydney.

The project was approved under SSD-57838709 on 17 December 2025. The Stage 1 works comprise site establishment, remediation, piling and shoring, and bulk excavation activities.

The Strategy has been prepared as a standalone technical advisory note to support the Stage 1 Construction Traffic and Pedestrian Management Sub-Plan and address the construction worker transport requirements of Condition B17 of the Development Consent.

The purpose of the Strategy is to minimise construction worker travel by private vehicle and reduce demand for parking within the University campus and surrounding streets. This will primarily be achieved by encouraging workers to travel by public transport, walking, cycling and car pooling, supported by appropriate information, site facilities and ongoing monitoring.

The Strategy will be reviewed during the works and updated where required to reflect changes to the construction workforce, transport arrangements, site conditions or requirements of the University and relevant authorities.

2.0 Construction workforce

The anticipated workforce during the Stage 1 works is summarised in **Table 2-1**.

Table 2-1 Anticipated Stage 1 workforce

Period	Maximum anticipated workforce
August to November 2026	Fewer than 20 workers
December 2026 to January 2027	Fewer than 50 workers

Worker arrivals are expected to occur primarily before the commencement of construction activities, with departures generally occurring at the end of the working day. Some variation may occur due to different trades, shift requirements and individual construction activities.

The Stage 1 workforce is relatively small compared with the future structural, fitout and services stages. The worker transport arrangements will therefore be reviewed as part of the subsequent CTPMSP prepared for the later construction stages.

3.0 Construction worker parking

No parking will be provided for construction workers within the principal construction site, site compound or storage area.

The Western Avenue underground car park is closed due to construction and is not available for use by the construction workforce. Other parking within the University campus is limited, controlled and subject to University approval and availability.

Public on-street parking in nearby parts of Camperdown, Forest Lodge and Glebe is generally subject to time restrictions, resident permit controls and high levels of existing demand. These streets are not intended to accommodate construction worker parking.

Construction workers will therefore be advised that:

– No construction worker parking is provided within the site

– The surrounding residential streets are not to be relied upon for all-day parking

– All signposted parking restrictions must be observed

– Public transport and active transport are the preferred travel modes

– Car pooling should be used where public transport is not practical.

Any parking specifically made available to construction personnel within the University campus would be subject to separate approval and allocation by the University.

4.0 Public transport

The site is well served by public transport, particularly bus services operating along Parramatta Road.

The University of Sydney, Ross Street Gate bus stops are located immediately adjacent to the site. Parramatta Road is a major bus corridor, with frequent services operating in both directions and connections to the Sydney CBD, Inner West and surrounding transport interchanges. During peak periods, the combined service frequency exceeds 30 buses per hour in each direction , with Central Station accessible in approximately 11 minutes by bus.

Additional bus services are available from stops on City Road and Missenden Road, providing further travel options for workers approaching from the east, south and west.

Rail services are available from Macdonaldtown Station, approximately 1.6 kilometres or a 20-minute walk from the site, and Redfern Station, approximately 1.9 kilometres or a 25-minute walk from the site.

Both stations are connected to the University through the surrounding pedestrian network. Redfern Station provides access to a broad range of rail services, while Macdonaldtown Station provides an additional option for workers travelling on services that stop there.

The University also operates a campus shuttle service between Redfern Station and the campus. The nearest shuttle stop is the Education Building stop, located less than 200 metres from the site. The shuttle operates throughout the year, with increased services during semester periods.

5.0 Walking and cycling

The University of Sydney is predominantly a walking-based campus, supported by an extensive internal footpath network, raised pedestrian crossings and a low-speed road environment.

The site is located adjacent to the Ross Street Gates, one of the principal pedestrian entrances to the campus. It is directly connected to the pedestrian networks along Parramatta Road, Ross Street and Western Avenue.

Redfern and Macdonaldtown stations are both within a practical walking distance of the site, while the immediately adjacent Parramatta Road bus stops provide convenient access for workers travelling by bus.

Western Avenue operates as a 10 km/h shared zone and is identified as a low-traffic cycling route. Other low-traffic roads and shared paths within the campus provide connections to the broader cycling network, including routes through Glebe, Camperdown, Redfern and the Sydney CBD.

Workers who cycle to the site will be directed to available bicycle parking and end-of-trip facilities approved for use by the University.

6.0 Transport strategy

The measures set out below will be implemented to reduce private vehicle travel and minimise construction worker parking impacts.

6.1 Site induction

All construction workers and subcontractors will undergo a site induction before commencing work.

The induction will explain that no worker parking is provided within the construction site or site compound and that nearby residential streets or University facilities are not to be used as a source of parking.

The induction will also provide information on:

– Nearby bus stops and rail stations

– The University shuttle service

– Walking routes between the site and public transport

– Bicycle access and storage arrangements

– Car-pooling opportunities

– Applicable parking restrictions around the campus.

The worker transport requirements will be reinforced through pre-start meetings, toolbox talks and site notices where necessary.

6.2 Public transport information

Public transport information will be provided to workers before or during their site induction. This will include maps showing nearby bus stops, rail stations, walking routes and the University shuttle stop.

Relevant information will also be displayed at prominent locations within the site amenities or made available electronically through the project communication system.

Workers will be encouraged to use real-time journey planning applications to account for service changes, disruptions and individual shift times.

6.3 Tool drop-off and storage

Secure facilities will be provided within the site or compound to allow workers to store tools and personal protective equipment.

The ability to leave tools at the site will reduce the need for workers to transport equipment each day and make travel by bus, train, walking or cycling more practical.

Any worker requiring vehicle access to deliver large or specialised tools will need to coordinate the movement with site management. Tool drop-off must occur within an approved area and must not obstruct Western Avenue, the western footpath or the site access points.

7.0 Responsibilities

The principal responsibilities for implementing the Strategy are summarised in **Table 7-1**.

Table 7-1 Implementation responsibilities

Responsible party	Responsibility
Construction Manager	Overall implementation of the Strategy and coordination with the University
Site Supervisor	Reinforcement of worker travel requirements through inductions, pre-starts and toolbox talks
Site administration team	Distribution and display of public transport and active transport information
Workers and subcontractors	Compliance with the Strategy and all applicable parking restrictions
FDC project team	Monitoring worker travel behaviour and responding to complaints or identified parking impacts

8.0 Monitoring and review

FDC will monitor the effectiveness of the Strategy throughout the Stage 1 works. Monitoring will focus on whether construction worker travel is creating an identifiable impact on the University campus or surrounding streets.

Monitoring may include:

– Observations of worker arrival modes

– Feedback from the University and adjoining stakeholders

– Review of complaints relating to worker parking

– Checks of nearby streets where a potential impact has been identified

– Discussions with workers regarding barriers to public transport or active transport use.

The monitoring process will seek to confirm that construction workers comply with parking restrictions, do not rely on nearby residential streets for all-day parking and make reasonable use of the available public and active transport options.

Where an adverse impact is identified, additional measures will be considered in consultation with the University and relevant stakeholders. These may include further worker communications, targeted toolbox talks, revised induction material, increased car-pooling coordination or changes to worker start and finish times.

Complaints and non-conformances will be recorded, investigated and addressed through the project's established complaints and corrective-action procedures. The Strategy will be updated where monitoring identifies that the existing measures are not adequately managing construction worker transport or parking demand.

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APPENDIX D

CITY OF SYDNEY CTMP STANDARD REQUIREMENT

City of Sydney Council

Standard Requirements for Construction Traffic Management Plan

The Applicant or contractor undertakes to follow and abide by the following requirements at all times during the demolition, excavation and construction works at (Insert < site address > and < DA number >)

1. Details of routes to and from site and entry and exit points from site – site specific

2. Details of roads that may be excluded from use by construction traffic i.e. roads with load limits, quiet residential streets or access/turn restricted streets – site specific.

3. The approved truck route plan shall form part of the contract and must be distributed to all truck drivers.

4. All vehicles must enter and exit the site in a forward direction (unless specific approval for a **one-off occasion** is obtained from the City's Construction Regulation Team).

5. Trucks are not allowed to reverse into the site from the road (unless specific approval for a **one-off occasion** is obtained from the City's Construction Regulation Team).

6. The Applicant must provide to the City details of the largest truck that will be used during the demolition, excavation and construction works.

   NOTE: The use of dog trailers or articulated vehicles (AV) is not permitted (unless specific approval for a one-off occasion is obtained from the City's Construction Regulation Team).

7. Oversize and over-mass vehicles are not allowed to travel on local roads (unless approval for a **one-off occasion** is obtained from the City's Traffic Operations Unit). Requests to use these vehicles must be submitted to the National Heavy Vehicle Regulator (NHVR) 28 days prior to the vehicle's scheduled travel date. For more information, please contact the NHVR on 1300 696 487 or www.nhvr.gov.au .

8. The queuing or marshalling of trucks is not permitted on any public road.

9. Any temporary adjustment to bus stops or traffic signals will require the Applicant to obtain approval from Transport for NSW (TfNSW) prior to commencement of works.

10. All vehicles associated with the development shall be parked wholly within the site. All site staff associated with the works are to park in a designated off-street area or be encouraged to use public transport and not park on the public road.

11. All loading and unloading must be within the development site or at an approved "Works Zone".

12. The Applicant must apply to the City's Traffic Works Coordinator to organise appropriate approvals for Work Zones and road closures.

13. The Applicant must apply to the City's Construction Regulation Team to arrange appropriate approvals for partial road closures.

14. The Applicant must apply to the TfNSW Transport Management Centre for approval of any road works on State Roads or within 100m of traffic signals and receive an approved Road Occupancy Licence (ROL). A copy of the ROL must be provided to the City.

15. The Applicant must apply to the City's Construction Regulation Team to seek appropriate approvals for any proposed temporary driveways, cranes (hoisting activities) and barricades etc.

16. The Applicant must comply with development consent hours of construction.

17. All traffic control plans associated with the CTMP must comply with the Australian Standards and the TfNSW '*Traffic Control at Work Sites - Technical Manual*'.

18. Traffic controllers must NOT stop traffic on the public road/s to allow trucks to enter or leave the site. They MUST wait until a suitable gap in traffic allows them to assist trucks to enter or exit the site. The Roads Act does not give any special allowance for trucks leaving a construction site - **the vehicles already on the road have right-of-way.**

19. Pedestrians may be held only for very short periods to ensure safety when trucks are leaving or entering sites BUT must NOT be stopped in anticipation of truck movement i.e., **at all times pedestrians have right-of-way on the footway, not the trucks**.

20. The use of physical barriers to control pedestrian or traffic movements must be considered by the City's Construction Regulation Team prior to commencement of work (refer to the City's '*Code of Practice: Hoisting and Construction Activities On and Above Roads*' for further details).

21. The Applicant must obtain a permit from the City's Construction Regulation Team regarding the placement of any plant/equipment on public ways.

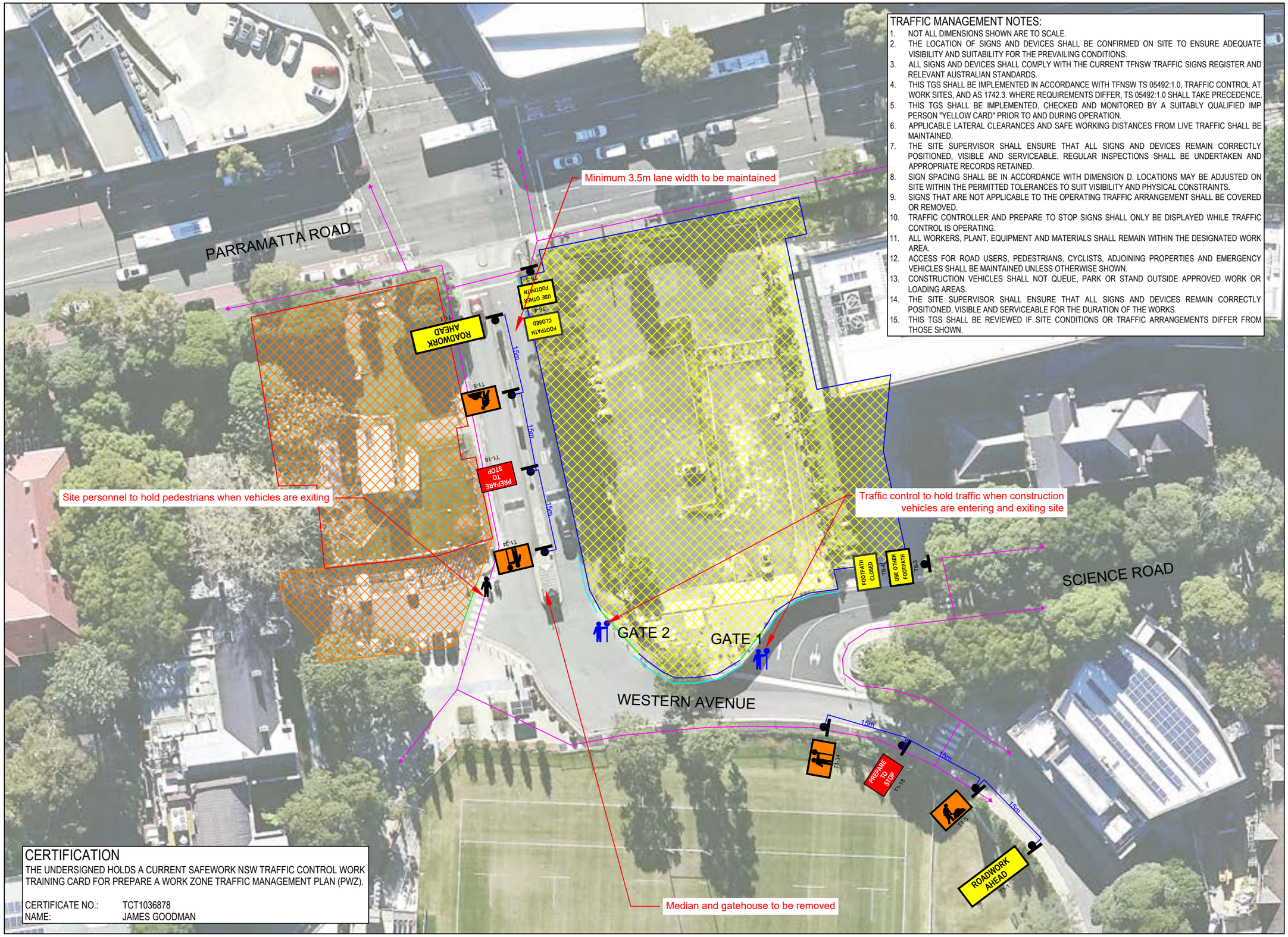
22. The Applicant must apply to the City's Building Certification Team to obtain appropriate approvals for any proposed construction-related temporary structures on or above roadways/footways prior to commencement of works (refer to the City's '*Code of Practice: Construction-related Temporary Structures On and Above Road*s' for further details).

23. A CTMP relates to excavation, demolition and construction activities on private land; not for road works (if required) associated with the development. Any proposed road works will require the Applicant or contractor/s to separately seek consideration and approval from the City and/or TfNSW. Additionally, SafeWork NSW requires that traffic control plans comply with Australian Standard 1742.3 and be prepared by a person holding a Training Card issued by SafeWork NSW.

24. It must be noted that the provision of any information in the CTMP and the standards requirements set out above does not exempt the Applicant from correctly fulfilling all other conditions relevant to the development consent applying to the subject site.

APPENDIX E

TRAFFIC GUIDANCE SCHEME



TRAFFIC MANAGEMENT NOTES:

1. NOT ALL DIMENSIONS SHOWN ARE TO SCALE.
2. THE LOCATION OF SIGNS AND DEVICES SHALL BE CONFIRMED ON SITE TO ENSURE ADEQUATE VISIBILITY AND SUITABILITY FOR THE PREVAILING CONDITIONS.
3. ALL SIGNS AND DEVICES SHALL COMPLY WITH THE CURRENT TFNSW TRAFFIC SIGNS REGISTER AND RELEVANT AUSTRALIAN STANDARDS.
4. THIS TGS SHALL BE IMPLEMENTED IN ACCORDANCE WITH TFNSW TS 05492:1.0, TRAFFIC CONTROL AT WORK SITES, AND AS 1742.3. WHERE REQUIREMENTS DIFFER, TS 05492:1.0 SHALL TAKE PRECEDENCE.
5. THIS TGS SHALL BE IMPLEMENTED, CHECKED AND MONITORED BY A SUITABLY QUALIFIED IMP PERSON "YELLOW CARD" PRIOR TO AND DURING OPERATION.
6. APPLICABLE LATERAL CLEARANCES AND SAFE WORKING DISTANCES FROM LIVE TRAFFIC SHALL BE MAINTAINED.
7. THE SITE SUPERVISOR SHALL ENSURE THAT ALL SIGNS AND DEVICES REMAIN CORRECTLY POSITIONED, VISIBLE AND SERVICEABLE. REGULAR INSPECTIONS SHALL BE UNDERTAKEN AND APPROPRIATE RECORDS RETAINED.
8. SIGN SPACING SHALL BE IN ACCORDANCE WITH DIMENSION D. LOCATIONS MAY BE ADJUSTED ON SITE WITHIN THE PERMITTED TOLERANCES TO SUIT VISIBILITY AND PHYSICAL CONSTRAINTS.
9. SIGNS THAT ARE NOT APPLICABLE TO THE OPERATING TRAFFIC ARRANGEMENT SHALL BE COVERED OR REMOVED.
10. TRAFFIC CONTROLLER AND PREPARE TO STOP SIGNS SHALL ONLY BE DISPLAYED WHILE TRAFFIC CONTROL IS OPERATING.
11. ALL WORKERS, PLANT, EQUIPMENT AND MATERIALS SHALL REMAIN WITHIN THE DESIGNATED WORK AREA.
12. ACCESS FOR ROAD USERS, PEDESTRIANS, CYCLISTS, ADJOINING PROPERTIES AND EMERGENCY VEHICLES SHALL BE MAINTAINED UNLESS OTHERWISE SHOWN.
13. CONSTRUCTION VEHICLES SHALL NOT QUEUE, PARK OR STAND OUTSIDE APPROVED WORK OR LOADING AREAS.
14. THE SITE SUPERVISOR SHALL ENSURE THAT ALL SIGNS AND DEVICES REMAIN CORRECTLY POSITIONED, VISIBLE AND SERVICEABLE FOR THE DURATION OF THE WORKS.
15. THIS TGS SHALL BE REVIEWED IF SITE CONDITIONS OR TRAFFIC ARRANGEMENTS DIFFER FROM THOSE SHOWN.

Legend

- Construction site
- Site compound/site storage
- A class hoarding
- Vehicle gates
- Site compound hoarding
- ATF fencing
- Pedestrian path
- Concrete barrier
- Traffic control
- Site personnel
- Signpost

CERTIFICATION

THE UNDERSIGNED HOLDS A CURRENT SAFEWORK NSW TRAFFIC CONTROL WORK TRAINING CARD FOR PREPARE A WORK ZONE TRAFFIC MANAGEMENT PLAN (PWZ).

CERTIFICATE NO.: TCT1036878
NAME: JAMES GOODMAN

V	Description	Date
1.0	PRELIMINARY DRAFT	23/07/2026
2.0	REVISED FOR CONSULTATION	07/08/2026
3.0	REVISED FOR CONSULTATION	17/08/2026

SCT Consulting

Prepared for: FDC

Quality information	
Date	08/26
Prepared	J.G
Reviewed	S.C
Authorised	M.C

Scale @ A3

Scale NTS

Project: University of Sydney A01 Ross Street Teaching and Learning Hub

Title: Traffic Guidance Sheme
Overall plan

Project Number: SCT_00956_CAD_A01 Construction - FDC

Sheet number: 01

A3

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Douglas PARTNERS

GROUNDED EXPERTISE

Dewatering Management Plan

Ross Street Teaching and Learning Hub

Ross Street, Camperdown, Sydney NSW

Prepared for The University of Sydney

Project 225008.00

10 June 2026

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Document History

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Revision 0	Laura McMahon, The University of Sydney

The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

Signature		Date
Author		10 June 2026
Reviewer		10 June 2026

FS604853

Douglas Partners acknowledges Australia's First Peoples as the Traditional Owners of the Land and Sea on which we operate. We pay our respects to Elders past and present and to all Aboriginal and Torres Strait Islander peoples across the many communities in which we live, visit and work. We recognise and respect their ongoing cultural and spiritual connection to Country.

Table of Contents

Page No

1. Introduction 1
   - 1.1 Purpose of this report 1
   - 1.2 Regulatory framework and guidance 2
   - 1.3 Assessment requirements 2
2. Proposed development 2
   - 2.1 Proposed development and construction 2
   - 2.2 Proposed dewatering and discharge methods 3
3. Site description 4
4. Hydrogeological setting 4
   - 4.1 Topography and hydrology 4
   - 4.2 Climate 5
   - 4.3 Geology 5
   - 4.4 Hydrogeology and groundwater source 5
   - 4.5 Groundwater receptors 6
   - 4.6 Acid sulfate soils 6
   - 4.7 Salinity 6
   - 4.8 Contaminated sites 7
5. Investigation results 7
   - 5.1 Geotechnical 7
   - 5.2 Groundwater 9
     - 5.2.1 Groundwater levels 9
     - 5.2.2 Hydraulic conductivity 9
     - 5.2.3 Groundwater quality 10
6. Conceptual hydrogeological model 11
7. Groundwater inflow and drawdown assessment 11
   - 7.1 Methodology 11
   - 7.2 Model geometry and layers 11
   - 7.3 Initial groundwater elevation and boundary conditions 12
     - 7.3.1 Model calibration and boundary conditions 12
     - 7.3.2 Basement design and dewatering 12
   - 7.4 Simulation 13
   - 7.5 Sensitivity scenarios 13

7.6 Groundwater modelling results 13
7.6.1 Predicted groundwater inflow 13
7.6.2 Predicted groundwater drawdown and settlement 14
8. Impact assessment 15
8.1 Aquifer Interference Policy consideration 15
8.2 Environmental risk assessment 15
9. Recommended management strategy 16
9.1 General 16
9.2 Groundwater inflow control 16
9.2.1 Control measures and monitoring 16
9.2.2 Trigger levels 17
9.3 Discharge options and contingency measures 17
9.4 Water quality control 18
9.4.1 Discharge criteria 18
9.4.2 Treatment options 19
9.4.3 Proposed water quality monitoring 19
9.5 Monitoring and reporting requirements 22
9.6 Personnel and responsibilities 24
9.7 Contingency plan 24
10. Approvals and licensing 25
10.1 Water Access Licence (WAL) and entitlements 25
10.2 Council and EPA approvals 25
11. Conclusion 25
12. References 26
13. Limitations 27

Appendix A: Drawings

Appendix B: About This Report

Appendix C: Borehole logs and geological cross-sections

Appendix D: Hydrographs

Appendix E: Hydraulic testing results

Appendix F: Water quality summary table and laboratory reports

Appendix G: Discharge criteria

Dewatering Management Plan
Ross Street Teaching and Learning Hub
Ross Street, Camperdown, Sydney NSW

1. Introduction

1.1 Purpose of this report

This report prepared by Douglas Partners Pty Ltd (Douglas) outlines the dewatering management plan (DMP) for the A01 Ross Street Teaching and Learning Hub (the Site), within the University of Sydney, Camperdown campus. The work was undertaken in accordance with Douglas' proposal 225008.00.P.002.Rev0 dated May 2025.

The purpose of this DMP is to support the submission of a State Significant Development Application (SSDA), addressing the assessment requirements specified in Section 1.2. Additionally, this document aims to assist in obtaining the necessary approvals for the disposal of extracted groundwater, where applicable.

A brief overview of the development is provided in Section 2. The site location is shown on Drawing 1, Appendix A.

This DMP is based on the findings of site-specific investigations and monitoring and management requirements, including:

- Report on Geotechnical investigation (Douglas, 2025a);
- Report on Preliminary (contamination) site investigation (Douglas, 2024a);
- Report on Part 1 Data Gap Contamination Investigation (Douglas, 2025b); and
- Remediation action plan (Douglas, 2024b).

The following key information is relevant to the preparation of this DMP:

- The proposed works will intercept the groundwater table.
- Groundwater levels on site have been observed at approximately RL 22.8 to RL 23.9.
- The depth of the proposed basement is approximately RL 21.
- The basement is intended to be drained.
- The proposed method of dewatering is by sump and pump method.
- The extracted groundwater will be disposed of to Council stormwater via the Universities on-site stormwater management system.

This report must be read in conjunction with all appendices including the notes provided in Appendix B.

1.2 Regulatory framework and guidance

The following key guidelines and documents were consulted in preparation of this report:

- *Guidelines for Groundwater Protection in Australia*, National Water Quality Management Strategy (Australian Government, 2013);
- *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZG, 2018);
- *Minimum requirements for building site groundwater investigations and reporting* (NSW DPE, 2022);
- *NSW Aquifer Interference Policy* (DPI-NSW Office of Water, 2012); and
- *NSW Aquifer Interference Policy* (NSW DPI, 2013), supplementary version.
- Groundwater assessment toolbox for Major Projects in NSW (NSW DPE, 2022);
- Guidelines for Groundwater Documentation for SSD/SSI Projects (NSW DPE, 2022);
- Minimum Groundwater Modelling Requirements for SSD/SSI Projects (NSW DPE, 2022); and
- Cumulative Groundwater Impact Assessment Approaches (NSW DPE, 2022).

Additional regulatory requirements may also apply, including WaterNSW approvals for water take and disposal (see Section 9), and local council or EPA conditions depending on the nature and location of discharge.

1.3 Assessment requirements

Assessment requirements are presented in Table 1. This report considers the following Planning Secretary's Geotechnical Assessment Requirements (SEARs, issued 10 July 2023):

Table 1: Compliance table

Assessment Requirement	Report Section / Response
Water Conditions (SEARs item 13): "Provide a Surface and Groundwater Impact Assessment that assesses potential impacts on surface water resources including related infrastructure, hydrology, dependent ecosystems, drainage lines, downstream assets and watercourses groundwater resources in accordance with the Groundwater Guidelines."	This report does not address the surface water assessment. Data and comments in relation to groundwater with respect to the proposed development are provided in Sections 4 to 9.

2. Proposed development

2.1 Proposed development and construction

Douglas understands that the proposed development within the University of Sydney campus comprises the following:

- The construction of a new five-storey building with a single level basement; and
- The basement level is understood to have a finished floor level of RL 21 m AHD, with a maximum basement excavation depth of approximately 4.5 m. Further localised excavation will likely be required for footings, service pits, lift pits and the like.

Reference to the shoring and piling plan indicates that the general approach for constriction is shoring piles with shotcrete infill panels.

2.2 Proposed dewatering and discharge methods

It is understood that dewatering will be via sumps and pumps, as inflows are expected to be low.

It is understood that extracted groundwater will be discharged to the existing university stormwater drainage network, with the University undertaking treatment as below prior to discharge to the City of Sydney stormwater system.

It is understood that the University treatment/ management of water prior to discharge includes:

- Reduction of total suspended solids (TSS), total phosphorus, total nitrogen and gross pollutants to meet the City of Sydney Pollutant Reduction Requirements, as below; and
- Removal of solids using a gross pollutant trap (GPT).

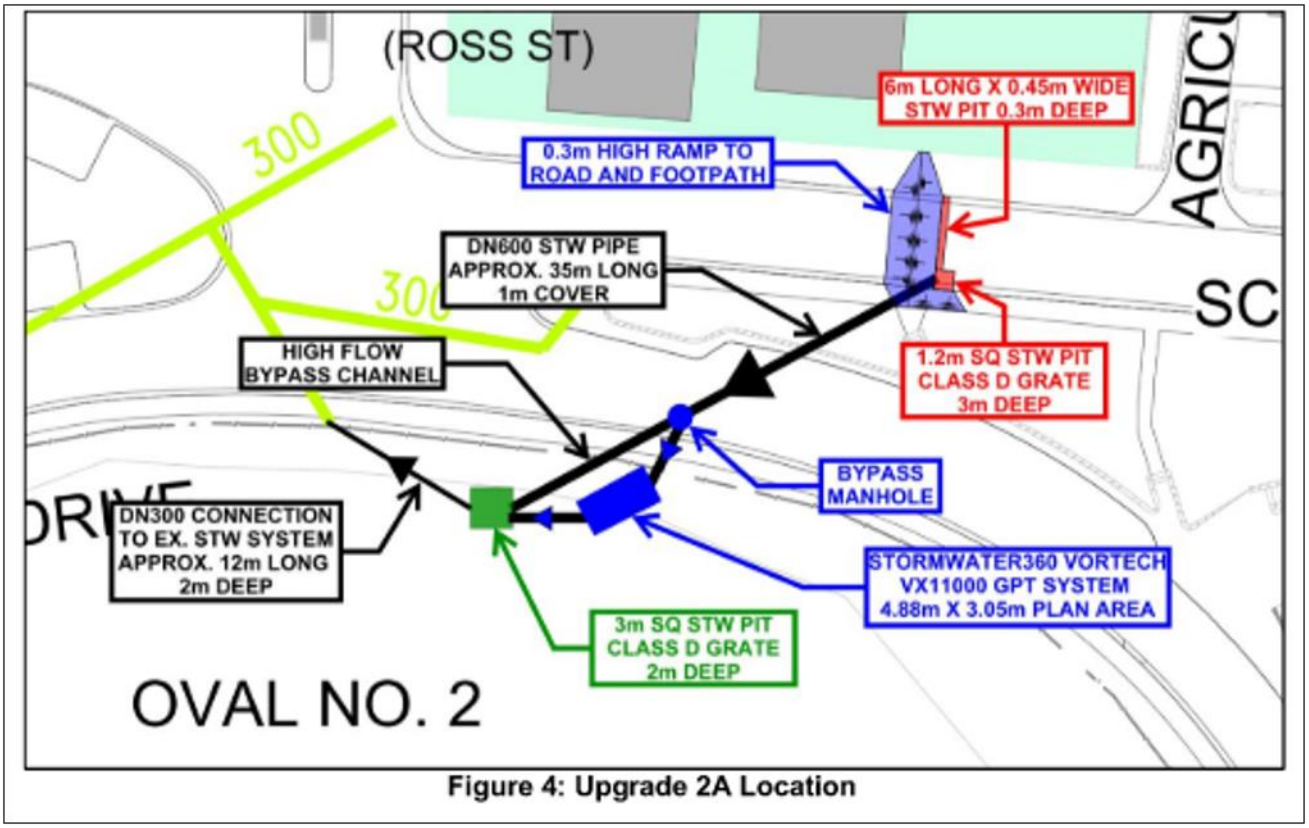


Figure 4: Upgrade 2A Location

Figure 1: Proposed stormwater system upgrade between site (in the north) and Oval No. 2 (in the south)(as supplied by University of Sydney)

2.4.1 WSUD Design Criteria

To ensure that the development improves the quality of the stormwater leaving the site a Water Sensitive Urban Design (WSUD) Concept proposal has been modelled. A preliminary analysis was performed using MUSIC per Sydney Street Technical Specification to determine the quality of water discharging from the site in the post-development scenario. This specification requires Water Quality Targets to be met, shown in Table 5.

Table 5: WSUD Targets

	Water Quality (% Reduction in Pollutant Loads)				Environmental Flows (Stream Erosion Index)
	Gross Pollutants (<5mm)	Total suspended solids	Total phosphorus	Total nitrogen	
Stormwater management objective	90	85	65	45	3.5-5.0
'Ideal' stormwater outcome	100	95	95	85	1

Figure 2: Reduction targets prior to discharge to Council stormwater (as supplied by University of Sydney)

3. Site description

The proposed Teaching and Learning hub is located at the corner of Parramatta Road and Western Avenue, within the University of Sydney's Camperdown Campus. The site is a primary gateway to the University, adjoining Western Avenue, Science Road, and Parramatta Road. The site is identified Lot 1 DP1171804. The overall site is a rectangular shaped area of 1,273 m^2 and is bound by Parramatta Road to the north, the SSB Building and Agriculture Lane to the east, Science Road to the south, and Western Avenue to the west. An aerial photograph of the site detailing the approximate development footprint is shown on Drawing 1, in Appendix A.

The site is presently surfaced with asphalt, concrete and garden beds, noting demolition of the demountable buildings occurred in 2025.

4. Hydrogeological setting

4.1 Topography and hydrology

The site is located near the floor of and on the north east side of a shallow south east to north west trending valley. The topography surrounding the site generally slopes to the west and north west.

The ground surface across the site slopes gently downward in a west to south-west direction, with levels typically ranging between about RL 27.5 m and RL 23.5 m AHD, with an overall slope of about four degrees.

The nearest surface water body receptor is Orphan School Creek located approximately 600 m to the north-west which discharges into Johnston's Bay. Based on the geology and topography, surface water and groundwater are expected to flow west to south-west of the site.

The geology and topography of the site suggests that the regional groundwater table is in the underlying rock. Ephemeral seepage from perched water would be expected along the top of clay and bedrock and through joints and bedding planes within the rock itself. Seepage volume of the ephemeral perched system would be expected to be low and vary with climatic events.

4.2 Climate

Camperdown, NSW experiences a temperate climate with warm to hot summers and mild winters, based on Bureau of Meteorology data from Sydney (Observatory Hill). Rainfall is distributed throughout the year with no distinct dry season, and mean annual rainfall is approximately 1,211 mm (1.2 m). Mean daily temperatures range from about 26 °C in summer to 16–17 °C in winter, indicating moderate seasonal variability.

4.3 Geology

Reference to the NSW Seamless Geology map indicates the site is underlain by Ashfield Shale. Ashfield Shale typically comprises black to dark grey shale and laminite (interlaminated siltstone and sandstone). The predominantly shaly rock is typically closely bedded and contains an orthogonal pair of steeply dipping (70° to 90°) joint sets typically striking NNE and ESE and spaced at 0.5 m to 5 m. Randomly oriented, 30° to 45° dipping slickensided joints are also ubiquitous.



Figure 3: NSW Seamless Geology map with approximate site location

4.4 Hydrogeology and groundwater source

Based on the hydrogeological setting, the site is assumed to underlain by the following groundwater systems:

- Aquitard within the soil where perched groundwater could be present; and
- Minor fractured aquifers hosted by the underlying Ashfield bedrock. These formations typically act as aquitards or aquicludes, although minor secondary permeability can occur where defects are present.

The subject aquifers are within the Sydney Basin Central groundwater source, of the Greater Metropolitan Region Groundwater Sources Water Sharing Plan 2023.

In accordance with the NSW Aquifer Interference Policy (AIP), this groundwater system is classified as a "less productive fractured rock groundwater source", reflecting the typically low permeability and low yield characteristics of shale-derived aquifers in the Sydney Basin.

This classification is consistent with observed site conditions, including relatively shallow groundwater levels and limited evidence of sustained groundwater inflows, indicating that groundwater is expected to occur as localised seepage rather than within a laterally extensive, high-yield aquifer system.

4.5 Groundwater receptors

A review of the Bureau of Meteorology Groundwater Dependant Ecosystems Atlas indicates that there is no aquatic, subterranean or terrestrial GDEs within 1 km of the site. The closest GDE to the site is approximately 5 km east to southeast which comprises a low potential for terrestrial GDE (South Coast – Gorges River, Eastern Suburbs Banksia Scrub).

A review of the BoM national groundwater information system (NGIS) shows there are two registered groundwater wells noted within a 50 m radius of the site. GW116421 and GW116424 recorded standing water levels in the range of 2.9 m to 3.2 m, bgl.

4.6 Acid sulfate soils

No ASS testing has been carried out as part of the previous investigation. In general, ASS are predominately formed with Holocene-aged (i.e., less than approximately 10,000 years old) marine deposits, typically below RL 5.

The site elevation is around RL 27.5 to RL 23.5 (AHD), and the published geology indicates the natural soils at the site are residual in origin (Blacktown residual landscape). No physical indicators of ASS (i.e., presence of jarosite, degradation of concrete, etc) were observed at the site.

Given the above, management of ASS is considered not likely.

4.7 Salinity

The site was reviewed for salinity risks based on regional mapping, soil classification and available site investigation data.

Regional mapping of salinity potential in Western Sydney was undertaken in 2002 by the former Department of Infrastructure, Planning and Natural Resources, now the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW). The site is located outside the mapped area of salinity potential. Some layers within the Blacktown Residual landscape are associated with localised salinity but are not considered likely to be present in significant volumes

on this site. Based on the testing undertaken and using a multiplication factor of 8 (for conservatism) the results indicate that non-saline conditions can generally be expected across the site.

4.8 Contaminated sites

The following reports have been reviewed to assess contamination risk relevant to dewatering for the project:

- Report on Preliminary (contamination) site investigation (Ref: 225008.01.R.001.Rev0 dated August 2024);
- Report on Part 1 Data Gap Contamination Investigation (Ref: 225008.02.R.001.Rev0 dated October 2025); and
- Remediation action plan (Ref: 225008.01.R.002.Rev0 dated August 2024).

The above reports identified the following potential sources and contaminants of potential concern (CoPC) relevant to the proposed dewatering:

- Uncontrolled fill (primary source) with potential to leach contaminants to groundwater, including heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), petroleum hydrocarbons (TRH and BTEX) and polycyclic aromatic hydrocarbons (PAH, including naphthalene).
- Groundwater CoPC identified in monitoring (refer Section 5.2.3):
    - Naphthalene (a low molecular weight PAH), detected at low concentrations and considered the primary site-related CoPC relevant to dewatering;
    - Dissolved metals (notably copper, manganese, nickel and zinc), interpreted to reflect ambient or geogenic groundwater conditions but relevant to discharge criteria;
    - Per- and polyfluoroalkyl substances (PFAS), specifically perfluorooctoane sulfonate (PFOS), detected at concentrations exceeding guideline values but considered representative of regional groundwater conditions rather than site-derived contamination; and
    - Minor detections of volatile organic compounds (VOC), including chloroform and solvent-related compounds.
- Other contaminant groups including PAH, BTEX, organochlorine pesticides (OCP), organophosphate pesticides (OPP) and polychlorinated biphenyls (PCB) were generally below laboratory limits of reporting in groundwater and are not considered significant for dewatering.

5. Investigation results

5.1 Geotechnical

A detailed geotechnical investigation was undertaken by Douglas (Ref: 225008.00.R.001.Rev3 dated October 2025). The test locations are shown in Drawing 1 (Appendix A).

Based on the results of the site investigation, the sequence of subsurface materials encountered at the site, in increasing depth order, is summarised as follows:

- **FILL**: sandy gravel, clay and sand fill, with inclusions of building rubble, ripped sandstone and pavement materials (i.e., asphalt and concrete) to depths of 0.35 m to 1.5 m; overlying
- **RESIDUAL CLAY**: pale grey mottled yellow / orange, high plasticity, stiff to very stiff residual clay, with inclusions of ironstone gravel to depths in the range of 1.35 m to 4.5 m; overlying
- **BEDROCK**: very low to low strength siltstone encountered in Bores 101 to 104 and 205 to 207 to depths in the range of 1.5 m to 5.5 m, then medium and high strength interlaminated siltstone and sandstone, to the depth of investigation.

Rock structure encountered included steeply dipping (45° to 90°) planar joints and shallow bedding planes.

The subsurface conditions were categorised into six geotechnical units (Units 1 to 6), which are summarised in Table 2.

Table 2: Summary of geotechnical model

Unit	Material	Depth [m] {Reduced Level (m AHD) to Top of Each Unit}								
		BH101	BH102	BH103	BH104	BH105	BH106	BH205	BH206	BH207
1	Fill	0.0 (25.3)	0.0 (24.2)	0.0 (26.0)	0.0 (25.9)	0.0 (25.4)	0.0 (24.4)	0.0 (25.8)	0.0. (24.9)	0.0. (25.1)
2	Residual Clay	1.1 (24.2)	1.1 (23.3)	1.0 (25.0)	1.5 (24.4)	0.8 (24.6)	0.35 (24.0)	0.8 (25.0)	0.6 (24.3)	0.6 (24.5)
3	Class V Siltstone	2.0 (23.3)	4.5[(2)] (19.7)[(2)]	3.0 (23.0)	N.E.	N.E.	N.E.	3.1 (22.7)	2.8 (22.1)	4.2 (20.9)
4	Class IV Interlaminated Siltstone and Sandstone	2.2 (23.1)	5.5 (18.7)	4.0 (20.4)	2.6 (23.3)	N.E.	N.E.	3.7 (22.1)	4.7 (20.2)	5.5 (20.1)
5	Class III Interlaminated Siltstone and Sandstone	3.9 (21.4)	N.E.	5.5 (20.5)	3.9 (22.0)	N.E.	N.E.	4.8 (21.0)	N.E	N.E.
6	Class III/II Interlaminated Siltstone and Sandstone	6.0 (19.3)	6.7 (17.5)	7.0 (19.0)	4.7 (21.2)	N.E.	N.E.	5.8 (20.0)	6.7 (18.9)	7.0 (18.1)

Notes to Table:

(1) N.E. = Not Encountered (BH105 terminated at 2.5 m and BH106 terminated at 1.35 m).

(2) Depth / RL to top of very low to low strength laminite inferred from SPT refusal depth.

The detailed borehole logs, and notes defining classification terms, are provided in Appendix C.

5.2 Groundwater

Three groundwater wells were installed within the site. Groundwater results are summarised in subsequent sections.

Table 3 summarises the monitoring wells' attributes. Their location is shown on Drawing 1 (Appendix A).

Table 3: Monitoring well details

Well ID	Installation date	Surface (m AHD)	Screen depth (m bgl)	Screened lithology
BH101	07/11/2023	25.3	1.6 - 7.5	Residual soil and bedrock comprising highly fractured to fractured siltstone
BH103	08/11/2023	26.0	1.1 – 8.9	Residual soil and bedrock comprising highly fractured to fractured siltstone
BH207	22/07/2025	25.1	4.1 – 7.0	Residual soil and bedrock comprising highly fractured to fractured siltstone

Notes: m bgl: metres below ground level

5.2.1 Groundwater levels

Groundwater levels have been continuously recorded at hourly intervals since 21 August 2025 using data loggers installed in the monitoring wells. Hydrographs showing recorded levels in comparison with rainfall data over time are presented in Appendix D. Overall, the monitoring data indicates that the groundwater conditions are typically influenced by climatic factors (i.e. rainfall).

Maximum, minimum and average groundwater levels recorded by the dataloggers are presented in Table 4.

Table 4: Summary of logger data

Well ID	Depth to groundwater (m bgl)				Groundwater elevation (m AHD)			
	Lowest	Highest	Average	Median	Lowest	Highest	Average	Median
BH101	2.6	2.2	2.4	2.4	22.7	23.1	22.9	22.9
BH103	2.9	2.5	2.7	2.7	23.1	23.5	23.3	23.3
BH207	2.4	2.0	2.1	2.2	22.7	23.1	23.0	22.9

Notes: m bgl: metres below ground level

5.2.2 Hydraulic conductivity

Rising and falling head hydraulic conductivity tests were carried out at the monitoring wells on 22 February 2024 (BH101 and BH103) and 19 August 2025 (BH207) The tests were undertaken by removing or adding a volume of water from or to the monitoring wells to lower, or raise, the water level and measurement of the subsequent recovery rate.

Hydraulic conductivity tests were analysed using the Hvorslev (1951) solution for slug testing interpretation. Results are presented in Table 5. The detailed results of the tests are attached in Appendix E.

Table 5: Interpreted hydraulic conductivity results

Well ID	Screen depth (m bgl)	Screened lithology	Hydraulic conductivity (m/s)
BH101	1.6 - 7.5	residual soil and bedrock comprising highly fractured to fractured siltstone	4×10^{-7} (F) 2×10^{-7} (R)
BH103	1.1 – 8.9	residual soil and bedrock comprising highly fractured to fractured siltstone	1×10^{-6} (F) 2×10^{-6} (R)
BH207	4.1 – 7.0	residual soil and bedrock comprising highly fractured to fractured siltstone	5.3×10^{-7} (R)
		Geometric mean	6.1×10^{-7}

5.2.3 Groundwater quality

Groundwater quality testing was undertaken as part of the PSI (Douglas, 2024) and DGI (Douglas, 2025) from the monitoring wells. The results provide an indication of baseline groundwater quality at the site and inform potential disposal options and management requirements (further discussed in Section 9.3).

Groundwater samples were collected and dispatched to a NATA accredited laboratory for the analysis of metals, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCB), organochlorine pesticides (OCP), organophosphorus pesticides (OPP), volatile organic compounds (VOC) and PFAS.

For the purposes this DMP, the previous results have been assessed against the discharge criteria (refer to Section 9.4.1 or Appendix G). Note these criteria differ to those adopted in the PSI / DGI, the objective of which was to assess potential risk from contamination to on- and off-site receptors from long term exposure via the natural groundwater flow path.

Groundwater quality results are summarised as follows:

- pH values ranged from 5.4 to 5.6 indicating mildly acidic conditions, which are below the target level of pH 6.5 to 8.5.
- Electrical conductivity (EC) values ranged from 980 µS/cm to 1,430 µS/cm, indicating fresh water.
- No non-aqueous phase liquids or oily sheens were recorded.
- The following analytes were recorded above the discharge criteria:
  - Lead in BH12 and BH101 at 6 µg/L and 5 µg/L respectively, which exceeded the freshwater default guideline value (DGV) of 1.4 µg/L;
  - Nickel in BH12, BH101 and BD1/20231120 ranging between 13 µg/L and 22 µg/L which exceeded the DGV of 11 µg/L;

- Manganese in BH103 at 2900 µg/L which exceeded the DGV of 1900 µg/L;
- Zinc in BH12, BH101, BH103 and BD1/20231120 ranging between 9 µg/L and 50 µg/L which exceeded the DGV of 8 µg/L;
- Naphthalene in BH101 at 19 µg/L which exceeded the DGV of 16 µg/L; and
- PFOS in BH101 and BD1/20231120 at 0.19 µg/L which exceeded the DGV of 0.02 µg/L.

Summary tables of analytical results and laboratory certificates are provided in Appendix F.

6. Conceptual hydrogeological model

The site is underlain by the Ashfield Shale. Groundwater levels beneath the site have been measure around RL22.9 and RL 23.3 on average (within the Ashfield Shale). The groundwater monitoring wells have recorded minor fluctuations and trends in response to climatic variations.

Groundwater recharge is interpreted to originate from rainfall infiltration on the site and surrounds, including possible unnatural recharge from seepage from nearby leaking water mains and/or stormwater pipes and potential connection to nearby water bodies (buried creek lines, Orphans School Creek, etc.).

It should be noted that groundwater levels are transient and fluctuate with climatic variations and other factors (e.g. adjacent excavations, pumping). Therefore, the water levels will temporarily rise during periods of heavy or prolonged rainfall and fall during dry periods. Groundwater levels can also be affected by the amount of pumping occurring in groundwater extraction bores in the aquifer.

7. Groundwater inflow and drawdown assessment

7.1 Methodology

Seepage modelling was undertaken to assess the potential inflow rates into the proposed excavation during [and after] construction, as well as induced groundwater level changes in adjacent and surrounding areas.

A 2-dimensional (2D) numerical groundwater model was developed. The modelling was carried out using the finite element hydrogeological software SEEP/W (a component of GeoStudio) developed by GEOSLOPE International Ltd.

7.2 Model geometry and layers

A cross section (Section B-B') was selected across the proposed basement excavation. Its location is shown on Drawing 1.

The subsurface aquifer system surrounding and beneath the proposed development was simulated as a multi-layered numerical model, to represent the site subsurface conditions based on site investigation data and to allow simulation of the vertical flow components.

The hydrogeological units were simulated as two layers. Adopted hydraulic properties (base case) are presented in Table 6. Parameters were selected based on the results of the hydraulic conductivity testing (Section 5.2.2), ranges of values documented in the available literature for similar lithologies (e.g. Fetter 1994 and Hoek & Bray 1981) and previous experience with similar materials.

Table 6: Model layers and adopted hydraulic properties (base case)

Layer	Material	Saturated Kh (m/s)	Anisotropy Ratio (Kv/Kh)	Effective Porosity (%)	Material Model Adopted
1	Fill/Clay	1×10^{-8}	1.0	30	Unsaturated / saturated
2	Fractured Shale/Laminite	5×10^{-7}	1.0	10	Unsaturated / saturated

Notes: Kh: Horizontal hydraulic conductivity
Kv: Vertical hydraulic conductivity

7.3 Initial groundwater elevation and boundary conditions

7.3.1 Model calibration and boundary conditions

The model adopted an upstream constant head boundary at RL 38 and a downstream constant head boundary at RL 11. These boundary conditions were selected to replicate groundwater levels observed below the site.

As the proposed development is located within a commercial setting with limited vegetated areas and clayey soil profile, a net rainfall infiltration rate of 1% was assigned as water influx over the ground surface.

Recharge could also possibly be occurring from anthropogenic sources, such as seepage from leaking water mains. Loss of water from the aquifer may be occurring due to extraction activities from nearby properties, together with natural discharge into water bodies. Water loss from the aquifer to the atmosphere through evapotranspiration (e.g., from vegetation at the surface, above the aquifer) is considered and combined with the effective recharge value adopted.

7.3.2 Basement design and dewatering

The proposed basement's exposed rock faces were simulated as 'Seepage Faces' in SEEP / W with zero hydraulic pressure head along the full height i.e. a drained basement. The subsoil drainage and the sump were simulated by a horizontal boundary condition of 'zero hydraulic pressure head'. The deepest proposed floor finished level (FFL) for the proposed excavation is approximately RL 21 and the bulk excavation level will be RL 20.85. Douglas has assumed the site will be dewatered to RL 20, for the purpose of the inflow assessment. The model set-up is presented in Figure 4 below.

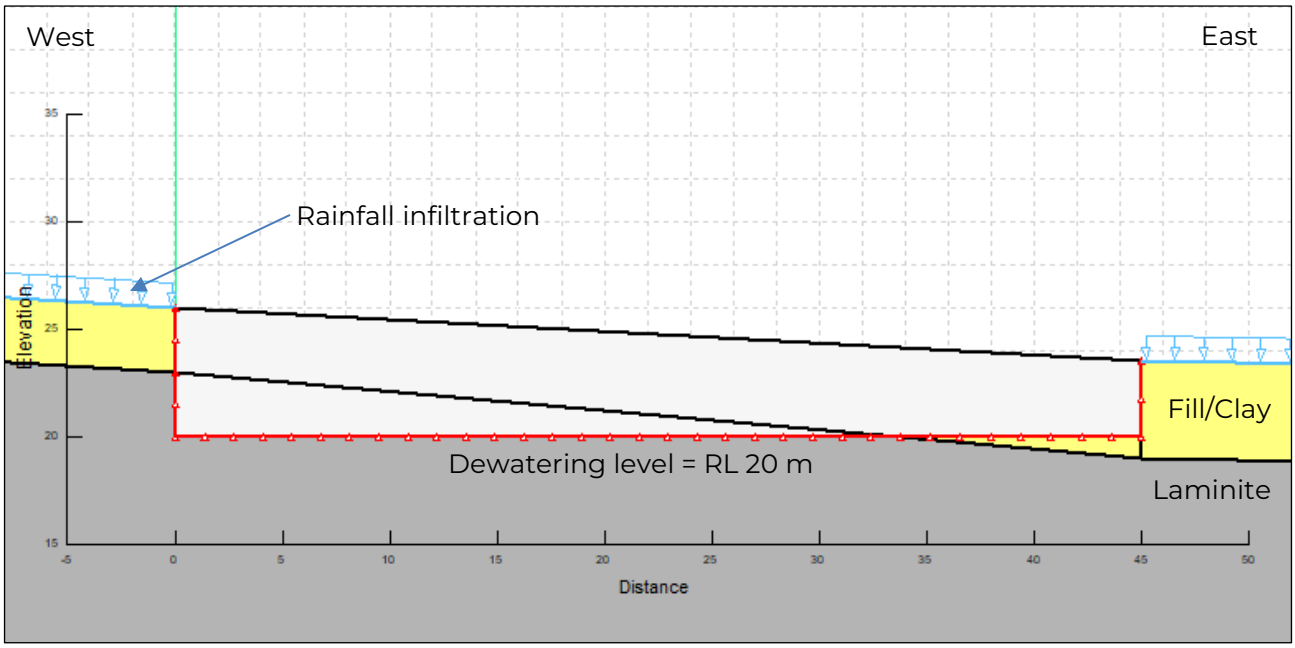


Figure 4: Cross-section for 2D modelling

7.4 Simulation

To simulate the temporary dewatering required during construction, transient flow conditions were modelled in the analysis. For the purpose of the analysis, excavation was undertaken in a single stage (i.e., instantaneously) and the subsequent temporary dewatering period was assumed to be up to one year, subdivided into multiple time intervals.

The analysis was also run under 'steady state' conditions to assess long-term groundwater inflows (i.e., assuming permanent drained basement, after construction).

7.5 Sensitivity scenarios

Sensitivity analyses were run to assess groundwater inflows under higher hydraulic conductivity and higher groundwater level conditions:

- Sensitivity 1: Hydraulic conductivity of Layer 2 (i.e. Laminite as defined in the geotechnical model) was increased to 1 x 10^{-6} m/s; and
- Sensitivity 2: The water table is 1 m higher than under base case conditions.

7.6 Groundwater modelling results

7.6.1 Predicted groundwater inflow

The model assumes excavation and dewatering to target depth is instantaneous, resulting in substantial predicted inflows during the first day of construction. In reality, dewatering will start before excavation commences to gradually lower the water table to the desired level.

Table 7: Base case – predictive model of simulated groundwater inflow rates with time

Elapsed Time	Dewatering Inflow Rate		
	Volume (m^3 / day)	Inflow rate (L / min)	Cumulative Inflow (ML)
1 day	15.7	10.90	1.81
3 days	11.6	8.07	
6 days	9.9	6.89	
11 days	8.6	6.00	
21 days	7.4	5.16	
37 days	6.5	4.51	
67 days	5.6	3.91	
118 days	4.9	3.42	
207 days	4.3	2.98	
365 days	3.7	2.60	
Post-construction	2.9	2.00	1.05

Table 8: Sensitivity cases - Simulated groundwater inflow

Elapsed Time	Cumulative dewatering inflow (ML)	
	Sensitivity 1 – high k	Sensitivity 2 – high GWL
Post-construction	1.97	1.46

Notes: k: hydraulic conductivity; GWL: groundwater level

It should be noted that these volumes are 'estimates' of the average inflows. It is possible that localised zones of higher permeability may be present within the site, through which the rate of inflow could be significantly higher, and considering the subsurface heterogeneity and fractured aquifer system, a safety margin for application in the field should be considered.

Also, simulated dewatering rates and drawdown are dependent on the dewatering scheme adopted for the site, and construction design (e.g., shoring walls), as included in the numerical models. If the depth of basement level and dewatering systems were to change then the currently predicted dewatering rates may change, in which case further modelling would be required.

7.6.2 Predicted groundwater drawdown and settlement

Based on the results of the geotechnical investigation, the groundwater drawdown is expected to occur mostly within the bedrock. Due to the stiffness of the rock, settlements on adjacent structures due to the drawdown in such rock would be expected to be negligible. Similarly, drawdown on any nearby GDEs would also be negligible.

8. Impact assessment

8.1 Aquifer Interference Policy consideration

The NSW Aquifer Interference Policy (AIP) indicates that the term "aquifer" is commonly understood to mean a groundwater system that is sufficiently permeable to allow water to move within it, and which can yield productive volumes of groundwater. A groundwater system is defined as any type of saturated geological formation that can yield low or high volumes of water. However, for the purpose of the AIP, the term aquifer has the same meaning as groundwater system and includes low yielding and saline systems.

Table 1 in Section 3.2.1 of the AIP outlines minimal impact considerations. The AIP indicates that "if predicted impacts are less than the Level 1 minimal impact considerations, then these impacts will be considered as acceptable". The following minimal impact considerations are outlined for less productive porous and fractured rock groundwater sources:

- Less than or equal to 10% cumulative variation in water table 40 m from any high priority GDE or high priority culturally significant site;
- A cumulative pressure head decline of no more than a 2 m at any water supply work; and
- Any change in groundwater quality should not lower the beneficial use category of the groundwater source beyond 40 m from the activity.

8.2 Environmental risk assessment

An assessment of the potential effects of dewatering on neighbouring properties and groundwater receptors has been summarised in Table 9.

Table 9: Assessment of Potential Effects of Dewatering

Item	Comment
Impacts on potential GDEs	The closest GDE to the site is approximately 5 km east to southeast (Section 3.3). This GDE is not considered 'high priority' for the AIP minimal impact criteria. Groundwater modelling has predicted drawdown of less than 2 m and should not result in significant impacts to the GDE.
Water supply losses by neighbouring groundwater users	Predicted drawdown would be less than 2 m at all identified locations. On this basis, potential groundwater impacts are considered negligible and acceptable in accordance with the AIP, and no further assessment of bore usage, cumulative impacts, or mitigation measures is required.
Potential subsidence of neighbouring structures	Groundwater drawdown is predicted to mostly occur within the rock units. Therefore, risk of subsidence due to lowering of the water table is expected to be minimal.
Mounding of water upgradient of structure	As the basement is proposed to be drained, mounding of groundwater is not expected upgradient of the site.

Item	Comment
Contamination and Water quality	A review of contamination risk (Section 4.8) and baseline water quality data (Section 5.2.3) has been undertaken. Based on this review and the project details it is considered that: • The available data indicates that dewatering will extract groundwater with contaminants or other parameters which exceed the discharge criteria (refer to Section 9.4.1)? • The available data does not indicate a potential for the dewatering to mobilise an off-site contamination plume. • The available data has not identified the potential for works to change the suitability of groundwater beyond 40 m from the site for identified beneficial re-uses. Controls to mitigate potential contamination impacts are provided in Section 9.
ASS	A review of ASS risk and previous investigation findings has been undertaken (Section 4.6). Based on the site elevation, mapped geology and landscape setting, and the low likelihood of ASS at the site, the proposed dewatering is not expected to intercept or induce dewatering of acid sulfate soils either on-site or off-site. Accordingly, the risk of off-site ASS impacts associated with groundwater drawdown is considered low, and no further investigation or management is considered warranted.
Salinity	Salinity has not been identified as an issue of concern at the site.

9. Recommended management strategy

9.1 General

Dewatering will be required during the construction of the project. This section outlines the proposed management strategy based on the preferred methodology for dewatering and disposal.

The proposed dewatering and discharge approach is outlined in Section 2.2 and forms the basis of the groundwater inflow assessment and impact assessment given in Section 7 and 8, respectively.

Appropriate management strategies will be required during construction and operation, to ensure that the impact and inflows arising from dewatering remain within the expected values.

9.2 Groundwater inflow control

9.2.1 Control measures and monitoring

Effective management and monitoring of groundwater inflow should be undertaken to support safe excavation, minimise impacts and satisfy the regulatory requirements. The proposed control measures will be selected based on site-specific hydrogeological conditions, construction

methodology and relevant guidelines, and will be detailed in construction drawings and specifications.

Groundwater inflow control measures may include:

- Perimeter drainage to capture and divert groundwater;
- Inflow reduction measures. Such as grouting or ground improvement.

Groundwater level and inflow monitoring should be undertaken during construction to:

- Validate inflow predictions and performance of control measures;
- Ensure drawdown remains within acceptable limits to prevent environmental or structural impacts; and
- Implement trigger contingency responses if unexpected inflow or impacts occur.

More information on recommended monitoring is provided in Section 9.5.

9.2.2 Trigger levels

Control measures will be monitored against two key thresholds:

- Volume trigger: inflow exceeds the maximum predicted by sensitivity modelling (Section 7); or
- Drawdown trigger: groundwater drawdown exceeds 2 m at any monitoring well.

If either trigger is reached, dewatering and excavation must be halted and a mitigation strategy (e.g., grouting) be implemented before work resumes.

A warning level at 75% of the above trigger levels should also be adopted. If a warning trigger is reached, works can continue but monitoring frequency should increase and the geotechnical engineer must be notified immediately. Some contingency may need to be implemented based on the geotechnical review.

9.3 Discharge options and contingency measures

Management options for groundwater disposal are presented in Table 10.

Based on groundwater quality testing and predicted dewatering rates, Option 1 (disposal to stormwater) may be considered feasible. The other two options listed in Table 10 are provided as contingency plans.

Table 10: Summary of possible management options

Management Option	Comments
Option 1: On-site treatment (if required) and disposal to stormwater.	Generally applicable where the treatment required is routine, e.g., solids removal, alum dosing and pH adjustment. Treatment of specific contaminants may require more physical space and result in higher treatment costs. Water disposed to stormwater is typically required to meet general NSW DPE requirements (NSW DPE 2021 & 2022), ANZG (2018)

Management Option	Comments
	water quality standards for the relevant receiving water body and any associated uses. Further requirements may be enforced depending on the specific approval documentation.
Option 2: * Disposal to the sewer under a Trade Waste Agreement with Sydney Water.	Generally, will require further negotiation and establishment of water quality criteria prior to disposal. Water quality screening levels will depend on the specific trade waste agreement with Sydney Water.
Option 3: ** Tanker off-site for disposal at a licensed liquid waste treatment facility.	May be suitable for more heavily contaminated liquids where on-site treatment is not practicable. Appropriate as a contingency strategy. Can be limited in applicability for larger volumes of water. Water quality screening levels will depend on specific requirements of the waste facility (including their Environmental Protection Licence conditions)

Notes: * Sydney Water has a general policy of only issuing a trade waste agreement for disposal of water from excavations where all other options have been exhausted.
** Off-site disposal of water by a tanker is generally only considered suitable in cases where periodic / batch disposal of groundwater is required (e.g., ephemeral water sources / rainfall / minor seepage only). Where continuous discharge is anticipated, this option is not feasible from an economic and / or environmental (i.e., emissions) perspective given the requirement to transport large volumes via truck at distance. It may be considered as a contingency strategy if any notable contamination which may be outside the operating capacity of the on-site treatment system is identified prior to disposal.

9.4 Water quality control

As outlined in Section 2.2, the preferred disposal option is discharge to the stormwater via the universities on-site stormwater management system, subject to approval from relevant authorities, and appropriate testing and treatment as described in subsequent sections.

Based on the water testing discussed in Section 5.2.3 and Table 10, it is likely that some form of treatment of groundwater will be required prior to discharge.

9.4.1 Discharge criteria

The discharge criteria, and rationale for the criteria are provided in Appendix G. The adopted discharge criteria are based on the stormwater system discharging to a fresh water body. The discharge criteria include levels adopted from:

- ANZG, 'Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2018' (ANZG, 2018):
  - 99% LOP for bioaccumulative contaminants
  - 95% LOP for non-bioaccumulative contaminants; and
- HEPA PFAS National Environmental Management Plan (NEMP) Version 3.0 (HEPA 2025), with a 99% level of protection (LOP) for freshwater ecosystems (for PFOA, noting more recent DGV for PFOS available from ANZG, 2018).

Note: no discharge criteria have been developed for TSS or nutrients as these are addressed by the University of Sydney based on their overarching obligations for stormwater management to the City of Sydney.

The discharge criteria are subject to the approval of the Council or other consent authority responsible for the receiving water body and stormwater network.

9.4.2 Treatment options

Potential treatment options for managing groundwater quality prior to discharge may include:

- Sediment control: Settling tanks or flocculation to reduce turbidity and suspended solids.
- pH adjustment: Dosing with lime or acid to achieve acceptable discharge pH.
- Metals removal: Filtration or chemical precipitation, if metal concentrations exceed guidelines following flocculation.
- Hydrocarbon removal: Use of oil-water separators and / or activated carbon filters.

The treatment system will be designed by the dewatering contractor based on construction specifications, groundwater quality results and the discharge criteria. A detailed treatment schematic will be provided in the detailed DMP prior to construction.

9.4.3 Proposed water quality monitoring

Water quality monitoring will be conducted in three phases, as follows:

- Baseline monitoring: conducted prior to commencement of dewatering to inform treatment requirement and disposal options.
- Treatment trial monitoring: conducted at the start up period of dewatering to assess the success of the treatment equipment prior to discharge.
- Routine monitoring: conducted throughout the dewatering and discharge period.

The requirements for each phase are provided below.

9.4.3.1 Baseline monitoring

The purpose of the baseline monitoring is to assess the quality of the untreated groundwater to inform the required treatment prior to discharge to prevent environmental harm of the receiving water body. It is considered that the previous groundwater data as reported in Section 5.2.3 is sufficient to inform the baseline water quality for the project.

9.4.3.2 Treatment trial monitoring

The purpose of the treatment trial and associated monitoring is to assess the success of the treatment method in treating water to meet the discharge criteria, or any modifications required to treat the water to meet the discharge criteria.

The treatment trial may operate using a batch or continuous treatment. For a batch treatment approach, the treated water can be disposed of to the stormwater following confirmation it meets the discharge criteria, subject to Council approval. For a continuous treatment approach the

treated water cannot be disposed off to stormwater until the treatment trial has been successfully completed. The treated groundwater may be stored on site, or dispose of via an alternative method (e.g. to a licenced liquid waste facility).

For batch based treatment, sampling events can be conducted for each batch, with a maximum of one batch of water treated a day. For continuous treatment, testing should occur every one to three days.

The treatment trial monitoring is to include testing for the analytes listed in Section 9.4.3.4.

The treatment trial is to continue until three sequential samples of treated water meet the discharge criteria.

Sampling and analysis of three samples of untreated water (over three sampling events) for all analytes in Section 9.4.3.4 is also to be conducted, either as part of the treatment trial (if suitable water available for sampling), or otherwise in the initial stage of the routine testing.

9.4.3.3 Routine monitoring

The purpose of the routine monitoring is to assess ongoing compliance with the discharge criteria. Changes in the water quality post treatment may occur due to changes in the extracted / input water quality or changes during treatment (eg, filters nearing end of life).

The base requirements for routine monitoring are provided in Section 9.5. The sampling frequency and analytical suite should be reviewed by the Environmental Consultant during the dewatering period. Based on this review the Environmental Consultant may recommend:

- Removing some analytes, due to sufficient data being available to assess that they are not of concern;
- A reduction in the frequency of analysis of some analytes, due to sufficient data being available to show consistency in water quality;
- Analysis of additional analytes, or more frequent analysis of some or all analytes, due to variability in the results or additional risks being identified based on field observations of laboratory results.

Recommendations for reductions in the analytical programme should be approved by City of Sydney Council prior to being implemented.

9.4.3.4 Analytes

The testing suite has been adopted based on the following information:

- The requirements of DPE (2022);
- The contaminants of potential concern identified in the previous investigations (refer to Section 4.8).
- The baseline water quality data (refer to Section 5.2.3).
- The potential for spills / leaks during excavation works.
- General parameters to inform suitability of the water for discharge and changes in groundwater source.

Table 11: Proposed suite of analytes for water quality monitoring

Category	Analytes	Minimum frequency
Field parameters	pH, visible / olfactory signs of turbidity, oil / grease, chemical / noxious odours	Treatment trial [1] Daily
	EC, REDOX potential (Eh), temperature, dissolved oxygen	Treatment trial [1] Monthly [1]
Physical parameters	Alkalinity (total, carbonate, hydroxide bicarbonate), TDS, total hardness, TSS, total organic carbon (TOC), sodium absorption ratio (SAR)	Treatment trial [1] Monthly [1]
Major ions	Sulfate (SO4), chloride (Cl), carbonates (CO3), bromide (Br), fluoride (F), Calcium (Ca), magnesium (Mg), sodium (Na), potassium (K) Cation/anion balance (as a percentage)	Treatment trial [1] Monthly [1]
Metals (total)	As, Cd, Cr, Cu, Hg, Mn, Ni, Pb, Zn	Treatment trial [2] Every routine sampling event [2]
Nutrients	Ammonia (NH3), nitrate (NO3), total nitrogen (N), oxidised nitrogen (N), total phosphorus (P), reactive phosphorus (P)	Treatment trial (one even only) [2]
Potential contaminants	TRH (or TPH), BTEX, PAH	Treatment trial [2] Every routine sampling event [2]
	PFAS	Treatment trial [2] Monthly (unless otherwise advised based on treatment trial) [2]
	OCP, OPP, PCB, VOC	Treatment trial (one even only) [2] Routine testing only required if analyte of potential concern recorded during treatment trial

Notes:

1. Based on requirements of DPE (2022)
2. Based on available data. Sampling requirements and frequencies may be reviewed as discussed in Section 9.4.3.3

Acronyms EC: electrical conductivity | TDS: total dissolved solids | TSS: total suspended solids

TRH: total recoverable hydrocarbons | TPH: total petroleum hydrocarbons

BTEX: benzene, toluene, ethylbenzene and xylenes

PAH: polycyclic aromatic hydrocarbons

OCP: organochlorine pesticides

OPP: organophosphate pesticides

PCB: polychlorinated biphenyls
VOC: volatile organic compounds
PFAS: per- and polyfluorinated substances

9.5 Monitoring and reporting requirements

The following monitoring program (Table 12, overleaf) and associated reporting is to be adopted until the end of excavation and construction works on-site. Groundwater level monitoring should be continued one month after construction. Groundwater level monitoring should be undertaken in a minimum of three monitoring wells. It is recommended that the existing monitoring wells used for the groundwater investigation be used during and after construction. Any wells damaged during construction should be replaced in a timely manner.

Table 12: Monitoring and reporting requirements

Item	Monitoring requirements	Methodology
Visual inspection	No visible oil and grease, sheen, significant discolouration or odours.	Daily inspections (by contractor). **HOLD POINT -** If indicators are observed, discharge must be suspended pending analytical confirmation.
Field parameter assessment	pH, daily, preferably continuously Visible / olfactory signs of turbidity, oil / grease, chemical / noxious odours: daily	• Automated measurement as part of treatment system or measure with field pH meter of treated water. • Daily observations (by contractor).
Groundwater level monitoring	Monitor drawdown at a minimum of three wells in the vicinity of the site.	• Continuous groundwater level monitoring using data logger (minimum six-hourly frequency). • Quarterly manual readings. • Monitoring to continue for one month post-construction dewatering. **HOLD POINT -** If drawdown exceeds predictions by >2 m, construction must be halted and contingency measures activated.
Water quality sampling and testing	Samples from treated water to assess compliance with discharge criteria (Appendix G).	All monitoring: • Sampling by suitably experienced environmental engineer / scientist. • Field parameters (pH, EC, turbidity) using field probes.

Item	Monitoring requirements	Methodology
	As per analytical requirements in Section 9.4.3.4. Samples from untreated water as required to inform treatment requirements	• Chain of Custody (COC) documentation to accompany all samples. • Analysis by a NATA-accredited laboratory. Baseline and treatment trial: • As per Section 9.4.3. Routine: • First month following completion of treatment trial: sampling twice weekly. • Following first month reduce to weekly unless otherwise recommended by environmental consultant based on detection of exceedances in treated water • Review and update frequency in accordance with Section 9.4.3.4. **HOLD POINT -** If water exceeds assessment criteria (SAC), manage as per contingency strategy (Section 9.7).
Quality control sampling	Replicate sampling to verify lab result accuracy.	• Conducted during above sampling events. • Analyse at a rate of 10% of samples. • Testing suite: Metals, TRH, BTEX. • Results to be included in final dewatering completion report.
Quantity of groundwater inflows	Measurements of groundwater volumes (as per Section 9.2).	• Weekly monitoring and reporting of groundwater abstraction volumes. • Results to be included in final dewatering completion report. **HOLD POINT -** If volumes exceed trigger levels or Council discharge allowance, works must be halted to minimise inflow (e.g., via grouting).
Dewatering completion report	Final documentation of the dewatering program.	Prepared by a suitably qualified consultant and to include: • Summary of contractor records (e.g. visual inspections, unexpected finds) • Full analytical and quality control results. • Records of dewatering volumes. • Commentary on compliance and any non-conformances with the DMP.

9.6 Personnel and responsibilities

Table 13 below outlines the proposed project personnel and relevant responsibilities as part of the management plan.

Table 13: Personnel and Responsibilities

Role	Responsibilities
Site Manager / Contractor	Routine visual inspection. Monitoring / recording of dewatering / discharge volumes. Maintaining any unexpected / contingency records.
Dewatering Contractor	Design / specification and ongoing maintenance of the dewatering system.
Geotechnical Consultant	Groundwater level monitoring and review of disposal volumes. Assist in preparation of the dewatering completion report.
Environmental Consultant	Water quality sampling (analysis using NATA accredited laboratories). Interim advice for each sampling event to confirm (or otherwise) compliance with discharge criteria. Quality control sampling. Assist in preparation of the dewatering completion report.

9.7 Contingency plan

As per Section 9.5, at any hold point if any non-conformance is encountered then the following general contingency plan will be enacted:

- Entity recording the non-conformance to notify the Site Manager / Contractor and other relevant parties;
- Dewatering volumes:
  - Should dewatering volumes be higher than predicted or higher than discharge limits provided by relevant authorities, suspend construction and reduce pumping rates. Options could include grouting to reduce groundwater inflows;
  - Suspend discharge;
- Water quality discharge criteria non-conformance:
  - Review of results by Environmental Consultant to assess potential risk to environment;
  - Should water quality be deemed unsuitable for disposal, suspend dewatering and (further) treat water prior to discharge;
  - If relevant, Environmental Consultant to inspect the site / unexpected finds and collect additional water quality samples to assess issue of concern;
  - Review treatment procedures and update methodology as required to improve treatment outcomes;

- Written advice by the Environmental Consultant that additional laboratory analytical results meet the discharge criteria and / or that recommending that continued discharge is not considered to pose an unacceptable environmental risk and / or recommending additional work (as applicable).
    - Off-site tankering may be adopted to meet disposal requirements; and
    - Notification to relevant regulatory authorities, as required under approvals.

10. Approvals and licensing

This section outlines the approvals, licences and other authorisations required for the proposed dewatering activities, consistent with the *Water Management Act 2000*, WaterNSW requirements, and any relevant local council or EPA obligations.

10.1 Water Access Licence (WAL) and entitlements

A WAL is not required for this site as the groundwater take is <3 ML and meets exemption under Clause 21(2) of the Water Management (General) Regulation 2018. This is subject to monitoring and reporting in accordance with the requirements of the exemption and any relevant approvals.

10.2 Council and EPA approvals

Depending on the proposed discharge route and water quality:

- Discharge to stormwater: Council approval will be required. Acceptance criteria typically align with ANZG guidelines and site-specific conditions – refer to Section 9.4.1.
- Other options include:
    - Discharge to sewer: A trade waste agreement may be required from the relevant water utility – refer to Section 9.3
    - Discharge off-site: A licensed contractor must be engaged, and records of transport and disposal must be maintained – refer to Section 9.3

City of Sydney Council (Council) has specific permits in place for temporary disposal of groundwater. It is recommended that you discuss with Council early whether they will grant permission for ongoing disposal, and in the long-term.

11. Conclusion

The geotechnical investigation identified that the site is underlain by very low to low strength laminite to medium strength moderately weathered to fresh Laminite.

The proposed FFL of the basement is approximately at RL 21. Its excavation is therefore expected to intersect the water table.

Groundwater modelling undertaken for the project predicts that groundwater inflow rates during construction could be in the range of approximately 1.8 ML/year and 2.6 ML/year. It is estimated to be approximately 1.1 ML per year for a drained basement in the long term but potentially reaching flows of up to an equivalent of 2 ML per year at times (based on the sensitivity

case). This prediction is an estimate based on the information available; actual flow rates may vary from these and will only be known once the excavation is complete and inflow rates can be measured.

Given that the predicted temporary and long-term inflow is less than 3 ML/year, and the purpose of dewatering is for construction and ongoing drainage, the proposed excavation is expected to be eligible for a Water Access Licence exemption, subject to the ongoing measurement and reporting required to claim the exemption.

From a geotechnical point of view, it is considered that drained basements are feasible without any significant impact to surrounding properties. In addition, the use of a drained basement is not considered likely to influence any GDEs or groundwater supply works in accordance with the AIP minimal impact considerations.

Construction of a drained basement will be subject to review and approval from Council and relevant authorities.

12. References

ANZECC. (2000). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.* Australia New Zealand Environment Conservation Council.

ANZG. (2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.* Canberra, ACT: Australian and New Zealand Governments and Australian state and territory governments.

Australian Government (2013). *Guidelines for Groundwater Protection in Australia – National Water Quality Management Strategy.* Department of Agriculture, Water and the Environment, Canberra.

Douglas. (2025a). Report on Geotechnical investigation, Reference number 225008.00.R.001.Rev3 dated October 2025.

Douglas. (2024a). Report on Preliminary Site (contamination) Investigation, Reference number 225008.01.R.001.Rev0, dated August 2024.

Douglas. (2024b). Remediation Action Plan, Reference number 225008.01.R.002.Rev0 dated August 2024

Douglas. (2025b). Report on Part 1 data gap contamination investigation. (2025, October). Ref: 225008.02.R.001.Rev0.

Geoscience Australia. (2009). *Groundwater Sampling and Analysis - A Field Guide.* Commonwealth of Australia.

NSW DPE. (2021). *Minimum requirements for building site groundwater investigations and reporting.*

NSW DPI – Office of Water. (2012). *NSW Aquifer Interference Policy.*

NSW DPI – Water. (2013). *Aquifer Interference Policy: NSW Policy for Managing the Impacts of Groundwater Extraction.*

WaterNSW. Fact Sheet – *Construction dewatering – Information for councils and applicants.*

WaterNSW. Fact Sheet – *Construction dewatering – General terms of approval.*

13. Limitations

Douglas Partners Pty Ltd (Douglas) has prepared this report for this project at Ross Street, Camperdown, Sydney NSW in line with Douglas' proposal 225008.00.P.002.Rev0 dated 2 May 2025 and acceptance received from Laura McMahon of The University of Sydney. The work was carried out under Douglas' Engagement Terms. This report is provided for the exclusive use of The University of Sydney for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of Douglas, does so entirely at its own risk and without recourse to Douglas for any loss or damage. In preparing this report Douglas has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after Douglas' field testing has been completed.

Douglas' advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by Douglas in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

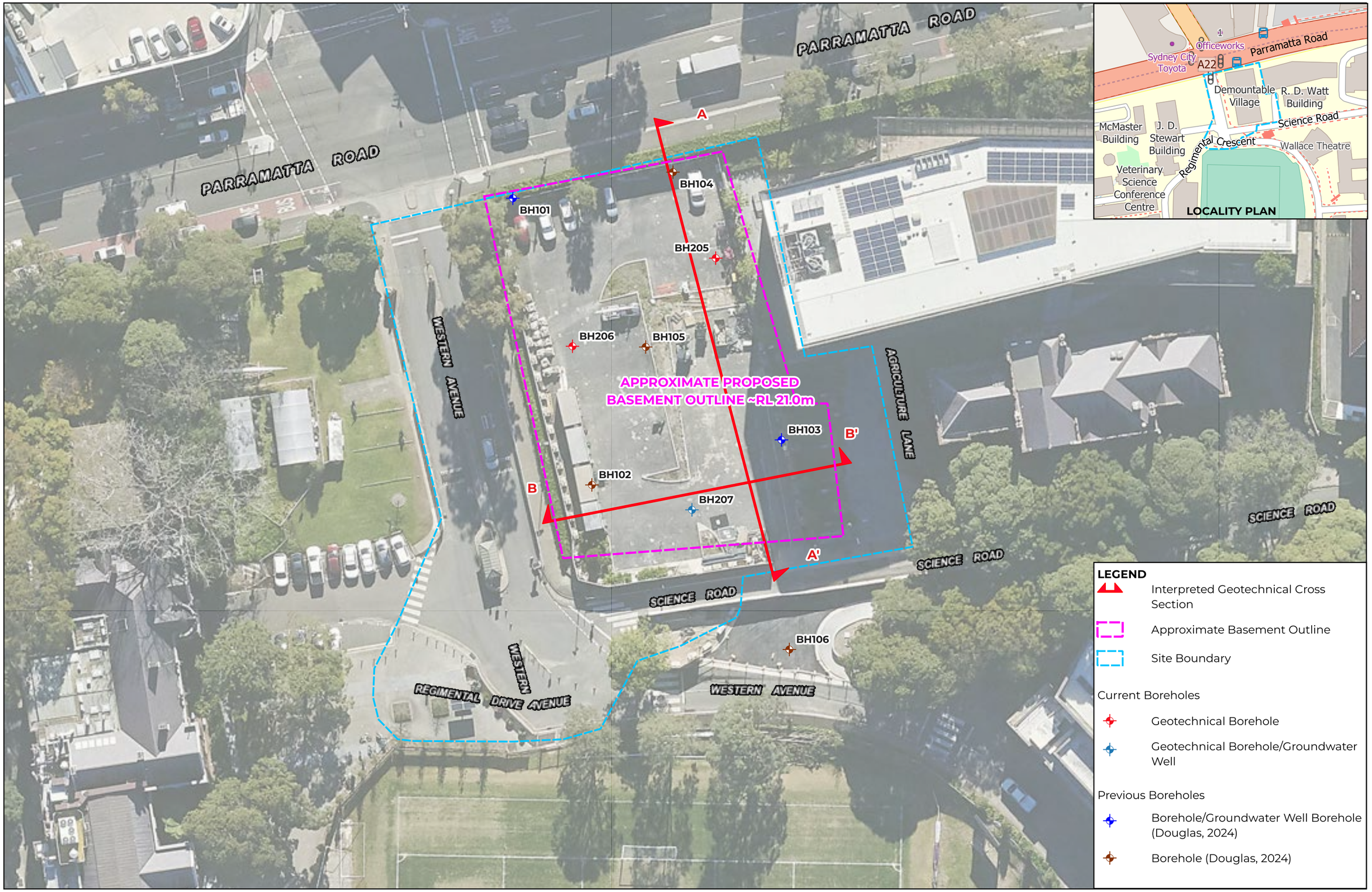
The assessment of atypical safety hazards arising from this advice is restricted to the geotechnical, environmental and groundwater components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. Douglas cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by Douglas. This is because this report has been written as advice and opinion rather than instructions for construction.

Appendix A

Drawings



REV	DESCRIPTION/COMMENT	DATE	DRAWN BY
0	INITIAL ISSUE	05.04.2025	EC/MN
1	UPDATES	21.01.2025	EC/MN
2	NEW BORHOLES	02.10.2025	EC

SCALE: 0 5 10 15 20 25 m
1:500 @ A3

Douglas PARTNERS
OFFICE: SYDNEY
96-98 Hermitage Rd, West Ryde NSW 2114
(02)9809 0666

CLIENT: **The University of Sydney**

NOTE:
1: Basemap from Metromap (Dated 14.07.2025)

COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 56

PROJECT NAME: **USYD Ross Street Teaching & Learning Hub**

PROJECT ADDRESS: **Corner of Parramatta Road and Western Avenue, Camperdown**

DRAWING TITLE: **Test Location Plan**

PROJECT NO: **225008.00**

DRAWING NO: **1**

REVISION: **2**

\\dpsydnas02\Projects\225008.00 - Ross St Teaching & Learning Hub, SYD UNI\7.0 Drawings\7.3 QGIS\225008.00.qgz

Appendix B

About this Report

About this Report

October 2024

Introduction

These notes have been provided to amplify Douglas' report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

Douglas' reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Engagement Terms for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, Douglas will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, Douglas cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, Douglas will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, Douglas requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. Douglas would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

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Appendix C

Borehole logs and geological cross-sections

BOREHOLE LOG

CLIENT: The University of Sydney
PROJECT: USYD Ross Street Teaching & Learning Hub
LOCATION: Corner Parramatta Road and Western Avenue, Camperdown

SURFACE LEVEL: 25.3 AHD
EASTING: 332126
NORTHING: 6249087
DIP/AZIMUTH: 90°/--

BORE No: BH101
PROJECT No: 225008.00
DATE: 7/11/2023
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Type	Core Rec. %	RQD %	Test Results & Comments
25	0.05	ASPHALTIC CONCRETE: 50mm thick, dark grey										
	0.15	CONCRETE: 100mm thick, pale grey							E*			PID - <1ppm
		FILL/Sandy GRAVEL: subangular concrete and igneous gravel up to 45mm, pale brown, fine to medium sand, trace silt, trace building rubble (bricks), dry										
	1								E			PID - <1ppm
24	1.1	CLAY CH: high plasticity, pale grey mottled yellow, with iron indurated gravel of medium strength, trace rootlets, w<PL, residual							E			PID - <1ppm
		Below 1.50m: possibly extremely weathered material										
	2								C	100		pp = 450-500
	2.02	SILTSTONE: red-brown, pale grey and grey, very low and low strength, highly weathered, highly fractured, fragmented with occassional clay seams up to 25mm and low to medium strength ironstone bands up to 30mm, Ashfield Shale						2.14m: CORE LOSS: 60mm	C	87	77	
23	2.2					20-11-23		2.34m: 2.34-2.36m: B0°-5°, cly co, pl, sm x3 2.4m: 2.40-2.46m: B0°-5°, cly co, pl, sm x4 2.5m: 2.50-2.59M: B0°-5°, fe cly co, pl-ir, sm x5				
								2.91m: CZ (20mm)				
	3	Below 3.0m: slightly fractured							C	100	81	PL(A) = 0.3
22								3.39m: CS (20mm)				
	3.91	SILTSTONE: dark grey, moderately to highly weathered, medium to high strength, 10% sandstone laminations, slightly fractured, Ashfield Shale						3.95m: J85°, fe co, pl, ro				PL(A) = 0.7
	4							4.2m: CS (10mm)				
21								4.39m: J85°, fe co, pl, ro	C	100	88	
								4.58m: J55°, fe cly co, he 4.66m: CS (15mm)				
								4.86m: B0°, cly vn, pl, sm				

RIG: Proline Drill **DRILLER:** BB **LOGGED:** HS **CASING:** HW to 1.79m

TYPE OF BORING: Dia-tube to 0.18m, hand auger to 1.80m, NMLC Coring to 6.0m.

WATER OBSERVATIONS: No groundwater observed during hand augering.

REMARKS: Location coordinates are in GDA2020 Zone 56. Surface level is relative to Australian Height Datum. *Replicate sample BD1/20231107 taken from 0.2--0.4 m. Refer to well logs for monitoring well construction details.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: The University of Sydney
PROJECT: USYD Ross Street Teaching & Learning Hub
LOCATION: Corner Parramatta Road and Western Avenue, Camperdown

SURFACE LEVEL: 25.3 AHD
EASTING: 332126
NORTHING: 6249087
DIP/AZIMUTH: 90°/--

BORE No: BH101
PROJECT No: 225008.00
DATE: 7/11/2023
SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
		SILTSTONE: dark grey, moderately to highly weathered, medium to high strength, 10% sandstone laminations, slightly fractured, Ashfield Shale *(continued)*						4.92m: J45°, cly co, he 5.06m: B0°, fe cly co, pl, sm 5.14m: B0°, fe co, pl, sm 5.35m: B0°, fe co, pl, sm 5.4m: J50°, he 5.44m: J70°, cly inf, cu, partially he 5.56m: J30°, fe stn, he 5.71m: CS (20mm) 5.87m: J80°-90°, fe cly inf, he	C	100	88	PL(A) = 1
20												
	6	Below 6.0m: slightly weathered, 20% sandstone laminations						6.07m: J80°-90°, fe stn, he 6.41m: J30°, pl, fe stn, he	C	100	89	PL(A) = 0.9
19												
								6.7m: 6.7-6.9: B0°-10°, pl, fe stn x4				
	7								C	100	93	PL(A) = 1.5
18								7.28m: J55°, fe stn, st, sm				
	7.54	Bore discontinued at 7.54m Target depth reached						7.51m: J30°, fe stn, st, sm				
	8											
17												
	9											
16												

RIG: Proline Drill **DRILLER:** BB **LOGGED:** HS **CASING:** HW to 1.79m

TYPE OF BORING: Dia-tube to 0.18m, hand auger to 1.80m, NMLC Coring to 6.0m.

WATER OBSERVATIONS: No groundwater observed during hand augering.

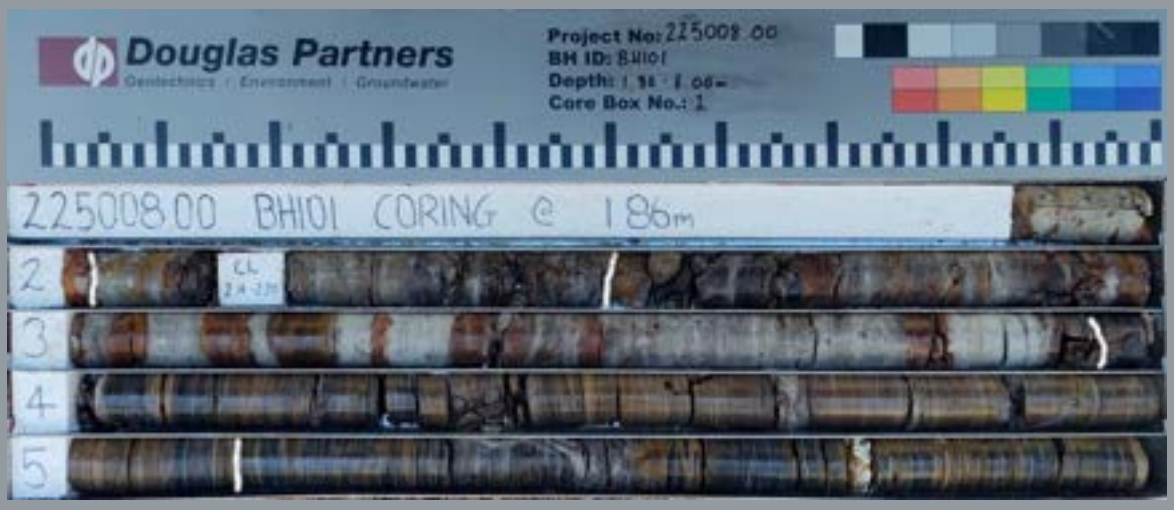
REMARKS: Location coordinates are in GDA2020 Zone 56. Surface level is relative to Australian Height Datum. *Replicate sample BD1/20231107 taken from 0.2--0.4 m. Refer to well logs for monitoring well construction details.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics | Environment | Groundwater

BORE: BH101 PROJECT: 225008.00 NOVEMBER 2023



1.86 – 6.00m

BORE: BH101 PROJECT: 225008.00 NOVEMBER 2023



6.00- 7.54m

BOREHOLE LOG

CLIENT: The University of Sydney
PROJECT: USYD Ross Street Teaching & Learning Hub
LOCATION: Corner Parramatta Road and Western Avenue, Camperdown

SURFACE LEVEL: 25.3 AHD
EASTING: 332126
NORTHING: 6249087
DIP/AZIMUTH: 90°/--

BORE No: BH101
PROJECT No: 225008.00
DATE: 7/11/2023
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
25	0.05	ASPHALTIC CONCRETE: 50mm thick, dark grey							Concrete cap
	0.15	CONCRETE: 100mm thick, pale grey							Bentonite 0.1-0.3m
		FILL/Sandy GRAVEL: subangular concrete and igneous gravel up to 45mm, pale brown, fine to medium sand, trace silt, trace building rubble (bricks), dry		E*	0.2		PID - <1ppm		
					0.4				Spoil 0.3-0.5m
									Blank pipe 0.0-1.2m
				E	0.8		PID - <1ppm		
1					1.0			1	
	1.1				1.1				Bentonite 0.5-1.6m
24		CLAY CH: high plasticity, pale grey mottled yellow, with iron indurated gravel of medium strength, trace rootlets, w<PL, residual		E			PID - <1ppm		
					1.3				
		Below 1.50m: possibly extremely weathered material							
				C	1.86		pp = 450-500		
2	2.02				2.03			2	
	2.2	SILTSTONE: red-brown, pale grey and grey, very low and low strength, highly weathered, highly fractured, fragmented with occassional clay seams up to 25mm and low to medium strength ironstone bands up to 30mm, Ashfield Shale		C					
23					2.5			20-11-23	
				C					
3		Below 3.0m: slightly fractured			3.03		PL(A) = 0.3		3
22				C					
	3.91				3.95				
4		SILTSTONE: dark grey, moderately to highly weathered, medium to high strength, 10% sandstone laminations, slightly fractured, Ashfield Shale			4.02		PL(A) = 0.7	4	
21				C					Machine slotted PVC screen 1.2-7.54m
									Gravel 1.6-7.2m

RIG: Proline Drill **DRILLER:** BB **LOGGED:** HS **CASING:** HW to 1.79m

TYPE OF BORING: Dia-tube to 0.18m, hand auger to 1.80m, NMLC Coring to 6.0m.

WATER OBSERVATIONS: No groundwater observed during hand augering.

REMARKS: Location coordinates are in GDA2020 Zone 56. Surface level is relative to Australian Height Datum. *Replicate sample BD1/20231107 taken from 0.2--0.4 m. Refer to well logs for monitoring well construction details.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics | Environment | Groundwater

BOREHOLE LOG

CLIENT: The University of Sydney
PROJECT: USYD Ross Street Teaching & Learning Hub
LOCATION: Corner Parramatta Road and Western Avenue, Camperdown

SURFACE LEVEL: 25.3 AHD
EASTING: 332126
NORTHING: 6249087
DIP/AZIMUTH: 90°/--

BORE No: BH101
PROJECT No: 225008.00
DATE: 7/11/2023
SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
20	6	SILTSTONE: dark grey, moderately to highly weathered, medium to high strength, 10% sandstone laminations, slightly fractured, Ashfield Shale *(continued)*		C	5.07 5.15		PL(A) = 1		
19		Below 6.0m: slightly weathered, 20% sandstone laminations		C	6.06		PL(A) = 0.9		
					6.65				
18	7			C	7.07		PL(A) = 1.5		Sand 7.2-7.54m End cap
	7.54	Bore discontinued at 7.54m Target depth reached			7.54				
17	8								
16	9								

RIG: Proline Drill **DRILLER:** BB **LOGGED:** HS **CASING:** HW to 1.79m

TYPE OF BORING: Dia-tube to 0.18m, hand auger to 1.80m, NMLC Coring to 6.0m.

WATER OBSERVATIONS: No groundwater observed during hand augering.

REMARKS: Location coordinates are in GDA2020 Zone 56. Surface level is relative to Australian Height Datum. *Replicate sample BD1/20231107 taken from 0.2--0.4 m. Refer to well logs for monitoring well construction details.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: The University of Sydney
PROJECT: USYD Ross Street Teaching & Learning Hub
LOCATION: Corner Parramatta Road and Western Avenue, Camperdown

SURFACE LEVEL: 24.2 AHD
EASTING: 332137
NORTHING: 6249047
DIP/AZIMUTH: 90°/--

BORE No: BH102
PROJECT No: 225008.00
DATE: 9/11/2023
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low / Very Low / Low / Medium / High / Very High / Ex High)	Water	Fracture Spacing (m) (0.01 / 0.05 / 0.10 / 0.50 / 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
24	0.05	ASPHALTIC CONCRETE: 50mm thick, dark grey										
	0.2	CONCRETE: 150mm thick, pale grey							E			
		FILL/Sandy GRAVEL: subangular concrete and igneous gravel up to 45mm, pale brown, fine to medium sand, trace silt, trace building rubble (bricks), dry, apparently medium dense							E			
									E			PID - <1ppm
	0.6								E			
	0.7	CONCRETE: 100mm thick, pale grey										
									E			
									E			PID - <1ppm
	1	FILL/CLAY: medium plasticity, dark brown, with fine ironstone and igneous gravel, with building rubble (rubber, pvc), trace rootlets, w<PL							E			
23	1.1								S			pp = 150-190 8,7,7 N = 14
		CLAY CH: high plasticity, pale grey mottled yellow, trace rootlets, w<PL, stiff, residual										
		Below 1.40m: with medium strength ironstone bands up to 20mm thick							E			
									E			
									E			PID - <1ppm
									E			
	2											
22												
									S			pp = 300-370 7,12,17 N = 29
	3											
21		Below 3.70m: possibly extremely weathered material										
	4								S			pp = 450-500 10,20,20 N = 40 Bouncing
20	4.5	SILTSTONE: grey and dark grey, inferred highly weathered with bands of extremely weathred material										

RIG: Massenza MI3 **DRILLER:** ML **LOGGED:** HS **CASING:** HW to 5.60m.

TYPE OF BORING: Solid flight auger to 5.65m, NMLC to 9.70m.

WATER OBSERVATIONS: No free groundwater observed during augering

REMARKS: Location coordinates are in GDA2020 Zone 56. Surface level is relative to Australian Height Datum.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: The University of Sydney
PROJECT: USYD Ross Street Teaching & Learning Hub
LOCATION: Corner Parramatta Road and Western Avenue, Camperdown

SURFACE LEVEL: 24.2 AHD
EASTING: 332137
NORTHING: 6249047
DIP/AZIMUTH: 90°/--

BORE No: BH102
PROJECT No: 225008.00
DATE: 9/11/2023
SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Type	Core Rec. %	RQD %	Test Results & Comments
19		SILTSTONE: grey and dark grey, inferred highly weathered with bands of extremely weathred material *(continued)*										
	5.5	INTERLAMINATED SILTSTONE AND SANDSTONE: 50% dark grey siltstone with 50% irregular and disturbed pale grey sandstone beds and laminations, medium to high strength, slightly weathered, thinly laminated, fractured, Ashfield Shale							S			10/50 refusal No recovery PL(A) = 0.5
	5.8							5.65m: CORE LOSS: 150mm				
18	6							5.9m: B0°, pl, sm, fe stn 5.97m: B10°, fe co, pl, sm 6.05m: J60°, fe cly co, st, sm 6.08m: J40°, fe cly co, pl, sm 6.14m: J40°, fe co, pl, sm 6.27m: J70°, pl, sm, fe stn 6.3m: CS, 40mm 6.37m: J70°, fe stn, he 6.57m: J45°, fe cly vn, pl, sm x2 6.71m: J20°, cln, pl, sm 6.9m: B10°, pl, sm, fe stn				
		Below 6.64m: fresh, slightly fractured										PL(A) = 1.1
17	7								C	95	81	
												PL(A) = 2.2
16	8							8.54m: J45°, fe stn, st, sm 8.72m: J20°, cly vn, st, sm				PL(A) = 0.8
15	9								C	100	97	PL(A) = 1
	9.7	Bore discontinued at 9.7m Target depth reached						9.65m: J30°, pl, cly vn, sm				

RIG: Massenza MI3 **DRILLER:** ML **LOGGED:** HS **CASING:** HW to 5.60m.

TYPE OF BORING: Solid flight auger to 5.65m, NMLC to 9.70m.

WATER OBSERVATIONS: No free groundwater observed during augering

REMARKS: Location coordinates are in GDA2020 Zone 56. Surface level is relative to Australian Height Datum.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BORE: BH102 PROJECT: 225008.00 NOVEMBER 2023



5.95 – 9.70m

BOREHOLE LOG

CLIENT: The University of Sydney
PROJECT: USYD Ross Street Teaching & Learning Hub
LOCATION: Corner Parramatta Road and Western Avenue, Camperdown

SURFACE LEVEL: 26.0 AHD
EASTING: 332163
NORTHING: 6249053
DIP/AZIMUTH: 90°/--

BORE No: BH103
PROJECT No: 225008.00
DATE: 8/11/2023
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
26	0.05	ASPHALTIC CONCRETE: 50mm thick, dark grey										
		FILL/Sandy GRAVEL: subangular concrete and igneous gravel up to 45mm, pale brown, with fine grained sand, trace silt, trace building rubble (bricks), dry							E			
	0.5								A			
		REINFORCED CONCRETE: 200m thick							E			
	0.7											
		FILL/Clayey GRAVEL: subangular igneous gravel up to 20mm, pale brown, with medium plasticity clay, with fine to medium sand							E			PID - <1ppm
25	1 1.0								E			
		CLAY CH: high plasticity, pale grey mottled yellow, with medium strength ironstone bands, trace rootlets, w<PL, very stiff, residual							S			pp = 350-450 7,8,10 N = 18
												PID - <1ppm
									E			
									E			
24	2											
						20-11-23			S			pp = 400-500 5,9,14 N = 23
		Below 2.57m: possibly extremely weathered material										
23	3 3.0											
		SILTSTONE: pale grey, very low to low strength, Ashfield Shale										
22	4 4.0								S			25/50 refusal Bouncing
		SILTSTONE: red-brown, pale grey, and grey, very low and low strength, highly weathered, highly fractured, fragmented with occassional clay seams up to 25mm and low to medium strength ironstone bands up to 30mm, Ashfield Shale						4.37m: CS, 20mm 4.4m: CS, 10mm 4.5m: CS, 15mm 4.54m: CS, 15mm 4.75m: J30°, pl, sm, fe stn 4.77m: CS, 10mm	C	100	72	

RIG: Massenza MI3 **DRILLER:** ML **LOGGED:** HS **CASING:** HW to 4.30m.

TYPE OF BORING: Solid flight auger to 4.30, NMLC to 8.91m.

WATER OBSERVATIONS: No free groundwater observed during augering.

REMARKS: Location coordinates are in GDA2020 Zone 56. Surface level is relative to Australian Height Datum. Refer to well logs for monitoring well construction details.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: The University of Sydney
PROJECT: USYD Ross Street Teaching & Learning Hub
LOCATION: Corner Parramatta Road and Western Avenue, Camperdown

SURFACE LEVEL: 26.0 AHD
EASTING: 332163
NORTHING: 6249053
DIP/AZIMUTH: 90°/--

BORE No: BH103
PROJECT No: 225008.00
DATE: 8/11/2023
SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Type	Core Rec. %	RQD %	Test Results & Comments
21		SILTSTONE: red-brown, pale grey, and grey, very low and low strength, highly weathered, highly fractured, fragmented with occassional clay seams up to 25mm and low to medium strength ironstone bands up to 30mm, Ashfield Shale *(continued)*						4.95m: J50°, fe co, he 5.05m: B0°, fe cly co, pl, sm 5.27m: J45°, cly co, he 5.34m: J50°, fe cly co, pl, sm 5.35m: 5.35-5.51: DS, 160mm 5.51m: 5.51-5.55m: B0°, fe cly co, pl-ir, sm x2 5.68m: 5.68-5.77: B10°, pl, fe stn x2 5.81m: B15°, fe co, pl, sm	C	100	72	
	5.6	INTERLAMINATED SILTSTONE AND SANDSTONE: 60% dark grey siltstone with 40% irregular pale grey sandstone beds and laminations, medium strength, moderately to slightly weathered, thinly laminated, fractured, Ashfield Shale										PL(A) = 0.3
20	6							6.05m: 6.05-6.10: B0°-10°, pl, fe stn x2 6.14m: J20°, fe stn, pl, sm 6.23m: J55°-65°, fe co, un, sm 6.28m: B10°, pl, fe stn 6.36m: J40°-45°, cly vn, pl, sm 6.43m: J30°, fe cly co, ir, sm 6.54m: J80°-90°, fe cly co, un-ir, sm 6.65m: J80°-90°, un, fe stn	C	100	69	PL(A) = 0.6
19	7	Below 7.13m: slightly weathered to fresh						6.8m: J80°, fe cly co, partially he 6.98m: CS, 20mm 7.03m: 7.03-7.06: B0°-10°, pl, fe stn x2 7.35m: B15°-20°, cly vn, cu, sm 7.39m: B10°, cly vn, pl, sm 7.45m: J20°, fe stn, he 7.62m: J45°, fe co, ir, sm 7.67m: J15°, fe stn, he x2 7.79m: 7.79-7.85: J40°-60°, fe stn x4 7.88m: J45°, fe cly co, pl, sm	C	100	82	PL(A) = 1 PL(A) = 0.8
18	8											
	8.9	Bore discontinued at 8.9m										
17	9	Target depth reached										

RIG: Massenza MI3 **DRILLER:** ML **LOGGED:** HS **CASING:** HW to 4.30m.

TYPE OF BORING: Solid flight auger to 4.30, NMLC to 8.91m.

WATER OBSERVATIONS: No free groundwater observed during augering.

REMARKS: Location coordinates are in GDA2020 Zone 56. Surface level is relative to Australian Height Datum. Refer to well logs for monitoring well construction details.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BORE: BH103 PROJECT: 225008.00 NOVEMBER 2023



4.30 – 8.90m

BOREHOLE LOG

CLIENT: The University of Sydney
PROJECT: USYD Ross Street Teaching & Learning Hub
LOCATION: Corner Parramatta Road and Western Avenue, Camperdown

SURFACE LEVEL: 26.0 AHD
EASTING: 332163
NORTHING: 6249053
DIP/AZIMUTH: 90°/--

BORE No: BH103
PROJECT No: 225008.00
DATE: 8/11/2023
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
26	0.05	ASPHALTIC CONCRETE: 50mm thick, dark grey							Concrete cap
		FILL/Sandy GRAVEL: subangular concrete and igneous gravel up to 45mm, pale brown, with fine grained sand, trace silt, trace building rubble (bricks), dry		E	0.2				Bentonite 0.1-0.3m
				A	0.3				
				E	0.4				Spoil 0.3-0.5m
	0.5	REINFORCED CONCRETE: 200m thick			0.5				Blank pipe 0.0-1.1m
	0.7	FILL/Clayey GRAVEL: subangular igneous gravel up to 20mm, pale brown, with medium plasticity clay, with fine to medium sand		E	0.7		PID - <1ppm		
					0.8				Bentonite 0.5-1.1m
25	1 1.0	CLAY CH: high plasticity, pale grey mottled yellow, with medium strength ironstone bands, trace rootlets, w<PL, very stiff, residual		E	1.0				1
				S			pp = 350-450 7,8,10 N = 18		
					1.45				
				E	1.6		PID - <1ppm		
				E	1.7				
					1.8				
					1.9				
24	2			E	2.0				2
					2.5				
		Below 2.57m: possibly extremely weathered material		S			pp = 400-500 5,9,14 N = 23	20-11-23	
23	3 3.0	SILTSTONE: pale grey, very low to low strength, Ashfield Shale			2.95				3
22	4 4.0	SILTSTONE: red-brown, pale grey, and grey, very low and low strength, highly weathered, highly fractured, fragmented with occassional clay seams up to 25mm and low to medium strength ironstone bands up to 30mm, Ashfield Shale		S	4.0 4.05		25/50 refusal Bouncing		4
					4.3				
				C					Gravel 1.1-7.9m (please check depth)

RIG: Massenza MI3 **DRILLER:** ML **LOGGED:** HS **CASING:** HW to 4.30m.

TYPE OF BORING: Solid flight auger to 4.30, NMLC to 8.91m.

WATER OBSERVATIONS: No free groundwater observed during augering.

REMARKS: Location coordinates are in GDA2020 Zone 56. Surface level is relative to Australian Height Datum. Refer to well logs for monitoring well construction details.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: The University of Sydney
PROJECT: USYD Ross Street Teaching & Learning Hub
LOCATION: Corner Parramatta Road and Western Avenue, Camperdown

SURFACE LEVEL: 26.0 AHD
EASTING: 332163
NORTHING: 6249053
DIP/AZIMUTH: 90°/--

BORE No: BH103
PROJECT No: 225008.00
DATE: 8/11/2023
SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
21		SILTSTONE: red-brown, pale grey, and grey, very low and low strength, highly weathered, highly fractured, fragmented with occassional clay seams up to 25mm and low to medium strength ironstone bands up to 30mm, Ashfield Shale *(continued)*		C					Machine slotted PVC screen 1.1-8.9m
	5.6				5.6				
		INTERLAMINATED SILTSTONE AND SANDSTONE: 60% dark grey siltstone with 40% irregular pale grey sandstone beds and laminations, medium strength, moderately to slightly weathered, thinly laminated, fractured, Ashfield Shale			5.67		PL(A) = 0.3		
20	6			C					6
					6.87		PL(A) = 0.6		
19	7				7.0				7
		Below 7.13m: slightly weathered to fresh							
18	8			C	7.95		PL(A) = 1		8
									Sand 7.9-8.9m
					8.75		PL(A) = 0.8		
	8.9				8.9				End cap
17	9	Bore discontinued at 8.9m Target depth reached							9

RIG: Massenza MI3 **DRILLER:** ML **LOGGED:** HS **CASING:** HW to 4.30m.

TYPE OF BORING: Solid flight auger to 4.30, NMLC to 8.91m.

WATER OBSERVATIONS: No free groundwater observed during augering.

REMARKS: Location coordinates are in GDA2020 Zone 56. Surface level is relative to Australian Height Datum. Refer to well logs for monitoring well construction details.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: The University of Sydney
PROJECT: USYD Ross Street Teaching & Learning Hub
LOCATION: Corner Parramatta Road and Western Avenue, Camperdown

SURFACE LEVEL: 25.9 AHD
EASTING: 332148
NORTHING: 6249090
DIP/AZIMUTH: 90°/--

BORE No: BH104
PROJECT No: 225008.00
DATE: 6/11/2023
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Type	Core Rec. %	RQD %	Test Results & Comments
25	0.045	ASPHALTIC CONCRETE: 450 mm thick, dark grey										
		FILL/Silty GRAVEL: dark grey, fine to coarse, subangular to angular igneous and shale gravel, trace concrete, wet, potential ash							E			PID - <1ppm
	0.7	FILL/Silty CLAY: medium to high plasticity, grey-brown, trace potential ash, concrete and igneous and shale gravel, w~PL, sweet odour							E			PID - <1ppm
1	1.0	FILL/Silty CLAY: medium to high plasticity, grey-brown, trace shale gravel, w~PL							E			PID - <1ppm
	1.2	FILL/Silty CLAY: medium to high plasticity, pale grey-grey, trace subangular to angular shale gravel, w~PL, possibly residual							E			PID - <1ppm
	1.45	Silty CLAY: pale grey and red-brown, some very low strength siltstone bands, residual/weathered rock							C	100	0	
24								1.8m: CORE LOSS: 140mm				
2	1.94								C	84	0	
	2.57	SILTSTONE: dark grey, very low strength						2.57m: B5°, fe cly co, pl, sm				
	2.77							2.6m: 2.60-2.67: B0°-10°, fe cly co, pl-ir, sm x4	C	88	92	PL(A) = 0.4
23	2.86	SILTSTONE: dark grey, medium strength, slightly weathered, fractured, Ashfield Shale						2.7m: CS (20mm) 2.72m: CORE LOSS: 50mm 2.82m: B10°, cly co, pl, sm 2.84m: CS (20mm) 3.06m: J65°, he 3.16m: J45°, fe cly, pl, partially healed 3.19m: 3.19-3.24m: B0°-5°, cly co, pl, sm x4 3.35m: J20°, cly co, pl, sm 3.39m: 3.39-3.42m: B0°, cly vn, pl, sm 3.61m: CS (10mm) 3.62m: B0°, fe cly co, pl, sm 3.77m: J40°, cly vn, pl, sm 3.79m: CORE LOSS: 140mm 4.29m: B0°, fe stn, st, sm 4.46m: B0-10°, fe co, pl, sm 4.58m: B0°, cly vn, pl, sm	C	85	76	
3												
22	3.93											PL(A) = 0.8
4	4.08	INTERLAMINATED SILTSTONE AND SANDSTONE: 60% dark grey siltstone with 40% irregular pale grey sandstone beds and laminations, high strength, fresh and slightly weathered, fractured, Ashfield Shale							C	100	93	
21												PL(A) = 1.1

RIG: Proline Drill **DRILLER:** BB **LOGGED:** HS **CASING:** HW to 1.45m

TYPE OF BORING: Dia-tube to 0.2m, hand auger to 1.50m, NMLC Coring to 5.90m.

WATER OBSERVATIONS: Fill saturated from recent rain.

REMARKS: Location coordinates are in GDA2020 Zone 56. Surface level is relative to Australian Height Datum.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics | Environment | Groundwater

BOREHOLE LOG

CLIENT: The University of Sydney
PROJECT: USYD Ross Street Teaching & Learning Hub
LOCATION: Corner Parramatta Road and Western Avenue, Camperdown

SURFACE LEVEL: 25.9 AHD
EASTING: 332148
NORTHING: 6249090
DIP/AZIMUTH: 90°/--

BORE No: BH104
PROJECT No: 225008.00
DATE: 6/11/2023
SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low / Very Low / Low / Medium / High / Very High / Ex High)	Water	Fracture Spacing (m) (0.01 / 0.05 / 0.10 / 0.50 / 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
		INTERLAMINATED SILTSTONE AND SANDSTONE: 60% dark grey siltstone with 40% irregular pale grey sandstone beds and laminations, high strength, fresh and slightly weathered, fractured, Ashfield Shale *(continued)*						4.98m: J60°, fe stn, ir, sm	C	100	93	
		5.52m: sheared surface						5.28m: B0°, cly vn, pl, sm 5.45m: B10°, cly vn, pl, sm	C	100	92	
20	5.9	Bore discontinued at 5.9m						5.88m: J45°, fe cly co, pl, sm				PL(A) = 1.2
	6	Target depth reached										
19	7											
18	8											
17	9											
16												

RIG: Proline Drill **DRILLER:** BB **LOGGED:** HS **CASING:** HW to 1.45m

TYPE OF BORING: Dia-tube to 0.2m, hand auger to 1.50m, NMLC Coring to 5.90m.

WATER OBSERVATIONS: Fill saturated from recent rain.

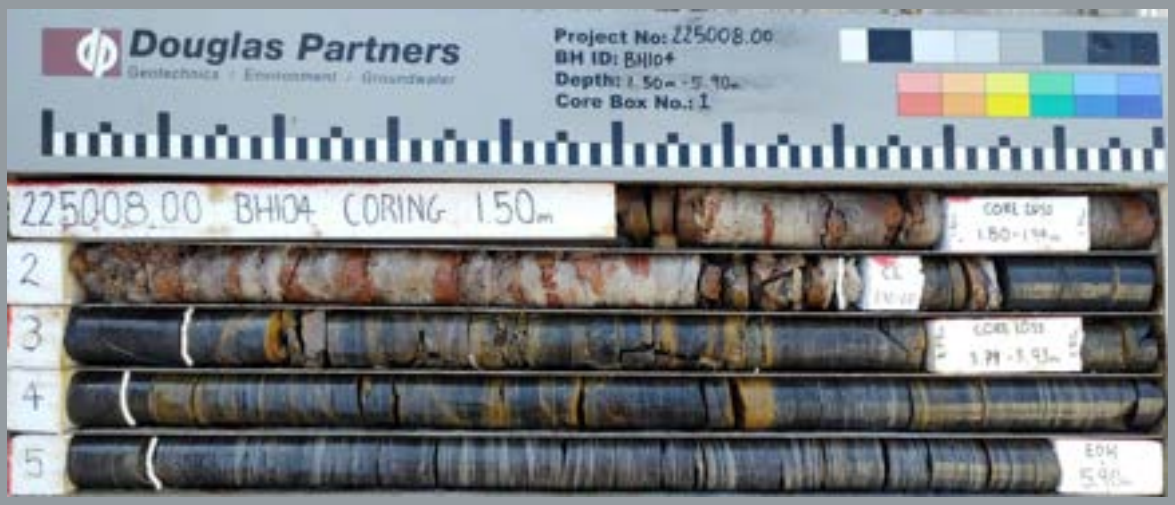
REMARKS: Location coordinates are in GDA2020 Zone 56. Surface level is relative to Australian Height Datum.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BORE: BH104 PROJECT: 225008.00 NOVEMBER 2023



1.50 – 5.90m

BOREHOLE LOG

CLIENT: The University of Sydney
PROJECT: USYD Ross Street Teaching & Learning Hub
LOCATION: Corner Parramatta Road and Western Avenue, Camperdown

SURFACE LEVEL: 25.4 AHD
EASTING: 332144
NORTHING: 6249066
DIP/AZIMUTH: 90°/--

BORE No: BH105
PROJECT No: 225008.00
DATE: 8/11/2023
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
25	0.1	ASPHALTIC CONCRETE: 100mm thick, dark grey							
		FILL/Sandy GRAVEL: subangular igneous gravel up to 45mm, pale brown, with fine to medium sand, trace silt, dry, apparently medium dense		E	0.2				
				E	0.3		PID - <1ppm		
				E	0.4				
				E	0.5				
				E	0.6				
					0.7				
	0.8			E	0.8				
24	1	CLAY CH: high plasticity, pale grey mottled yellow, with medium strength iron indurated gravel, trace rootlets, w<PL, apparently stiff, residual		E	0.9		PID - <1ppm		1
				E	1.0				
				E	1.1				
				E	1.5				
				E	1.6		PID - <1ppm		
	2			E	1.7				2
23				E	1.8				
				E	1.9				
	2.5	Bore discontinued at 2.5m Target depth reached							
	3								3
22									
	4								4
21									

RIG: Massenza MI3 **DRILLER:** ML **LOGGED:** HS **CASING:** Uncased

TYPE OF BORING: Solid flight auger to 2.50m.

WATER OBSERVATIONS: No free groundwater observed during augering.

REMARKS: Location coordinates are in GDA2020 Zone 56. Surface level is relative to Australian Height Datum.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: The University of Sydney
PROJECT: USYD Ross Street Teaching & Learning Hub
LOCATION: Corner Parramatta Road and Western Avenue, Camperdown

SURFACE LEVEL: 24.4 AHD
EASTING: 332164
NORTHING: 6249024
DIP/AZIMUTH: 90°/--

BORE No: BH106
PROJECT No: 225008.00
DATE: 24/11/2023
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
24	0.15	CONCRETE: 150mm thick, pale grey							
		FILL/ ASPHALTIC CONCRETE AND GRAVEL		E	0.25		PID - <1ppm		
	0.35	CLAY CH: medium to high plasticity, grey, w>PL, apparently in a stiff condition, residual		A/E	0.35 0.4		PID - <1ppm		
	1			A	0.8 0.9				1
				E	1.0 1.1		PID - <1ppm		
		Below 1.2m: grey and orange, trace iron indurated gravel, becoming very stiff to hard		A	1.2 1.3				
23	1.35	Bore discontinued at 1.35m Target depth reached		A	1.35				
22	2								2
21	3								3
20	4								4

RIG: Hand tools **DRILLER:** LDS **LOGGED:** LDS **CASING:** Uncased

TYPE OF BORING: Hand tools to 0.35m, Hand auger to 1.35m.

WATER OBSERVATIONS: No free groundwater observed during augering.

REMARKS: Location coordinates are in GDA2020 Zone 56. Surface level is relative to Australian Height Datum.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: The University of Sydney
PROJECT: Ross St Teaching & Learning Hub
LOCATION: Ross Street, Camperdown, Sydney, NSW 2050

SURFACE LEVEL: 25.8 AHD
COORDINATE: E:332153.8, N:6249078.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH205
PROJECT No: 225008.00
DATE: 21/07/25
SHEET: 1 of 3

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(†) DENSITY.(†)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH	ROCK RECOVERY (%)	ROCK RQD	ROCK FRACTURE SPACING (m)	ROCK DEFECTS & REMARKS	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	DEPTH (m)	TESTING TEST TYPE	TESTING RESULTS AND REMARKS
21/07/25 NFGWO	25	0.80	FILL / Gravelly SAND trace clay: pale grey; fine to medium; fine to medium, sandstone and igneous gravel.		FILL	ND	D									A	0.10			
																A	0.30			
																	0.50			
			CLAY (CI-CH): pale grey; medium to high plasticity; trace fine to medium sand.													A	0.80			
	1					VSt											1.00			
																SPT	1.45	SPT	7,12,17 N=29	
	24				RS		w<PL													
	2					VSt - H											2.50			
			From 2.60m: iron staining and lenses of very low to low strength siltstone gravel (possibly XWM)													SPT	2.90	SPT	8,18,16/100 (HB)	
	23	3															3			
		3.10			NA	(VSt) - (H)	NDF													
		3.26	Sandy CLAY (CI-CH): pale grey; medium to high plasticity; fine to medium sand; iron staining, very low to low strength siltstone lenses.		XWM			XW	3.26	SOIL	64	0	SOIL							
		3.47						MW	3.47					3.51m: P, 0-5°, UN, SN Fe, RF						
		3.55																		
		3.64							3.64					3.64-3.80m: P x4, 0-10°, UN, VNR Fe, RF						
	22		INTERLAMINATED SILSTONE AND SANDSTONE: 70% dark grey siltstone with 30% pale grey sandstone beds and laminations; ironstained. Ashfield Shale.											3.82m: JT, 30-50°, PR, VNR Fe, RF					PLT	PL(A)=0.04MPa
		4								VL to L	89	11		3.84-3.94m: P x3, 0-5°, UN, VNR Fe, RF				4		
														4.00m: EW, Clay 5mm						
														4.06m: EW, Clay 2mm						
								MW						4.13m: EW, Clay 5mm						
														4.23m: EW, Clay 15mm					PLT	PL(A)=0.06MPa
														4.31m: EW, Clay 5mm						
									4.60					4.38m: EW, Clay 10mm						
	21									L to M	100	53		4.53m: P, 0-5°, PR, Clay 5mm, RF						
														4.58m: P, 0-5°, PR, SN Clay, RF						
														4.70m: P, 0-5°, CU, VNR, RF, Fe and Clay					PLT	PL(A)=0.19MPa

NOTES: (#)Soil origin is "probable" unless otherwise stated. (†)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Scout 4 Drill Rig
METHOD: AD/T (100mm) to 2.5m; WB to 3.1m; NMLC to 10.2m
REMARKS:

OPERATOR: Ground Test (GM)

LOGGED: E. Miler
CASING: HW to 2.5m, then HQ to 3.1m

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Combined Log

BOREHOLE LOG

CLIENT: The University of Sydney
PROJECT: Ross St Teaching & Learning Hub
LOCATION: Ross Street, Camperdown, Sydney, NSW 2050

SURFACE LEVEL: 25.8 AHD
COORDINATE: E:332153.8, N:6249078.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH205
PROJECT No: 225008.00
DATE: 21/07/25
SHEET: 2 of 3

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(*) DENSITY.(*)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH	ROCK RECOVERY (%)	ROCK RQD	FRACTURE SPACING (m)	DEFECTS & REMARKS	SAMPLE SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	DEPTH (m)	TESTING TEST TYPE	TESTING RESULTS AND REMARKS
	20	6	5.43m: With pale grey, fine grained sandstone laminations 1-10mm (<30%)					MW	5.43	L to M	100	53		4.70m: P, 0-5°, CU, VNR, RF, Fe and Clay 4.77m: P, 0-10°, UN, VNR Clay, RF 5.19m: P, 0-5°, UN, VNR Fe, RF 5.25m: P, 0-5°, PR, VNR Fe, RF 5.31m: JT, 50-85°, CU, VNR Fe 5.37-5.43m: P x3, 0-5°, PR, SN Fe, RF				6	PLT	PL(A)=0.90MPa
	19	7						MW to SW	5.80	M				5.53-5.75m: P x5, 0-5°, PR, SN Fe, RF 5.97m: P, 5-15°, PR, SN Fe, RF 6.07m: P, 0-10°, PR, SN Fe, RF 6.25m: P, 0°, PR, Clay 5mm, RF 6.36-6.61m: P x6, 0°, PR, Clay, RF, 1-10mm				7	PLT	PL(A)=1.0MPa
	18	8							6.80	M to H	100	55		6.76m: P, 0°, PR, Clay, RF, 5 6.85m: P, 0°, PR, Clay 5mm, RF						
								XW	7.07	SEAM			SEAM	7.07-7.15m: EW, 80mm, sand and Clay						
									7.15					7.18m: P, 0-5°, UN, CN, RF						
										M to H				7.25-7.86m: P x10, 0-10°, PR, SN Clay, RF					PLT	PL(A)=1.0MPa
	17	9							7.80					8.06m: P, 0-5°, PR, CN, RF 8.30m: P, 0-5°, PR, CN, RF 8.45m: P, 0-5°, PR, CN, RF				8	PLT	PL(A)=1.6MPa
								SW			100	78								
	16									H				8.95m: P, 0-5°, PR, CN, RF 9.14m: P, 0-5°, PR, CN, RF				9	PLT	PL(A)=1.9MPa
																			PLT	PL(A)=2.5MPa

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Scout 4 Drill Rig
METHOD: AD/T (100mm) to 2.5m; WB to 3.1m; NMLC to 10.2m
REMARKS:

OPERATOR: Ground Test (GM)

LOGGED: E. Miler
CASING: HW to 2.5m, then HQ to 3.1m

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Combined Log

BOREHOLE LOG

CLIENT: The University of Sydney
PROJECT: Ross St Teaching & Learning Hub
LOCATION: Ross Street, Camperdown, Sydney, NSW 2050

SURFACE LEVEL: 25.8 AHD
COORDINATE: E:332153.8, N:6249078.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH205
PROJECT No: 225008.00
DATE: 21/07/25
SHEET: 3 of 3

CONDITIONS ENCOUNTERED																		SAMPLE				TESTING	
				SOIL			ROCK																
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(†) DENSITY.(†)	MOISTURE	WEATH.	DEPTH (m)	STRENGTH (VL L M H VH EH)	RECOVERY (%)	RQD	FRACTURE SPACING (m) (0.035 0.06 0.10 0.20 0.60 1.00 2.00 5.00)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
								SW		H	100	78											
			Borehole discontinued at 10.20m depth. Target depth reached.																				
		11																					
		12																					
		13																					
		14																					

NOTES: (#)Soil origin is "probable" unless otherwise stated. (†)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Scout 4 Drill Rig
METHOD: AD/T (100mm) to 2.5m; WB to 3.1m; NMLC to 10.2m
REMARKS:

OPERATOR: Ground Test (GM)

LOGGED: E. Miler
CASING: HW to 2.5m, then HQ to 3.1m

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

Generated with CORE-GS by Geroc - Combined Log

CORE PHOTO LOG

CLIENT: The University of Sydney
PROJECT: Ross St Teaching & Learning Hub
LOCATION: Ross Street, Camperdown, Sydney, NSW 2050

SURFACE LEVEL: 25.8 AHD
COORDINATE: E:332153.8, N:6249078.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH205
PROJECT No: 225008.00
DATE: 21/07/25
SHEET: 1 of 1



3.10-7.00 m depth



7.00-10.20 m depth

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Douglas PARTNERS

BOREHOLE LOG

CLIENT: The University of Sydney
PROJECT: Ross St Teaching & Learning Hub
LOCATION: Ross Street, Camperdown, Sydney, NSW 2050

SURFACE LEVEL: 24.9 AHD
COORDINATE: E:332133.9, N:6249066.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH206
PROJECT No: 225008.00
DATE: 21/07/25 - 22/07/25
SHEET: 1 of 2

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(†) DENSITY.(†)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH	ROCK RECOVERY (%)	ROCK RQD	ROCK FRACTURE SPACING (m)	ROCK DEFECTS & REMARKS	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	TESTING DEPTH (m)	TESTING TEST TYPE	TESTING RESULTS AND REMARKS
21/07/25 NFGWO			FILL / Gravelly SAND: grey-brown; fine to medium; fine to coarse, sandstone gravel. From 0.30m: Grey-brown		FILL	ND	D									A	0.10		
																A	0.30		
																	0.50		
	24	0.60	CLAY (CI-CH) trace sand: grey-brown; medium to high plasticity; iron-staining.													A	0.80		
	1				RS	St	w=PL										1.00		
																SPT		SPT	5,4,10 N=14
	23																1.45		
	2																2		
		2.20	CLAY (CI-CH) trace sand: pale grey and orange; medium to high plasticity; fine sand; iron-staining, siltstone bands.		XWM	VSt - H	w<PL										2.50		
																SPT		SPT	10,25/150 (HB)
	22																2.80		
	3																3		
		3.18			XWM				3.18										
		3.26	CLAY (CI-CH) trace sand: pale orange-grey and grey; medium to high plasticity; fine sand; iron-staining, siltstone bands (<30%).		XWM			XW		SOIL	100	0	SOIL						
		3.67	CLAY (CL-CI): grey and orange-brown; low to medium plasticity; with frequent bands of highly weathered, apparently very low strength siltstone (<40%).		NA	(VSt) - (H)	NDF												
	21	3.89			XWM			XW	3.89	SOIL	84	18	SOIL						
	4																4		
		4.33	INTERLAMINATED SILTSTONE AND SANDSTONE: dark grey and pale grey; fine grained sandstone laminations up to 5mm thick (<20%), iron-staining. Ashfield Shale.					HW	4.33	VL to L			4.43m: EW, Clay 30mm					PLT	PL(A)=0.05MPa
								XW	4.50	SEAM			SEAM	4.50-4.60m: EW, Clay 100mm					
	20							MW	4.60	L to M	100	15		4.76m: P, 0°, PR, VNR Fe, RF; 4.83m: JT, 20-80°, IR, VNR Fe, RF; 4.90-4.95m: P x3,					

NOTES: (#)Soil origin is "probable" unless otherwise stated. (†)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Scout 4 Drill Rig
METHOD: AD/T (100mm) to 2.5m; WB to 3.18m; NMLC to 9.22m
REMARKS:

OPERATOR: Ground Test (GM)

LOGGED: E. Miler
CASING: HW to 2.5m, then HQ to 3m

Refer to explanatory notes for symbol and abbreviation definitions

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BOREHOLE LOG

CLIENT: The University of Sydney
PROJECT: Ross St Teaching & Learning Hub
LOCATION: Ross Street, Camperdown, Sydney, NSW 2050

SURFACE LEVEL: 24.9 AHD
COORDINATE: E:332133.9, N:6249066.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH206
PROJECT No: 225008.00
DATE: 21/07/25 - 22/07/25
SHEET: 2 of 2

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL: ORIGIN(#)	SOIL: CONSIS.(*) DENSITY.(*)	SOIL: MOISTURE	ROCK: WEATH.	ROCK: DEPTH (m)	ROCK: STRENGTH	ROCK: RECOVERY (%)	ROCK: RQD	ROCK: FRACTURE SPACING (m)	ROCK: DEFECTS & REMARKS	SAMPLE: SAMPLE REMARKS	SAMPLE: TYPE	SAMPLE: INTERVAL	DEPTH (m)	TESTING: TEST TYPE	TESTING: RESULTS AND REMARKS
	19	6	[CONT] INTERLAMINATED SILTSTONE AND SANDSTONE: dark grey and pale grey; fine grained sandstone laminations up to 5mm thick (<20%), iron-staining. Ashfield Shale.					MW		L to M	100	15		0°, PR, Clay and Fe 5.00m: JT, 20-80°, IR, VNR Fe, RF 5.07-5.41m: P x8, 0-10°, PR, VNR Fe, RF 5.51m: P, 0-5°, PR, VNR Fe, RF 5.56m: JT, 20-40°, ST, SN Fe, RF 5.59m: JT, 20-80°, CU, SN Fe, RF 5.65m: JT, 20-80°, UN, SN Fe, RF 5.73m: P, 0°, PR, SN Fe, RF 5.92m: P, 0-5°, PR, VNR Fe, RF 6.05m: JT, 10-40°, UN, VNR Fe, RF, HE 6.12-6.19m: EW, Clay 70mm, Fe 6.24m: JT, 40-60°, UN, Fe 5mm, RF, HE, (6.19-6.28m) 6.30-6.42m: P x4, PR, VNR Fe, RF 6.46m: JT, 40-70°, UN, Fe, RF, HE, (6.43-6.50m) 6.52m: JT, 10-30°, UN, VNR Fe, RF, HE 6.57-7.12m: P x11, 0-5°, PR, SN Fe, RF				6	PLT	PL(A)=0.21MPa PL(A)=0.28MPa
	18	7	6.70m: Sandstone laminations (<40%)					MW to SW	6.70					7.15m: JT, 20-50°, CU, SN Fe, RF 7.22m: P, 0-5°, PR, SN Fe, RF 7.33m: P, 0-5°, PR, Fe, RF				7	PLT	PL(A)=0.93MPa PL(A)=1.4MPa
	17	8	7.37m: No iron-staining					SW	7.30	H	100	82		7.87m: P, 0-5°, PR, SN Clay, RF 8.11m: P, 0-5°, PR, SN Clay, RF 8.43m: P, 0-5°, PR, SN Clay, RF				8	PLT	PL(A)=1.6MPa
	16	9						XW SW	9.00 9.08 9.16	SEAM			SEAM	9.02m: EW, Clay 10mm 9.08-9.16m: EW, Clay 80mm				9	PLT	PL(A)=0.78MPa
			Borehole discontinued at 9.22m depth. Target depth reached.																	

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Scout 4 Drill Rig
METHOD: AD/T (100mm) to 2.5m; WB to 3.18m; NMLC to 9.22m
REMARKS:

OPERATOR: Ground Test (GM)

LOGGED: E. Miler
CASING: HW to 2.5m, then HQ to 3m

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Combined Log

CORE PHOTO LOG

CLIENT: The University of Sydney
PROJECT: Ross St Teaching & Learning Hub
LOCATION: Ross Street, Camperdown, Sydney, NSW 2050

SURFACE LEVEL: 24.9 AHD
COORDINATE: E:332133.9, N:6249066.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH206
PROJECT No: 225008.00
DATE: 21/07/25 - 22/07/25
SHEET: 1 of 1





6.00-9.22 m depth

Generated with CORE-GS by Geroc - Combined Log - 3/10/2025 10:15:13 AM

BOREHOLE LOG

CLIENT: The University of Sydney
PROJECT: Ross St Teaching & Learning Hub
LOCATION: Ross Street, Camperdown, Sydney, NSW 2050

SURFACE LEVEL: 25.1 AHD
COORDINATE: E:332150.5, N:6249043.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH207
PROJECT No: 225008.00
DATE: 22/07/25
SHEET: 1 of 2

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(*) DENSITY.(*)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH	ROCK RECOVERY (%)	ROCK RQD	ROCK FRACTURE SPACING (m)	ROCK DEFECTS & REMARKS	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	DEPTH (m)	TESTING TEST TYPE	TESTING RESULTS AND REMARKS	BACKFILL	WELL PIPE
	25	0	FILL / Gravelly SAND: pale grey; fine to medium; fine to coarse, sandstone gravel; trace building rubble.		FILL	ND	M									A		0.10			Backfill Flush cover	
			0.30m: Becoming pale grey-brown													A		0.30				
		0.60	CLAY (CI-CH): pale grey mottled orange-brown; medium to high plasticity; iron staining.		RS	(St)	w=PL											0.50				
	24	1														A		0.80				
		1.20	CLAY (CI-CH): grey and orange-brown; medium to high plasticity; with bands of highly weathered very low strength siltstone (<20%); iron staining.													SPT		1.00	SPT	5,7,12 N=19		
																		1.45				
13/08/25 20/08/25 19/09/25	23	2			RS becoming possibly XWM	VSt	w<PL											2			Bentonite	
																		2.50				
																SPT		2.95	SPT	6,10,12 N=22		
	22	3	From 3.00m: possibly extremely weathered material			(VSt) - (H)	NDF															
						(VSt) - (H)	NDF	RS	4.12	SOIL			SOIL									
	21	4							4.26	VL to L								4			Sand	
		4.26	INTERLAMINATED SILTSTONE AND SANDSTONE: dark grey siltstone and pale grey sandstone beds and laminations; bands of extremely weathered material (<10%); iron staining. Ashfield Shale.					HW	4.40	SEAM	100	46	SEAM	4.40-4.56m: EW, Clay 60mm								
									4.56	VL to L				4.61m: JT, 40-60°, UN, VNR Clay, RF								
			4.6.7m: Sandstone laminations 1.5 mm thick (<20%)						4.71					4.71m: EW, Clay 5mm					PLT	PL(A)=0.04MPa		
								HW - MW	4.73													
									4.82	SEAM	100	57	SEAM	4.82-4.95m: EW, Clay 130mm								
									4.95													

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Scout 4 Drill Rig
METHOD: AD/T (100mm) to 2.5m; WB to 4.12m; NMLC to 10m
REMARKS: No Free Groundwater Observed Whilst Augering

OPERATOR: Ground Test (GG)

LOGGED: E. Miler
CASING: HW to 2.5m, then HQ to 4m

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Combined Log

BOREHOLE LOG

CLIENT: The University of Sydney
PROJECT: Ross St Teaching & Learning Hub
LOCATION: Ross Street, Camperdown, Sydney, NSW 2050

SURFACE LEVEL: 25.1 AHD
COORDINATE: E:332150.5, N:6249043.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH207
PROJECT No: 225008.00
DATE: 22/07/25
SHEET: 2 of 2

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(*) DENSITY.(*)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH	ROCK RECOVERY (%)	ROCK RQD	ROCK FRACTURE SPACING (m)	ROCK DEFECTS & REMARKS	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	DEPTH (m)	TESTING TEST TYPE	TESTING RESULTS AND REMARKS	BACKFILL	WELL PIPE
	20		[CONT] INTERLAMINATED SILTSTONE AND SANDSTONE: dark grey siltstone and pale grey sandstone beds and laminations; bands of extremely weathered material (<10%); iron staining. Ashfield Shale.					HW - MW	5.06	VL			SEAM	5.06-5.20m: EW, Clay 140mm									
									5.20	SEAM				5.23m: EW, Clay 30mm									
									5.28	VL			SEAM	5.28-5.33m: EW, Clay 50mm									
									5.33	SEAM				5.42m: EW, Clay 30mm									
										VL				5.50m: EW, Clay 10mm									
									5.55		100	57		5.53m: EW, Clay 30mm, Fe					PLT	PL(A)=0.11MPa			
	19	6								L				5.67m: P, 0-5°, PR, VNR Fe, RF				6			Sand		
														5.81m: P, 0-5°, PR, VNR Fe, RF									
									6.00					6.05m: P, 0-5°, PR, SN Fe, RF					PLT	PL(A)=0.27MPa			
								MW		L to M				6.20m: P, 0-5°, PR, SN Fe, RF									
														6.37m: EW, VNR Clay									
											100	73		6.55m: P, PR, VNR Clay, RF									
									6.66	SEAM			SEAM	6.66-6.72m: EW, Clay 60mm									
									6.72	M				6.75-6.78m: P x3, 0-20°, PR, RF									
														6.79m: JT, 10-40°, UN, VNR Fe, RF									
	18	7	7.00m: Water loss during drilling						6.95					6.82m: JT, 10-70°, IR, VNR Fe, RF				7	PLT	PL(A)=1.0MPa			
									7.00					6.87m: EW, Clay 30mm									
														7.02-7.13m: P x3, 0-5°, PR, SN Fe, RF									
														7.22m: EW, Clay 5mm									
														7.58-7.77m: P x5, 0-5°, PR, SN Clay, RF									
														7.87m: P, 5°, PR, SN Clay, RF									
	17	8																8	PLT	PL(A)=1.3MPa	Bentonite		
														8.21-8.48m: P x5, 0-10°, PR, SN Clay, RF									
								SW		H	100	76		8.67m: P, 0°, PR, VNR Clay, RF									
	16	9																9	PLT	PL(A)=2.1MPa			
														9.72m: JT, 60-85°, UN, SN Fe, RF							Backfill		
			Borehole discontinued at 10.00m depth. Target depth reached.											9.83m: JT, 30-50°, PR, CN, RF					PLT	PL(A)=2.6MPa			

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Scout 4 Drill Rig
METHOD: AD/T (100mm) to 2.5m; WB to 4.12m; NMLC to 10m
REMARKS: No Free Groundwater Observed Whilst Augering

OPERATOR: Ground Test (GG)

LOGGED: E. Miler
CASING: HW to 2.5m, then HQ to 4m

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Combined Log

CORE PHOTO LOG

CLIENT: The University of Sydney
PROJECT: Ross St Teaching & Learning Hub
LOCATION: Ross Street, Camperdown, Sydney, NSW 2050

SURFACE LEVEL: 25.1 AHD
COORDINATE: E:332150.5, N:6249043.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH207
PROJECT No: 225008.00
DATE: 22/07/25
SHEET: 1 of 1



4.12-8.00 m depth



8.00-10.00 m depth

Generated with CORE-GS by Geroc - Combined Log - 3/10/2025 10:15:19 AM

Douglas PARTNERS

A

A'

APPROXIMATE SITE BOUNDARY

APPROXIMATE SITE BOUNDARY

BH104

BH205

BH103

ELEVATION (AHD)

UNIT 1: FILL

UNIT 2: RESIDUAL

UNIT 3: CLASS V SILTSTONE

UNIT 4: CLASS IV INTERLAMINATED SILTSTONE AND SANDSTONE

~BASEMENT LEVEL RL 21.0 m

UNIT 5: CLASS III INTERLAMINATED SILTSTONE AND SANDSTONE

UNIT 6: CLASS III/II INTERLAMINATED SILTSTONE AND SANDSTONE

nd

N=29

vst

vst - h

SOIL

VL to L

VL to L

L to M

M

M to H SEAM

M to H

H

L-M

M

M-H

DISTANCE ALONG PROFILE (m)

LEGEND

- CH - High Plasticity CLAY
- CI-CH - Medium to High Plasticity CLAY
- CLAY
- NO CORE
- FILL
- SILTSTONE

TESTS / OTHER

- N - Standard penetration test value
- — ? — — - Interpreted geotechnical boundary
- - Water level

ROCK STRENGTH

- VL - Very Low
- L - Low
- M - Medium
- H - High
- VH - Very High
- EH - Extremely High

CONSISTENCY (COHESIVE SOILS)

- vs - Very Soft
- s - Soft
- f - Firm
- st - Stiff
- vst - Very Stiff
- h - Hard

RELATIVE COMPACTION (FILL)

- na - Not applicable
- nd - No data
- pc - Poorly compated
- mc - Mostly compacted
- wc - Well compacted

REV	DESCRIPTION/COMMENT	DATE	DRAWN BY
0	Initial Issue	05.04.2024	EC
1	Updated Basment	21.01.2025	EC
2	New Boreholes	02.10.2025	MN/EC

SCALE: 0 4

Horizontal Scale 1:200
Vertical Exaggeration = 2.0

Douglas PARTNERS

OFFICE: SYDNEY

96-98 Hermitage Rd, West Ryde NSW 2114

(02) 9809 0666

CLIENT:

The University of Sydney

NOTES

1. Subsurface conditions are accurate at the borehole locations only. Variations in subsurface conditions may occur between borehole locations. Interpreted strata boundaries are approximate and should be used as a guide only.
2. Summary logs only and should be read in conjunction with detailed logs.
3. Horizontal and vertical scales are not equal.
4. Rock Classes are per Pells et al (2019).

PROJECT NAME:

USYD Ross St Teaching & Learning Hub

PROJECT ADDRESS:

Corner of Parramatta Road and Western Avenue, Camperdown

DRAWING TITLE:

Geological Cross Section A-A'

PROJECT No: **225008.00**

DRAWING No: **2**

REVISION: **2**

P:\225008.00 - Ross St Teaching & Learning Hub_SYD UNI\7.0 Drawings\7.2 Out\225008.00.D.002-003.Rev2..Cross Sections A-B.dwg

B

B'

ELEVATION (AHD)

BH102

BH207

BH103

UNIT 1: FILL

UNIT 2: RESIDUAL

UNIT 3: CLASS V SILTSTONE

UNIT 4: CLASS IV INTERLAMINATED SILTSTONE AND SANDSTONE

UNIT 5: CLASS III INTERLAMINATED SILTSTONE AND SANDSTONE

UNIT 6: CLASS III/II INTERLAMINATED SILTSTONE AND SANDSTONE

~BASEMENT LEVEL
RL 21.0 m

nd
st
N=19
N=22
vst - h
VL to L SEAM
L to M SEAM
H

DISTANCE ALONG PROFILE (m)

LEGEND

- CH - High Plasticity CLAY
- CI-CH - Medium to High Plasticity CLAY
- CLAY
- NO CORE
- FILL
- SILTSTONE

TESTS / OTHER

- N - Standard penetration test value
- Interpreted geotechnical boundary
- Water level

ROCK STRENGTH

- VL - Very Low
- L - Low
- M - Medium
- H - High
- VH - Very High
- EH - Extremely High

CONSISTENCY (COHESIVE SOILS)

- vs - Very Soft
- s - Soft
- f - Firm
- st - Stiff
- vst - Very Stiff
- h - Hard

RELATIVE COMPACTION (FILL)

- na - Not applicable
- nd - No data
- pc - Poorly compated
- mc - Mostly compacted
- wc - Well compacted

REV	DESCRIPTION/COMMENT	DATE	DRAWN BY
0	Initial Issue	05.04.2024	EC
1	Updated Basment	21.01.2025	EC
2	New Boreholes	02.10.2025	MN/EC

SCALE: 0 4

Horizontal Scale 1:200
Vertical Exaggeration = 2.0

Douglas PARTNERS
OFFICE: SYDNEY
96-98 Hermitage Rd, West Ryde NSW 2114
(02) 9809 0666

CLIENT:
The University of Sydney

NOTES
1. Subsurface conditions are accurate at the borehole locations only. Variations in subsurface conditions may occur between borehole locations. Interpreted strata boundaries are approximate and should be used as a guide only.
2. Summary logs only and should be read in conjunction with detailed logs.
3. Horizontal and vertical scales are not equal.
4. Rock Classes are per Pells et al (2019).

PROJECT NAME:
USYD Ross St Teaching & Learning Hub

PROJECT ADDRESS:
Corner of Parramatta Road and Western Avenue, Camperdown

DRAWING TITLE:
Geological Cross Section B-B'

PROJECT No: **225008.00**

DRAWING No: **3**

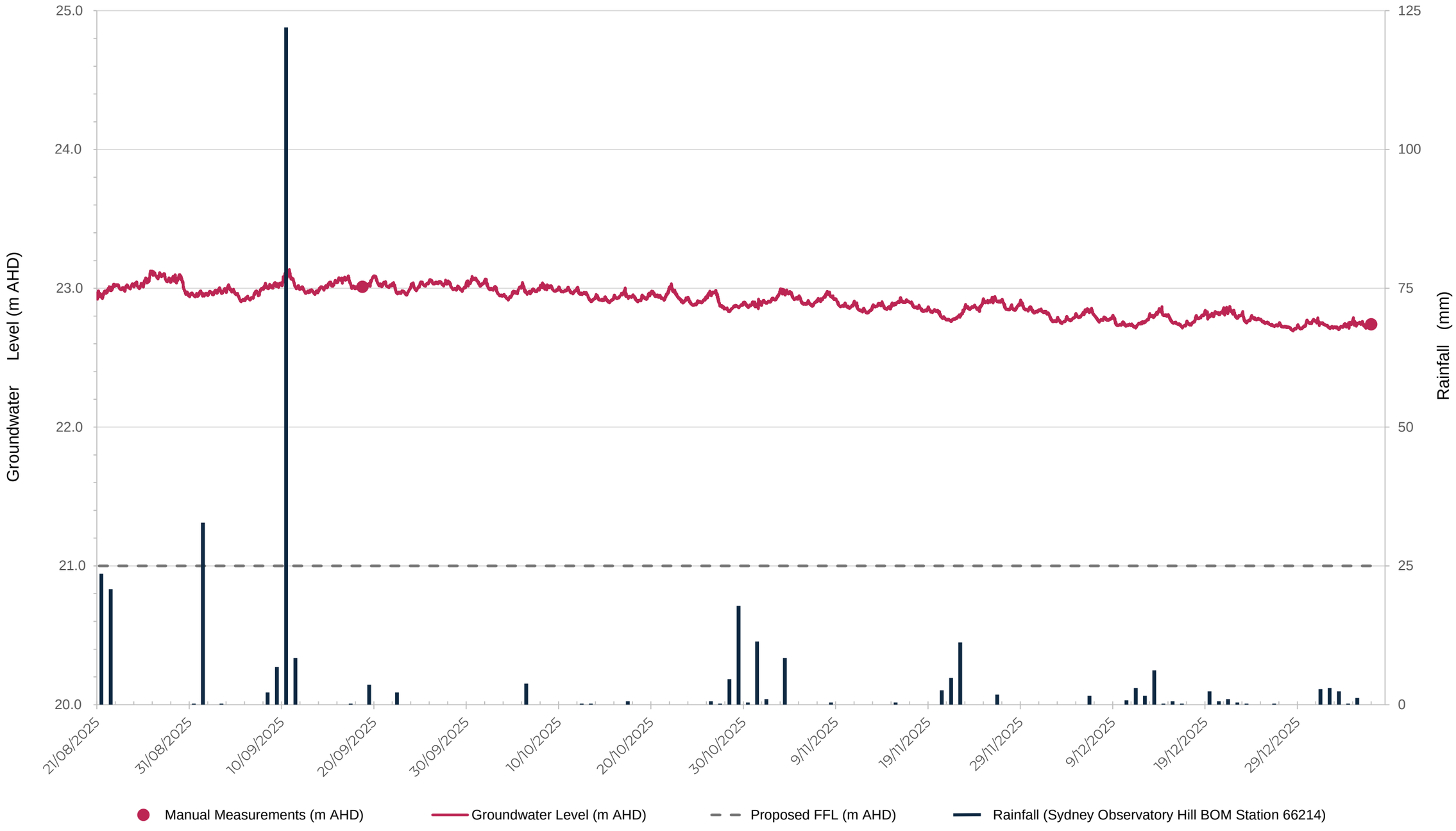
REVISION: **2**

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Appendix D

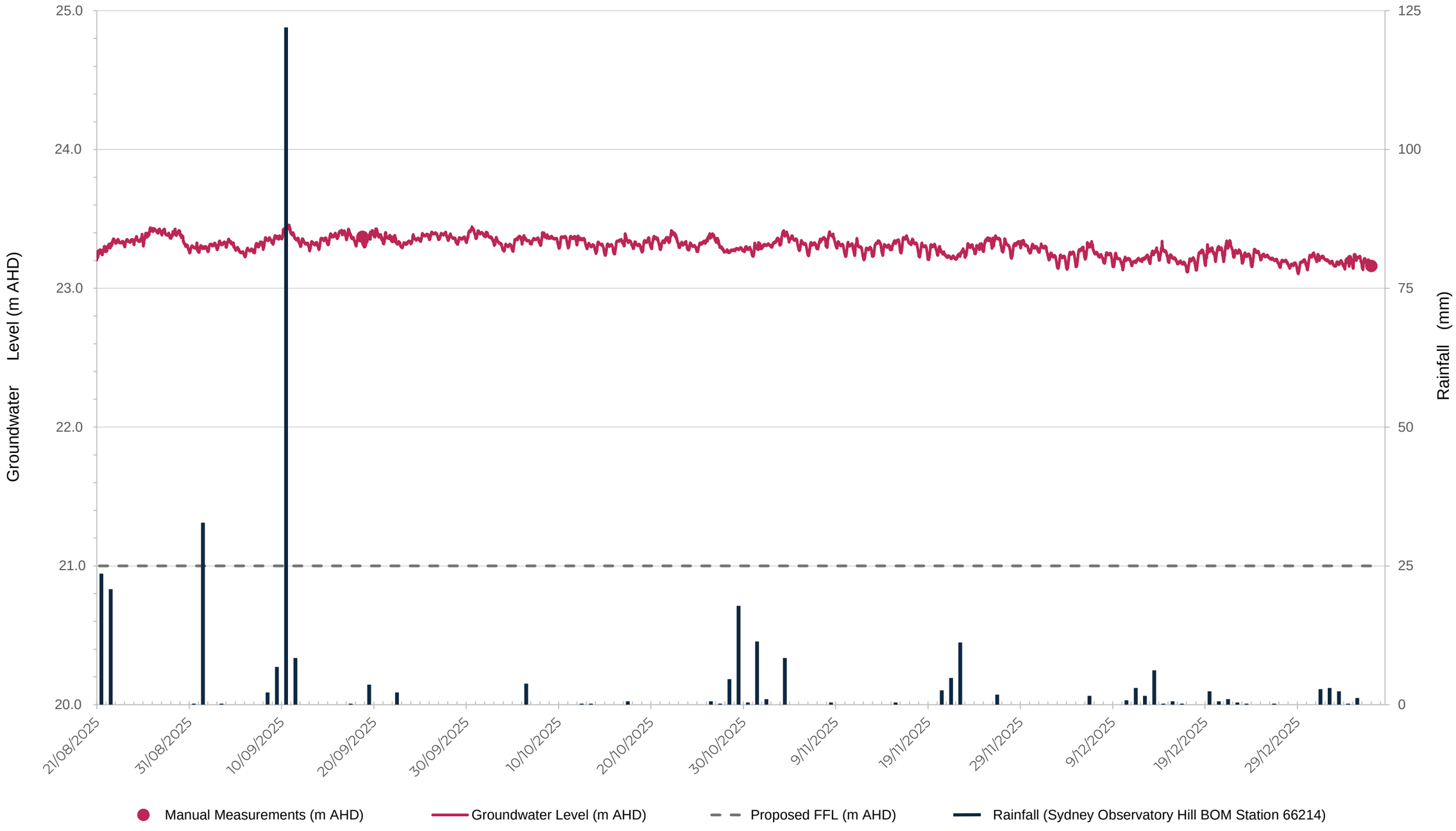
Hydrographs

BH101



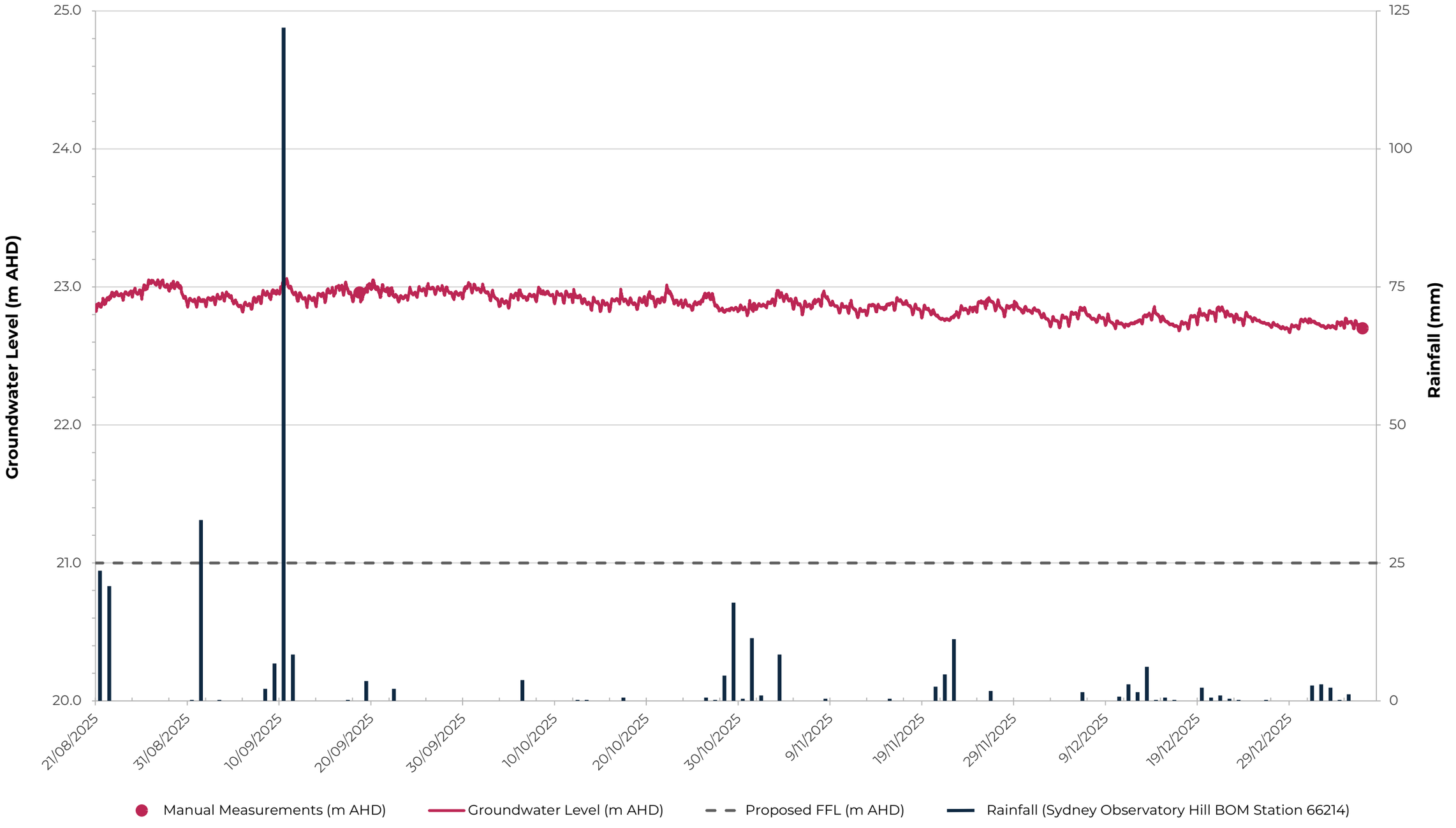
	CLIENT: The University of Sydney		Groundwater Monitoring 21/08/25 to 06/01/26	PROJECT NO: 225008.00
	OFFICE: Sydney	DRAWN BY: D. Smith	USYD Ross Street Teaching and Learning Hub	FIGURE NO: 1 of 3
	SURFACE LEVEL: 25.3 m AHD	DATE: 18 May 2026	Corner Paramatta Rd and Western Ave, Camperdown	REVISION: Rev1

BH103



	CLIENT: The University of Sydney		Groundwater Monitoring 21/08/25 to 06/01/26	PROJECT NO: 225008.00
	OFFICE: Sydney	DRAWN BY: D. Smith	USYD Ross Street Teaching and Learning Hub	FIGURE NO: 2 of 3
	SURFACE LEVEL: 26.0 m AHD	DATE: 18 May 2026	Corner Paramatta Rd and Western Ave, Camperdown	REVISION: Rev1

BH207



Douglas PARTNERS	CLIENT: The University of Sydney	**Groundwater Monitoring 21/08/25 to 06/01/25**	PROJECT NO: 225008.00
	OFFICE: Sydney / DRAWN BY: D. Smith	**USYD Ross Street Teaching and Learning Hub**	FIGURE NO: 3 of 3
	SURFACE LEVEL: 25.1 m AHD / DATE: 18 May 2026	**Corner Paramatta Rd and Western Ave, Camperdown**	REVISION: Rev1

Appendix E

Hydraulic Testing Results

Douglas Partners Pty Ltd
ABN 75 053 980 117
www.douglaspartners.com.au

Permeability Testing - Rising Head Test Report

Client:	The University of Sydney	Project No:	225008.00
Project:	Proposed Teaching and Learning Hub	Test date:	22/02/2024
Location:	Ross Street, Camperdown	Tested by:	CC

Test Location

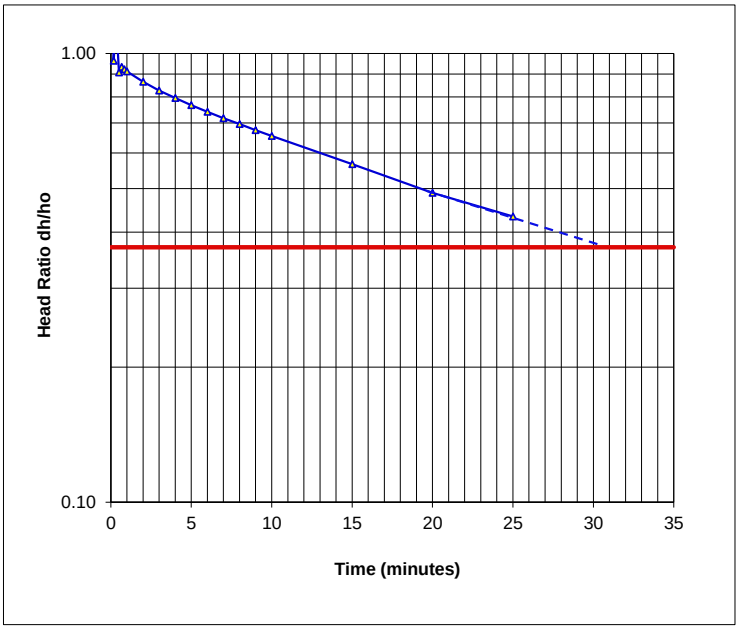
Description:	Standpipe in borehole	**Test No.**	BH101 - falling	
Material type:	Siltstone / sandstone	Easting:	332126	m
		Northing	6249087	m
		Surface Level:	25.3	m AHD

Details of Well Installation

Effective diameter (2re)	76	mm	Depth to water before test	2.5	m
Borehole diameter (2R)	76	mm	Depth to water at start of test	1.5	m
Effective Length of well screen (Le)	5.0	m	Depth of top of gravel pack	1.6	m
			Depth of base of gravel pack	7.5	m

Test Results

Time (min)	Depth (m)	Change in Head dH (m)	dH/Ho
0.0	1.50	1.00	1.667
0.2	1.92	0.58	0.963
0.3	1.80	0.70	1.170
0.5	1.96	0.54	0.907
0.7	1.94	0.56	0.933
0.8	1.95	0.55	0.923
1.0	1.95	0.55	0.912
2.0	1.98	0.52	0.865
3.0	2.00	0.50	0.827
4.0	2.02	0.48	0.796
5.0	2.04	0.46	0.767
6.0	2.06	0.44	0.741
7.0	2.07	0.43	0.718
8.0	2.08	0.42	0.696
9.0	2.09	0.41	0.675
10.00	2.11	0.39	0.655
15.00	2.16	0.34	0.567
20.00	2.21	0.29	0.489
25.00	2.24	0.26	0.433
35.00			



To = 31.0 mins
1860 secs

Theory: Rising Head Permeability calculated using equation by Hvorslev

$k = [r^2 \ln(Le/R)]/2Le\ To$

where r = radius of casing
R = radius of well screen
Le = length of well screen
To = time taken to rise or fall to 37% of initial change

Hydraulic Conductivity **k = 4E-07** m/sec
= 3.3E-02 m/day

Douglas Partners Pty Ltd
ABN 75 053 980 117
www.douglaspartners.com.au

Permeability Testing - Rising Head Test Report

Client:	The University of Sydney	Project No:	225008.00
Project:	Proposed Teaching and Learning Hub	Test date:	22/02/2024
Location:	Ross Street, Camperdown	Tested by:	CC

Test Location

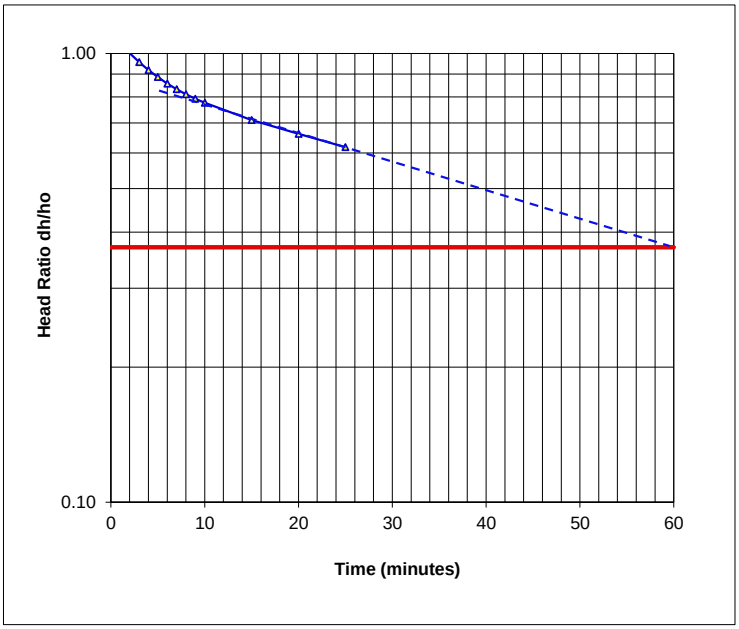
Description:	Standpipe in borehole	**Test No.**	BH101 - rising	
Material type:	Siltstone / sandstone	Easting:	332126	m
		Northing	6249087	m
		Surface Level:	25.3	m AHD

Details of Well Installation

Effective diameter (2re)	76	mm	Depth to water before test	2.5	m
Borehole diameter (2R)	76	mm	Depth to water at start of test	3.5	m
Effective Length of well screen (Le)	5.0	m	Depth of top of gravel pack	1.6	m
			Depth of base of gravel pack	7.5	m

Test Results

Time (min)	Depth (m)	Change in Head dH (m)	dH/Ho
0.0	3.50	1.00	1.667
0.2	3.77	0.73	1.215
0.3	3.81	0.69	1.147
0.5	3.83	0.67	1.114
0.7	3.84	0.66	1.097
0.8	3.85	0.65	1.081
1.0	3.86	0.64	1.067
2.0	3.90	0.60	1.002
3.0	3.93	0.57	0.956
4.0	3.95	0.55	0.918
5.0	3.97	0.53	0.887
6.0	3.99	0.51	0.857
7.0	4.00	0.50	0.833
8.0	4.01	0.49	0.811
9.0	4.02	0.48	0.793
10.00	4.03	0.47	0.776
15.00	4.07	0.43	0.711
20.00	4.10	0.40	0.663
25.00	4.13	0.37	0.618
60.00			



To = 58.0 mins
3480 secs

Theory: Rising Head Permeability calculated using equation by Hvorslev

$k = [r^2 \ln(Le/R)]/2Le\ To$

where r = radius of casing
R = radius of well screen
Le = length of well screen
To = time taken to rise or fall to 37% of initial change

Hydraulic Conductivity **k = 2E-07** m/sec
= 1.7E-02 m/day

Douglas Partners Pty Ltd
ABN 75 053 980 117
www.douglaspartners.com.au

Permeability Testing - Rising Head Test Report

Client:	The University of Sydney	Project No:	225008.00
Project:	Proposed Teaching and Learning Hub	Test date:	22/02/2024
Location:	Ross Street, Camperdown	Tested by:	CC

Test Location

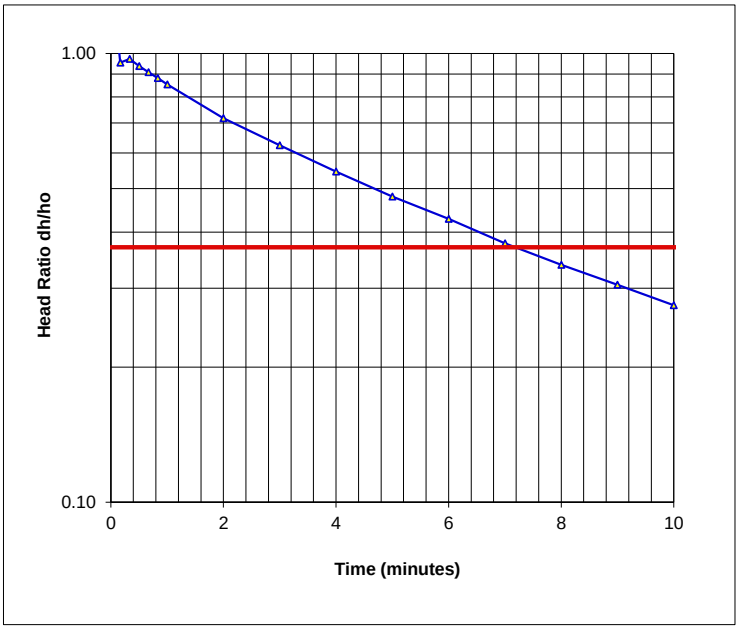
Description:	Standpipe in borehole	**Test No.**	BH103 - falling	
Material type:	Siltstone / sandstone	Easting:	332163	m
		Northing	6249053	m
		Surface Level:	26.0	m AHD

Details of Well Installation

Effective diameter (2re)	76	mm	Depth to water before test	2.6	m
Borehole diameter (2R)	76	mm	Depth to water at start of test	1.6	m
Effective Length of well screen (Le)	6.3	m	Depth of top of gravel pack	1.1	m
			Depth of base of gravel pack	8.9	m

Test Results

Time (min)	Depth (m)	Change in Head dH (m)	dH/Ho
0.0	1.60	1.00	1.538
0.2	1.98	0.62	0.954
0.3	1.97	0.63	0.973
0.5	1.99	0.61	0.938
0.7	2.01	0.59	0.908
0.8	2.03	0.57	0.881
1.0	2.05	0.55	0.854
2.0	2.13	0.47	0.718
3.0	2.19	0.41	0.625
4.0	2.25	0.35	0.546
5.0	2.29	0.31	0.480
6.0	2.32	0.28	0.428
7.0	2.35	0.25	0.377
8.0	2.38	0.22	0.338
9.0	2.40	0.20	0.305
10.00	2.42	0.18	0.275
15.00	2.48	0.12	0.177
20.00	2.55	0.05	0.081



To = 7.0 mins
420 secs

Theory: Rising Head Permeability calculated using equation by Hvorslev

$k = [r^2 \ln(Le/R)]/2Le\ To$

where r = radius of casing
R = radius of well screen
Le = length of well screen
To = time taken to rise or fall to 37% of initial change

Hydraulic Conductivity **k = 1E-06** m/sec
= 1.2E-01 m/day

Douglas Partners Pty Ltd
ABN 75 053 980 117
www.douglaspartners.com.au

Permeability Testing - Rising Head Test Report

Client:	The University of Sydney	Project No:	225008.00
Project:	Proposed Teaching and Learning Hub	Test date:	22/02/2024
Location:	Ross Street, Camperdown	Tested by:	CC

Test Location

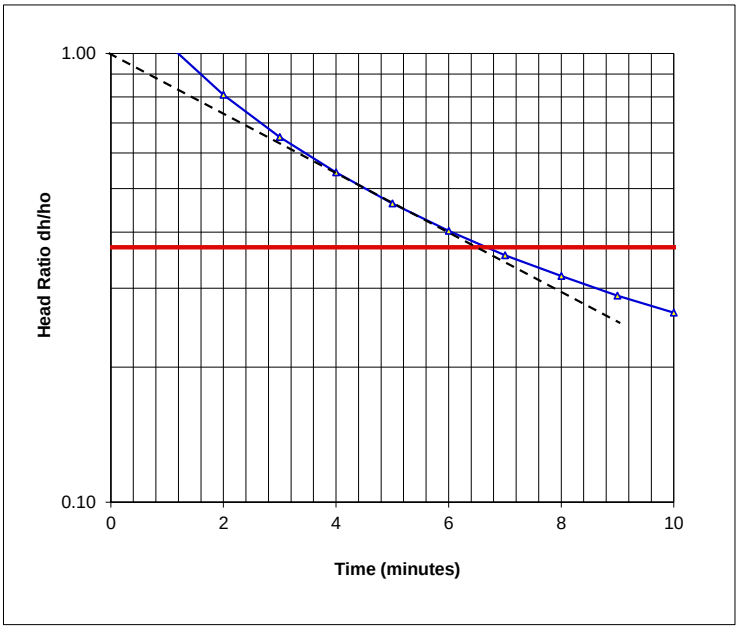
Description:	Standpipe in borehole	**Test No.**	BH103 - rising	
Material type:	Siltstone / sandstone	Easting:	332163	m
		Northing	6249053	m
		Surface Level:	26.0	m AHD

Details of Well Installation

Effective diameter (2re)	76	mm	Depth to water before test	2.6	m
Borehole diameter (2R)	76	mm	Depth to water at start of test	3.6	m
Effective Length of well screen (Le)	6.3	m	Depth of top of gravel pack	1.1	m
			Depth of base of gravel pack	8.9	m

Test Results

Time (min)	Depth (m)	Change in Head dH (m)	dH/Ho
0.0	3.60	1.00	1.538
0.2	3.68	0.92	1.420
0.3	3.74	0.86	1.321
0.5	3.79	0.81	1.240
0.7	3.84	0.76	1.170
0.8	3.88	0.72	1.110
1.0	3.92	0.68	1.053
2.0	4.07	0.53	0.809
3.0	4.18	0.42	0.651
4.0	4.25	0.35	0.543
5.0	4.30	0.30	0.464
6.0	4.34	0.26	0.403
7.0	4.37	0.23	0.355
8.0	4.39	0.21	0.319
9.0	4.41	0.19	0.289
10.00	4.43	0.17	0.265
15.00	4.48	0.12	0.183
20.00	4.49	0.11	0.172



To = 6.4 mins
384 secs

Theory: Rising Head Permeability calculated using equation by Hvorslev

$k = [r^2 \ln(Le/R)]/2Le\ To$

where r = radius of casing
R = radius of well screen
Le = length of well screen
To = time taken to rise or fall to 37% of initial change

Hydraulic Conductivity **k = 2E-06** m/sec
= 1.3E-01 m/day

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Permeability Testing - Rising Head Test Report

Client:	The University of Sydney	Project No:	225008.00
Project:	Ross St Teaching & Learning Hub	Test date:	19-Aug-25
Location:	Ross Street, Camperdown NSW 2050	Tested by:	JM

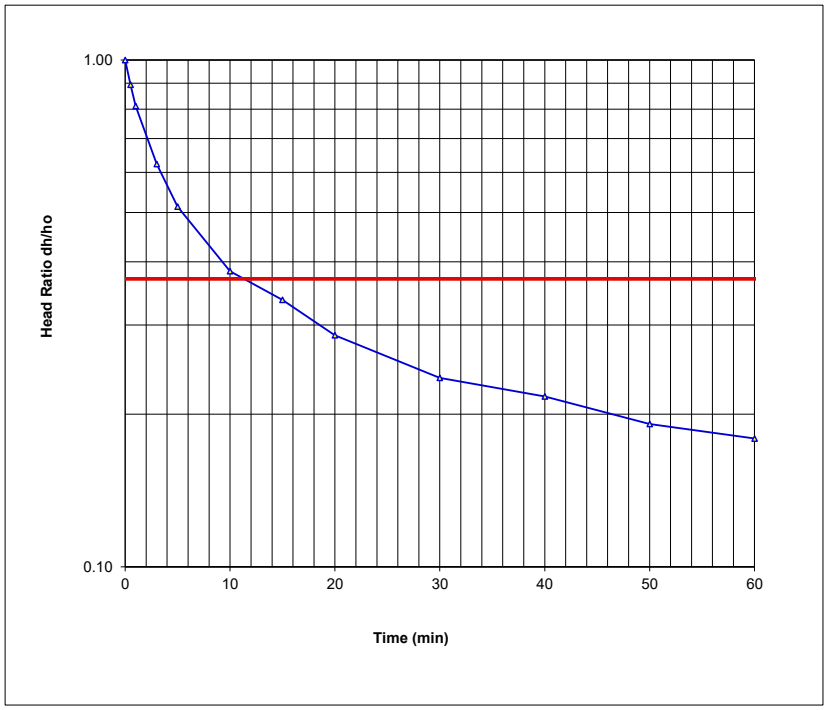
Test Location	BH207	**Test No.**	1	
Description:	Standpipe in borehole	Easting:	332151	m
Material type:	Clay / Siltstone	Northing	6249043	m
		Surface Level:	25.1	m AHD

Details of Well Installation

Effective diameter (2re)	50	mm	Depth to water before test	2.14	m
Borehole diameter (2R)	76	mm	Depth to water at start of test	4.16	m
Effective well screen length (Le)	4.00	m	Depth of top of gravel pack	3.00	m
			Depth of base of PVC standpipe	7.00	m

Test Results

Time (min)	Depth (m)	Change in Head dH (m)	dH/Ho
0.0	4.16	2.02	1.000
0.5	3.94	1.80	0.894
1	3.78	1.64	0.811
3	3.40	1.26	0.623
5	3.18	1.04	0.514
10	2.91	0.77	0.383
15	2.82	0.68	0.336
20	2.72	0.58	0.286
30	2.62	0.48	0.236
40	2.58	0.44	0.217
50	2.53	0.39	0.191
60	2.50	0.36	0.179
70	2.59	0.45	0.221
80	2.64	0.50	0.249
90	2.62	0.48	0.239
100	2.59	0.45	0.225
110	2.54	0.40	0.199
120	2.52	0.38	0.188



To = 11.5 minutes
690 seconds

Theory: Falling Head Permeability calculated using equation by Hvorslev

$k = [r^2 \ln(Le/R)]/2Le\ To$

where r = radius of casing
R = radius of well screen
Le = length of well screen
To = time taken to rise or fall to 37% of initial change

Hydraulic Conductivity	**k =**	**5.3E-07**	m/sec
	=	**0.0**	m/day

Appendix F

Water quality summary table and laboratory reports

Table F1 : Summary of laboratory results - groundwater

Sample ID	Units	Total or filtered	PQL	DGV, Freshwater - 95% / 99% LOP	DGV Freshwater 99% LOP (HEPA, 2025)	BD1/20231120	BH12	BH101	BH101	BH103	BH103	BH207
Parent sample												
Depth									5m		5m	5m
Sampled date						20/11/23	20/11/23	20/11/23	20/08/25	20/11/23	20/08/25	20/08/25
Metals												
Arsenic	µg/L	F	0.2	13	-	2.2	< 1	2	-	< 1	-	-
Cadmium	µg/L	F	0.05	0.2	-	< 0.05	< 0.1	< 0.1	-	< 0.1	-	-
Chromium (Total)	µg/L	F	0.2	1	-	< 0.2	< 1	< 1	-	< 1	-	-
Copper	µg/L	F	0.5	1.4	-	1	6	5	-	< 1	-	-
Lead	µg/L	F	0.1	3.4	-	< 0.1	< 1	< 1	-	< 1	-	-
Manganese	µg/L	F	0.5	1,900	-	679	350	520	-	2,900	-	-
Mercury	µg/L	F	0.04	0.06	-	< 0.04	< 0.05	< 0.05	-	< 0.05	-	-
Nickel	µg/L	F	0.5	11	-	19.5	22	13	-	19	-	-
Zinc	µg/L	F	1	8	-	23	53	20	-	9	-	-
TRH (NEPM 2013)												
TRH C6-C10	µg/L	T	10	-	-	< 20	< 10	< 10	< 10	< 10	< 10	< 10
TRH >C10-C16	µg/L	T	50	-	-	-	< 50	< 50	140	< 50	< 50	< 50
TRH F1 (C6-C10 minus BTEX)	µg/L	T	10	-	-	< 20	< 10	< 10	< 10	< 10	< 10	< 10
TRH F2 (>C10-C16 minus naphthalene)	µg/L	T	50	-	-	-	< 50	< 50	140	< 50	< 50	< 50
TRH F3 (>C16-C34)	µg/L	T	100	-	-	-	< 100	< 100	110	< 100	< 100	< 100
TRH F4 (>C34-C40)	µg/L	T	100	-	-	-	< 100	< 100	< 100	< 100	< 100	< 100
TPH >C10-C16 (SG)	µg/L	T	50	-	-	-	-	-	< 50	-	-	-
TPH F3 (>C16-C34) (SG)	µg/L	T	100	-	-	-	-	-	< 100	-	-	-
TPH F4 (>C34-C40) (SG)	µg/L	T	100	-	-	-	-	-	< 100	-	-	-
BTEXN (all)												
Benzene	µg/L	T	1	950	-	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Toluene	µg/L	T	1	180	-	< 2	< 1	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	µg/L	T	1	80	-	< 2	< 1	< 1	< 1	< 1	< 1	< 1
Xylene (o)	µg/L	T	1	350	-	< 2	< 1	< 1	< 1	< 1	< 1	< 1
Xylene (m & p)	µg/L	T	2	75	-	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Xylene (Total)	µg/L	T	2	-	-	< 2	-	-	-	-	-	-
Naphthalene (VOC)	µg/L	T	1	16	-	8	< 1	19	< 1	< 1	< 1	< 1
BTEX (Total)	µg/L	T	1	-	-	< 1	-	-	-	-	-	-
PAH												
Acenaphthene	µg/L	T	0.01	-	-	-	< 0.01	< 0.01	< 0.1	< 0.01	< 0.1	< 0.1
Acenaphthylene	µg/L	T	0.01	-	-	-	< 0.01	< 0.01	< 0.1	< 0.01	< 0.1	< 0.1
Anthracene	µg/L	T	0.01	0.01	-	-	< 0.01	< 0.01	< 0.1	< 0.01	< 0.1	< 0.1
Benzo(a)anthracene	µg/L	T	0.01	-	-	-	< 0.01	< 0.01	< 0.1	< 0.01	< 0.1	< 0.1
Benzo(a)pyrene	µg/L	T	0.01	0.1	-	-	< 0.01	< 0.01	< 0.1	< 0.01	< 0.1	< 0.1
Benzo(b+j+k)fluoranthene	µg/L	T	0.02	-	-	-	< 0.02	< 0.02	< 0.2	< 0.02	< 0.2	< 0.2
Benzo(g,h,i)perylene	µg/L	T	0.01	-	-	-	< 0.01	< 0.01	< 0.1	< 0.01	< 0.1	< 0.1
Chrysene	µg/L	T	0.01	-	-	-	< 0.01	< 0.01	< 0.1	< 0.01	< 0.1	< 0.1
Dibenz(a,h)anthracene	µg/L	T	0.01	-	-	-	< 0.01	< 0.01	< 0.1	< 0.01	< 0.1	< 0.1
Fluoranthene	µg/L	T	0.01	1	-	-	< 0.01	< 0.01	< 0.1	< 0.01	< 0.1	< 0.1
Fluorene	µg/L	T	0.01	-	-	-	< 0.01	< 0.01	< 0.1	< 0.01	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	µg/L	T	0.01	-	-	-	< 0.01	< 0.01	< 0.1	< 0.01	< 0.1	< 0.1
Naphthalene	µg/L	T	0.02	16	-	-	< 0.02	0.1	0.2	0.03	< 0.1	< 0.1
Phenanthrene	µg/L	T	0.01	0.6	-	-	< 0.01	< 0.01	< 0.1	< 0.01	< 0.1	< 0.1
Pyrene	µg/L	T	0.01	-	-	-	< 0.01	< 0.01	< 0.1	< 0.01	< 0.1	< 0.1
Benzo(a)pyrene TEQ	µg/L	T	0.05	-	-	-	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5
Total PAH (sum of analysed)	µg/L	T	0.1	-	-	-	0	0.13	0.16	0.03	< 0.1	< 0.1
PCB												
Aroclor 1016	µg/L	T	0.01	-	-	-	< 0.01	< 0.01	-	< 0.01	-	-
Aroclor 1221	µg/L	T	0.01	-	-	-	< 0.01	< 0.01	-	< 0.01	-	-
Aroclor 1232	µg/L	T	0.01	-	-	-	< 0.01	< 0.01	-	< 0.01	-	-
Aroclor 1242	µg/L	T	0.01	0.3	-	-	< 0.01	< 0.01	-	< 0.01	-	-
Aroclor 1248	µg/L	T	0.01	-	-	-	< 0.01	< 0.01	-	< 0.01	-	-
Aroclor 1254	µg/L	T	0.01	0.01	-	-	< 0.01	< 0.01	-	< 0.01	-	-
Aroclor 1260	µg/L	T	0.01	-	-	-	< 0.01	< 0.01	-	< 0.01	-	-
OCP												
a-BHC	µg/L	T	0.001	-	-	-	< 0.001	< 0.001	-	< 0.001	-	-
Aldrin	µg/L	T	0.001	0.001	-	-	< 0.001	< 0.001	-	< 0.001	-	-
b-BHC	µg/L	T	0.001	-	-	-	< 0.001	< 0.001	-	< 0.001	-	-
Chlordane (cis)	µg/L	T	0.001	-	-	-	< 0.001	< 0.001	-	< 0.001	-	-
Chlordane (trans)	µg/L	T	0.001	-	-	-	< 0.001	< 0.001	-	< 0.001	-	-
d-BHC	µg/L	T	0.001	-	-	-	< 0.001	< 0.001	-	< 0.001	-	-
DDD	µg/L	T	0.001	-	-	-	< 0.001	< 0.001	-	< 0.001	-	-
DDT	µg/L	T	0.001	0.006	-	-	< 0.001	< 0.001	-	< 0.001	-	-
Dieldrin	µg/L	T	0.001	0.01	-	-	< 0.001	< 0.001	-	< 0.001	-	-
Endosulfan I	µg/L	T	0.002	-	-	-	< 0.002	< 0.002	-	< 0.002	-	-
Endosulfan II	µg/L	T	0.002	-	-	-	< 0.002	< 0.002	-	< 0.002	-	-
Endosulfan sulphate	µg/L	T	0.001	-	-	-	< 0.001	< 0.001	-	< 0.001	-	-
Endrin	µg/L	T	0.001	0.01	-	-	< 0.001	< 0.001	-	< 0.001	-	-
Endrin aldehyde	µg/L	T	0.001	-	-	-	< 0.001	< 0.001	-	< 0.001	-	-
g-BHC (Lindane)	µg/L	T	0.001	0.2	-	-	< 0.001	< 0.001	-	< 0.001	-	-
Heptachlor	µg/L	T	0.001	0.01	-	-	< 0.001	< 0.001	-	< 0.001	-	-
Heptachlor epoxide	µg/L	T	0.001	-	-	-	< 0.001	< 0.001	-	< 0.001	-	-
Hexachlorobenzene (HCB)	µg/L	T	0.001	0.05	-	-	< 0.001	< 0.001	-	< 0.001	-	-
Methoxychlor	µg/L	T	0.001	0.005	-	-	< 0.001	< 0.001	-	< 0.001	-	-
p,p'-DDE (4,4-DDE)	µg/L	T	0.001	-	-	-	< 0.001	< 0.001	-	< 0.001	-	-

Table F1 : Summary of laboratory results - groundwater

Sample ID	Units	Total or filtered	PQL	DGV, Freshwater - 95% / 99% LOP	DGV Freshwater 99% LOP (HEPA, 2025)	BD1/20231120	BH12	BH101	BH101	BH103	BH103	BH207
Parent sample												
Depth									5m		5m	5m
Sampled date						20/11/23	20/11/23	20/11/23	20/08/25	20/11/23	20/08/25	20/08/25
OPP												
Azinophos methyl (Guthion)	µg/L	T	0.2	0.01	-	-	< 0.2	< 0.2	-	< 0.2	-	-
Bromophos-ethyl	µg/L	T	0.05	-	-	-	< 0.05	< 0.05	-	< 0.05	-	-
Chlorpyrifos	µg/L	T	0.009	0.01	-	-	< 0.009	< 0.009	-	< 0.009	-	-
Chlorpyrifos-methyl	µg/L	T	0.05	-	-	-	< 0.05	< 0.05	-	< 0.05	-	-
Coumaphos	µg/L	T	0.05	-	-	-	< 0.05	< 0.05	-	< 0.05	-	-
Diazinon	µg/L	T	0.01	0.01	-	-	< 0.01	< 0.01	-	< 0.01	-	-
Dichlorvos	µg/L	T	0.05	-	-	-	< 0.05	< 0.05	-	< 0.05	-	-
Dimethoate	µg/L	T	0.1	0.15	-	-	< 0.1	< 0.1	-	< 0.1	-	-
Disulfoton	µg/L	T	0.05	-	-	-	< 0.05	< 0.05	-	< 0.05	-	-
Ethion	µg/L	T	0.05	-	-	-	< 0.05	< 0.05	-	< 0.05	-	-
Ronnel	µg/L	T	0.05	-	-	-	< 0.05	< 0.05	-	< 0.05	-	-
Fenamiphos	µg/L	T	0.05	-	-	-	< 0.05	< 0.05	-	< 0.05	-	-
Fenitrothion	µg/L	T	0.05	0.2	-	-	< 0.05	< 0.05	-	< 0.05	-	-
Fenthion	µg/L	T	0.05	-	-	-	< 0.05	< 0.05	-	< 0.05	-	-
Malathion	µg/L	T	0.05	0.05	-	-	< 0.05	< 0.05	-	< 0.05	-	-
Methyl parathion	µg/L	T	0.05	-	-	-	< 0.05	< 0.05	-	< 0.05	-	-
Methidathion	µg/L	T	0.05	-	-	-	< 0.05	< 0.05	-	< 0.05	-	-
Mevinphos (Phosdrin)	µg/L	T	0.05	-	-	-	< 0.05	< 0.05	-	< 0.05	-	-
Parathion	µg/L	T	0.004	0.004	-	-	< 0.004	< 0.004	-	< 0.004	-	-
Phorate	µg/L	T	0.05	-	-	-	< 0.05	< 0.05	-	< 0.05	-	-
Phosalone	µg/L	T	0.05	-	-	-	< 0.05	< 0.05	-	< 0.05	-	-
VOC												
Tetrachloroethene	µg/L	T	1	70	-	< 5	< 1	< 1	-	< 1	-	-
Trichloroethene	µg/L	T	1	330	-	< 5	< 1	< 1	-	< 1	-	-
cis-1,2-dichloroethene	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
1,2-Dichloroethene [trans]	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
Vinyl chloride	µg/L	T	10	100	-	< 50	< 10	< 10	-	< 10	-	-
1,1-dichloroethene	µg/L	T	1	700	-	< 5	< 1	< 1	-	< 1	-	-
Carbon tetrachloride	µg/L	T	1	240	-	< 5	< 1	< 1	-	< 1	-	-
Chloroform	µg/L	T	1	370	-	< 5	< 1	2	-	2	-	-
Chloromethane	µg/L	T	10	-	-	< 50	< 10	< 10	-	< 10	-	-
1,1,2,2-tetrachloroethane	µg/L	T	1	400	-	< 5	< 1	< 1	-	< 1	-	-
1,1,1-trichloroethane	µg/L	T	1	270	-	< 5	< 1	< 1	-	< 1	-	-
1,1,2-trichloroethane	µg/L	T	1	6,500	-	< 5	< 1	< 1	-	< 1	-	-
1,1-dichloroethane	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
1,2-dichloroethane	µg/L	T	1	1,900	-	< 5	< 1	< 1	-	< 1	-	-
Chloroethane	µg/L	T	10	-	-	< 50	< 10	< 10	-	< 10	-	-
cis-1,3-dichloropropene	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
trans-1,3-dichloropropene	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
Hexachlorobutadiene	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
1,2-dichloropropane	µg/L	T	1	900	-	< 5	< 1	< 1	-	< 1	-	-
Chlorobenzene	µg/L	T	1	55	-	< 5	< 1	< 1	-	< 1	-	-
1,2,4-trichlorobenzene	µg/L	T	1	85	-	< 5	< 1	< 1	-	< 1	-	-
1,4-dichlorobenzene	µg/L	T	1	60	-	< 5	< 1	< 1	-	< 1	-	-
1,2-dichlorobenzene	µg/L	T	1	160	-	< 5	< 1	< 1	-	< 1	-	-
1,3-dichlorobenzene	µg/L	T	1	260	-	< 5	< 1	< 1	-	< 1	-	-
Dichlorodifluoromethane	µg/L	T	10	-	-	< 50	< 10	< 10	-	< 10	-	-
Trichlorofluoromethane	µg/L	T	10	-	-	< 50	< 10	< 10	-	< 10	-	-
Bromodichloromethane	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
Chlorodibromomethane	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
Bromoform	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
Bromomethane	µg/L	T	10	-	-	< 50	< 10	< 10	-	< 10	-	-
1,2-dibromoethane	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
1,3,5-trimethylbenzene	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
1,2,4-trimethylbenzene	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
Styrene	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
Cyclohexane	µg/L	T	1	-	-	-	< 1	< 1	-	< 1	-	-
Vinyl acetate	µg/L	T	50	-	-	< 50	-	-	-	-	-	-
Methyl Ethyl Ketone	µg/L	T	50	-	-	< 50	-	-	-	-	-	-
4-Methyl-2-pentanone	µg/L	T	50	-	-	< 50	-	-	-	-	-	-
2-hexanone (MBK)	µg/L	T	50	-	-	< 50	-	-	-	-	-	-
Carbon disulfide	µg/L	T	5	20	-	< 5	-	-	-	-	-	-
1,1,1,2-tetrachloroethane	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
1,1-dichloropropene	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
1,2-dibromo-3-chloropropane	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
1,2,3-trichlorobenzene	µg/L	T	1	3	-	< 5	< 1	< 1	-	< 1	-	-
1,2,3-trichloropropane	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
1,3-dichloropropane	µg/L	T	1	1,100	-	< 5	< 1	< 1	-	< 1	-	-
2-chlorotoluene	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
2,2-dichloropropane	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
4-chlorotoluene	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
Bromobenzene	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
Bromochloromethane	µg/L	T	1	-	-	-	< 1	< 1	-	< 1	-	-
Dibromomethane	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
Isopropylbenzene	µg/L	T	1	30	-	< 5	< 1	< 1	-	< 1	-	-
n-butylbenzene	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-

Table F1 : Summary of laboratory results - groundwater

Sample ID	Units	Total or filtered	PQL	DGV, Freshwater - 95% / 99% LOP	DGV Freshwater 99% LOP (HEPA, 2025)	BD1/20231120	BH12	BH101	BH101	BH103	BH103	BH207
Parent sample												
Depth									5m		5m	5m
Sampled date						20/11/23	20/11/23	20/11/23	20/08/25	20/11/23	20/08/25	20/08/25
n-propylbenzene	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
p-isopropyltoluene	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
sec-butylbenzene	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
tert-butylbenzene	µg/L	T	1	-	-	< 5	< 1	< 1	-	< 1	-	-
Pentachloroethane	µg/L	T	5	80	-	< 5	-	-	-	-	-	-
cis-1,4-Dichloro-2-butene	µg/L	T	5	-	-	< 5	-	-	-	-	-	-
Iodomethane	µg/L	T	5	-	-	< 5	-	-	-	-	-	-
Trans-1,4-dichloro-2-butene	µg/L	T	5	-	-	< 5	-	-	-	-	-	-
PFAS												
Perfluorooctane sulfonic acid (PFOS)	µg/L	T	0.0002	0.02[1]	-	0.19	0.01	0.19	-	0.002	-	-
Perfluorooctanoic acid (PFOA)	µg/L	T	0.0002	-	19	0.01	0.002	0.014	-	0.0004	-	-
Perfluorohexane sulfonic acid (PFHxS)	µg/L	T	0.0002	-	-	0.13	0.047	0.16	-	0.002	-	-
Perfluorobutane sulfonic acid (PFBS)	µg/L	T	0.0004	-	-	0.02	0.03	0.03	-	0.003	-	-
Perfluoropentane sulfonic acid (PFPeS)	µg/L	T	0.001	-	-	0.02	0.025	0.037	-	0.001	-	-
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	T	0.001	-	-	< 0.02	0.001	0.014	-	< 0.001	-	-
Perfluorodecane sulfonic acid (PFDS)	µg/L	T	0.002	-	-	< 0.02	< 0.002	< 0.002	-	< 0.002	-	-
Perfluorobutanoic acid (PFBA)	µg/L	T	0.002	-	-	< 0.1	< 0.02	< 0.02	-	< 0.02	-	-
Perfluoropentanoic acid (PFPeA)	µg/L	T	0.002	-	-	< 0.02	0.009	0.023	-	0.003	-	-
Perfluorohexanoic acid (PFHxA)	µg/L	T	0.0004	-	-	0.03	0.02	0.04	-	0.0046	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	T	0.0004	-	-	< 0.02	0.003	0.0095	-	0.0009	-	-
Perfluorononanoic acid (PFNA)	µg/L	T	0.001	-	-	< 0.02	< 0.001	< 0.001	-	< 0.001	-	-
Perfluorodecanoic acid (PFDA)	µg/L	T	0.002	-	-	< 0.02	< 0.002	< 0.002	-	< 0.002	-	-
Perfluoroundecanoic acid (PFUnDA)	µg/L	T	0.002	-	-	< 0.02	< 0.002	< 0.002	-	< 0.002	-	-
Perfluorododecanoic acid (PFDoDA)	µg/L	T	0.005	-	-	< 0.02	< 0.005	< 0.005	-	< 0.005	-	-
Perfluorotridecanoic acid (PFTrDA)	µg/L	T	0.01	-	-	< 0.02	< 0.01	< 0.01	-	< 0.01	-	-
Perfluorotetradecanoic acid (PFTeDA)	µg/L	T	0.05	-	-	< 0.05	< 0.05	< 0.05	-	< 0.05	-	-
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	T	0.001	-	-	< 0.05	< 0.001	< 0.001	-	< 0.001	-	-
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	T	0.0004	-	-	< 0.05	0.002	0.018	-	0.018	-	-
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	T	0.0004	-	-	< 0.05	< 0.0004	< 0.0004	-	< 0.0004	-	-
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	T	0.002	-	-	< 0.05	< 0.002	< 0.002	-	< 0.002	-	-
Perfluorooctane sulfonamide (FOSA)	µg/L	T	0.01	-	-	< 0.02	< 0.01	< 0.01	-	< 0.01	-	-
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	T	0.05	-	-	< 0.05	< 0.05	< 0.05	-	< 0.05	-	-
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	T	0.05	-	-	< 0.05	< 0.1	< 0.1	-	< 0.1	-	-
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	T	0.05	-	-	< 0.05	< 0.05	< 0.05	-	< 0.05	-	-
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	T	0.05	-	-	< 0.05	< 0.5	< 0.5	-	< 0.5	-	-
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	T	0.002	-	-	< 0.02	< 0.002	< 0.002	-	< 0.002	-	-
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	T	0.002	-	-	< 0.02	< 0.002	< 0.002	-	< 0.002	-	-
Sum of PFHxS and PFOS	µg/L	T	0.0002	-	-	0.32	0.057	0.36	-	0.0039	-	-
Sum of PFAS (PFOS + PFOA)	µg/L	T	0.0002	-	-	-	0.012	0.21	-	0.0024	-	-
Sum of PFAS	µg/L	T	0.0002	-	-	0.4	0.15	0.54	-	0.035	-	-
Sum of PFAS (WA DER List)	µg/L	T	0.01	-	-	0.38	-	-	-	-	-	-
PFAS (TOPA)												
Sum of PFAS (WA DER List)	µg/L	T	0.01	-	-	0.38	-	-	-	-	-	-
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	T	0.002	-	-	< 0.02	< 0.002	< 0.002	-	< 0.002	-	-
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	T	0.05	-	-	< 0.05	< 0.5	< 0.5	-	< 0.5	-	-
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	T	0.05	-	-	< 0.05	< 0.1	< 0.1	-	< 0.1	-	-

Criteria adopted from the following guidelines:

HEPA, PFAS National Environmental Management Plan, Version 3.0 (2025)

ANZG, Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2018). DGV for 95% LOP or 99% LOP as recommended by ANZG (2018)

Notes:

This table does not represent the full analytical results, please refer to the laboratory certificate(s) for full details

Results displayed in grey text were recorded below the laboratory practical quantitation limit (PQL)

Cream shading indicates results with PQL above one or more assessment criteria

ADWG – Australian drinking water guidelines

DGV – default guideline value

HSL – health screening level

IMW – intrusive maintenance worker

LOP – level of protection of species

PQL – practical quantitation limit

Guideline Notes:

[1]The ANZG (2018) PFOS DGV for aquatic ecosystem protection are not intended to specify species protection concentrations for air-breathing animals that live in aquatic ecosystems, or prey on aquatic organisms. ANZG (2018) recommends a biota screening threshold for PFOS in freshwater of 0.0005 µg/L to address the risk to higher consumers.

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CERTIFICATE OF ANALYSIS 338242

Client Details

Client	Douglas Partners Pty Ltd
Attention	Nerilee Edwards
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**225008.01 Camperdown**
Number of Samples	6 Water
Date samples received	20/11/2023
Date completed instructions received	20/11/2023

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	27/11/2023
Date of Issue	27/11/2023
Reissue Details	This report replaces R00 created on 27/11/2023 due to: Sample ID Amended (Client Request)

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Results Approved By
Dragana Tomas, Senior Chemist
Loren Bardwell, Development Chemist
Phalak Inthakesone, Organics Development Manager, Sydney

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in water					
Our Reference		338242-1	338242-2	338242-3	338242-4
Your Reference	UNITS	BH101	BH12	BH103	RIN1
Date Sampled		20/11/2023	20/11/2023	20/11/2023	20/11/2023
Type of sample		Water	Water	Water	Water
Date Extracted	-	23/11/2023	23/11/2023	23/11/2023	23/11/2023
Date Analysed	-	24/11/2023	24/11/2023	24/11/2023	24/11/2023
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1
Chloroform	µg/L	2	<1	2	2
2,2-dichloropropane	µg/L	<1	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1

VOCs in water					
Our Reference		338242-1	338242-2	338242-3	338242-4
Your Reference	UNITS	BH101	BH12	BH103	RIN1
Date Sampled		20/11/2023	20/11/2023	20/11/2023	20/11/2023
Type of sample		Water	Water	Water	Water
Bromoform	µg/L	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2
Styrene	µg/L	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1	<1
o-xylene	µg/L	<1	<1	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1	<1
Isopropylbenzene	µg/L	<1	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	117	114	116	116
Surrogate Toluene-d8	%	98	98	98	98
Surrogate 4-Bromofluorobenzene	%	97	98	95	94

vTRH(C6-C10)/BTEXN in Water						
Our Reference		338242-1	338242-2	338242-3	338242-4	338242-5
Your Reference	UNITS	BH101	BH12	BH103	RIN1	TS
Date Sampled		20/11/2023	20/11/2023	20/11/2023	20/11/2023	20/11/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	23/11/2023	23/11/2023	23/11/2023	23/11/2023	23/11/2023
Date analysed	-	24/11/2023	24/11/2023	24/11/2023	24/11/2023	24/11/2023
TRH C_6 - C_9	µg/L	<10	<10	<10	<10	[NA]
TRH C_6 - C_{10}	µg/L	<10	<10	<10	<10	[NA]
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10	[NA]
Benzene	µg/L	<1	<1	<1	<1	105%
Toluene	µg/L	<1	<1	<1	<1	111%
Ethylbenzene	µg/L	<1	<1	<1	<1	118%
m+p-xylene	µg/L	<2	<2	<2	<2	120%
o-xylene	µg/L	<1	<1	<1	<1	119%
Naphthalene	µg/L	19	<1	<1	<1	[NA]
Surrogate Dibromofluoromethane	%	117	114	116	116	110
Surrogate Toluene-d8	%	98	98	98	98	95
Surrogate 4-Bromofluorobenzene	%	97	98	95	94	103

vTRH(C6-C10)/BTEXN in Water		
Our Reference		338242-6
Your Reference	UNITS	TB
Date Sampled		20/11/2023
Type of sample		Water
Date extracted	-	23/11/2023
Date analysed	-	24/11/2023
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	84
Surrogate Toluene-d8	%	98
Surrogate 4-Bromofluorobenzene	%	91

svTRH (C10-C40) in Water					
Our Reference	UNITS	338242-1	338242-2	338242-3	338242-4
Your Reference		BH101	BH12	BH103	RIN1
Date Sampled		20/11/2023	20/11/2023	20/11/2023	20/11/2023
Type of sample		Water	Water	Water	Water
Date extracted	-	23/11/2023	23/11/2023	23/11/2023	23/11/2023
Date analysed	-	24/11/2023	24/11/2023	24/11/2023	24/11/2023
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	<50	<50
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	<100	<100	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50	<50	<50
Surrogate o-Terphenyl	%	78	71	68	69

PAHs in Water - Trace Level				
Our Reference	UNITS	338242-1	338242-2	338242-3
Your Reference		BH101	BH12	BH103
Date Sampled		20/11/2023	20/11/2023	20/11/2023
Type of sample		Water	Water	Water
Date extracted	-	23/11/2023	23/11/2023	24/11/2023
Date analysed	-	24/11/2023	24/11/2023	24/11/2023
Naphthalene	µg/L	0.1	<0.02	0.03
Acenaphthylene	µg/L	<0.01	<0.01	<0.01
Acenaphthene	µg/L	<0.01	<0.01	<0.01
Fluorene	µg/L	<0.01	<0.01	<0.01
Phenanthrene	µg/L	<0.01	<0.01	<0.01
Anthracene	µg/L	<0.01	<0.01	<0.01
Fluoranthene	µg/L	<0.01	<0.01	<0.01
Pyrene	µg/L	<0.01	<0.01	<0.01
Benzo(a)anthracene	µg/L	<0.01	<0.01	<0.01
Chrysene	µg/L	<0.01	<0.01	<0.01
Benzo(b,j+k)fluoranthene	µg/L	<0.02	<0.02	<0.02
Benzo(a)pyrene	µg/L	<0.01	<0.01	<0.01
Dibenzo(a,h)anthracene	µg/L	<0.01	<0.01	<0.01
Indeno(1,2,3-c,d)pyrene	µg/L	<0.01	<0.01	<0.01
Benzo(g,h,i)perylene	µg/L	<0.01	<0.01	<0.01
Benzo(a)pyrene TEQ	µg/L	<0.05	<0.05	<0.05
Total +ve PAH's	µg/L	0.13	NIL (+)VE	0.030
Surrogate p-Terphenyl-d14	%	97	78	75

OCPs in Water - Trace Level				
Our Reference	UNITS	338242-1	338242-2	338242-3
Your Reference		BH101	BH12	BH103
Date Sampled		20/11/2023	20/11/2023	20/11/2023
Type of sample		Water	Water	Water
Date extracted	-	23/11/2023	23/11/2023	23/11/2023
Date analysed	-	24/11/2023	24/11/2023	24/11/2023
alpha-BHC	µg/L	<0.001	<0.001	<0.001
HCB	µg/L	<0.001	<0.001	<0.001
beta-BHC	µg/L	<0.001	<0.001	<0.001
gamma-BHC	µg/L	<0.001	<0.001	<0.001
Heptachlor	µg/L	<0.001	<0.001	<0.001
delta-BHC	µg/L	<0.001	<0.001	<0.001
Aldrin	µg/L	<0.001	<0.001	<0.001
Heptachlor Epoxide	µg/L	<0.001	<0.001	<0.001
gamma-Chlordane	µg/L	<0.001	<0.001	<0.001
alpha-Chlordane	µg/L	<0.001	<0.001	<0.001
Endosulfan I	µg/L	<0.002	<0.002	<0.002
pp-DDE	µg/L	<0.001	<0.001	<0.001
Dieldrin	µg/L	<0.001	<0.001	<0.001
Endrin	µg/L	<0.001	<0.001	<0.001
Endosulfan II	µg/L	<0.002	<0.002	<0.002
pp-DDD	µg/L	<0.001	<0.001	<0.001
Endrin Aldehyde	µg/L	<0.001	<0.001	<0.001
pp-DDT	µg/L	<0.001	<0.001	<0.001
Endosulfan Sulphate	µg/L	<0.001	<0.001	<0.001
Methoxychlor	µg/L	<0.001	<0.001	<0.001
Surrogate 4-Chloro-3-NBTF	%	85	64	67

OP in water LL ANZECCF/ADWG				
Our Reference	UNITS	338242-1	338242-2	338242-3
Your Reference		BH101	BH12	BH103
Date Sampled		20/11/2023	20/11/2023	20/11/2023
Type of sample		Water	Water	Water
Date extracted	-	23/11/2023	23/11/2023	24/11/2023
Date analysed	-	24/11/2023	24/11/2023	24/11/2023
Dichlorvos	µg/L	<0.05	<0.05	<0.05
Mevinphos	µg/L	<0.05	<0.05	<0.05
Phorate	µg/L	<0.05	<0.05	<0.05
Dimethoate	µg/L	<0.1	<0.1	<0.1
Diazinon	µg/L	<0.01	<0.01	<0.01
Disulfoton	µg/L	<0.05	<0.05	<0.05
Chlorpyriphos-methyl	µg/L	<0.05	<0.05	<0.05
Parathion-Methyl	µg/L	<0.05	<0.05	<0.05
Ronnel	µg/L	<0.05	<0.05	<0.05
Fenitrothion	µg/L	<0.05	<0.05	<0.05
Malathion	µg/L	<0.05	<0.05	<0.05
Chlorpyriphos	µg/L	<0.009	<0.009	<0.009
Fenthion	µg/L	<0.05	<0.05	<0.05
Parathion	µg/L	<0.004	<0.004	<0.004
Bromophos ethyl	µg/L	<0.05	<0.05	<0.05
Methidathion	µg/L	<0.05	<0.05	<0.05
Fenamiphos	µg/L	<0.05	<0.05	<0.05
Ethion	µg/L	<0.05	<0.05	<0.05
Phosalone	µg/L	<0.05	<0.05	<0.05
Azinphos-methyl (Guthion)	µg/L	<0.2	<0.2	<0.2
Coumaphos	µg/L	<0.05	<0.05	<0.05
Surrogate 4-Chloro-3-NBTF	%	85	64	67

PCBs in Water - Trace Level				
Our Reference		338242-1	338242-2	338242-3
Your Reference	UNITS	BH101	BH12	BH103
Date Sampled		20/11/2023	20/11/2023	20/11/2023
Type of sample		Water	Water	Water
Date extracted	-	23/11/2023	23/11/2023	24/11/2023
Date analysed	-	24/11/2023	24/11/2023	24/11/2023
Aroclor 1016	µg/L	<0.01	<0.01	<0.01
Aroclor 1221	µg/L	<0.01	<0.01	<0.01
Aroclor 1232	µg/L	<0.01	<0.01	<0.01
Aroclor 1242	µg/L	<0.01	<0.01	<0.01
Aroclor 1248	µg/L	<0.01	<0.01	<0.01
Aroclor 1254	µg/L	<0.01	<0.01	<0.01
Aroclor 1260	µg/L	<0.01	<0.01	<0.01
Surrogate 2-Fluorobiphenyl	%	85	68	67

HM in water - dissolved				
Our Reference		338242-1	338242-2	338242-3
Your Reference	UNITS	BH101	BH12	BH103
Date Sampled		20/11/2023	20/11/2023	20/11/2023
Type of sample		Water	Water	Water
Date prepared	-	24/11/2023	24/11/2023	24/11/2023
Date analysed	-	24/11/2023	24/11/2023	24/11/2023
Arsenic-Dissolved	µg/L	2	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1
Copper-Dissolved	µg/L	5	6	<1
Lead-Dissolved	µg/L	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	13	22	19
Zinc-Dissolved	µg/L	20	53	9
Manganese-Dissolved	µg/L	520	350	2,900

PFAS in Waters Trace Extended					
Our Reference		338242-1	338242-2	338242-3	338242-4
Your Reference	UNITS	BH101	BH12	BH103	RIN1
Date Sampled		20/11/2023	20/11/2023	20/11/2023	20/11/2023
Type of sample		Water	Water	Water	Water
Date prepared	-	23/11/2023	23/11/2023	23/11/2023	23/11/2023
Date analysed	-	23/11/2023	23/11/2023	23/11/2023	23/11/2023
Perfluorobutanesulfonic acid	µg/L	0.030	0.030	0.003	<0.0004
Perfluoropentanesulfonic acid	µg/L	0.037	0.025	0.001	<0.001
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.16	0.047	0.002	<0.0002
Perfluoroheptanesulfonic acid	µg/L	0.014	0.001	<0.001	<0.001
Perfluorooctanesulfonic acid PFOS	µg/L	0.19	0.010	0.002	<0.0002
Perfluorodecanesulfonic acid	µg/L	<0.002	<0.002	<0.002	<0.002
Perfluorobutanoic acid	µg/L	<0.02	<0.02	<0.02	<0.002
Perfluoropentanoic acid	µg/L	0.023	0.009	0.003	<0.002
Perfluorohexanoic acid	µg/L	0.040	0.020	0.0046	<0.0004
Perfluoroheptanoic acid	µg/L	0.0095	0.003	0.0009	<0.0004
Perfluorooctanoic acid PFOA	µg/L	0.014	0.002	0.0004	<0.0002
Perfluorononanoic acid	µg/L	<0.001	<0.001	<0.001	<0.001
Perfluorodecanoic acid	µg/L	<0.002	<0.002	<0.002	<0.002
Perfluoroundecanoic acid	µg/L	<0.002	<0.002	<0.002	<0.002
Perfluorododecanoic acid	µg/L	<0.005	<0.005	<0.005	<0.005
Perfluorotridecanoic acid	µg/L	<0.01	<0.01	<0.01	<0.01
Perfluorotetradecanoic acid	µg/L	<0.05	<0.05	<0.05	<0.05
4:2 FTS	µg/L	<0.001	<0.001	<0.001	<0.001
6:2 FTS	µg/L	0.018	0.002	0.018	<0.0004
8:2 FTS	µg/L	<0.0004	<0.0004	<0.0004	<0.0004
10:2 FTS	µg/L	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonamide	µg/L	<0.01	<0.01	<0.01	<0.01
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	µg/L	<0.1	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5	<0.5	<0.5
MePerfluorooctanesulf- amid oacetic acid	µg/L	<0.002	<0.002	<0.002	<0.002
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.002	<0.002	<0.002	<0.002
Surrogate $^{13}C_8$ *PFOS*	%	99	100	100	103
Surrogate $^{13}C_2$ *PFOA*	%	97	95	100	101
Extracted ISTD $^{13}C_3$ *PFBS*	%	58	56	57	62
Extracted ISTD $^{18}O_2$ *PFHxS*	%	99	75	80	75
Extracted ISTD $^{13}C_4$ *PFOS*	%	109	78	88	70
Extracted ISTD $^{13}C_4$ *PFBA*	%	#	#	#	108

PFAS in Waters Trace Extended					
Our Reference		338242-1	338242-2	338242-3	338242-4
Your Reference	UNITS	BH101	BH12	BH103	RIN1
Date Sampled		20/11/2023	20/11/2023	20/11/2023	20/11/2023
Type of sample		Water	Water	Water	Water
Extracted ISTD $^{13}C_3$ *PFPeA*	%	51	35	57	96
Extracted ISTD $^{13}C_2$ *PFHxA*	%	75	68	76	80
Extracted ISTD $^{13}C_4$ *PFHpA*	%	80	80	89	86
Extracted ISTD $^{13}C_4$ *PFOA*	%	114	110	118	103
Extracted ISTD $^{13}C_5$ *PFNA*	%	83	86	91	88
Extracted ISTD $^{13}C_2$ *PFDA*	%	114	113	118	102
Extracted ISTD $^{13}C_2$ *PFUnDA*	%	123	109	125	95
Extracted ISTD $^{13}C_2$ *PFDoDA*	%	104	91	108	93
Extracted ISTD $^{13}C_2$ *PFTeDA*	%	91	63	103	61
Extracted ISTD $^{13}C_2$ *4:2FTS*	%	115	98	111	112
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	155	131	145	132
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	179	159	#	156
Extracted ISTD $^{13}C_8$ *FOSA*	%	75	66	75	78
Extracted ISTD d_3 *N MeFOSA*	%	102	99	101	104
Extracted ISTD d_5 *N EtFOSA*	%	90	90	92	99
Extracted ISTD d_7 *N MeFOSE*	%	95	94	96	103
Extracted ISTD d_9 *N EtFOSE*	%	96	96	97	103
Extracted ISTD d_3 *N MeFOSAA*	%	110	97	100	86
Extracted ISTD d_5 *N EtFOSAA*	%	120	99	115	86
Total Positive PFHxS & PFOS	µg/L	0.36	0.057	0.0039	<0.0002
Total Positive PFOS & PFOA	µg/L	0.21	0.012	0.0024	<0.0002
Total Positive PFAS	µg/L	0.54	0.15	0.035	<0.0002

Method ID	Methodology Summary
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determinined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS.
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

Method ID	Methodology Summary
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date Extracted	-			23/11/2023	1	23/11/2023	24/11/2023		23/11/2023	[NT]
Date Analysed	-			24/11/2023	1	24/11/2023	27/11/2023		24/11/2023	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	110	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chloroform	µg/L	1	Org-023	<1	1	2	2	0	115	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	113	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	110	[NT]
1,1-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Cyclohexane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	110	[NT]
Dibromomethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	113	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	115	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	113	[NT]
1,3-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	118	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	112	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	112	[NT]
Bromoform	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	114	[NT]
Styrene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	112	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	96	1	117	89	27	107	[NT]
Surrogate Toluene-d8	%		Org-023	103	1	98	111	12	103	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	93	1	97	87	11	106	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			23/11/2023	1	23/11/2023	24/11/2023		23/11/2023	[NT]
Date analysed	-			24/11/2023	1	24/11/2023	27/11/2023		24/11/2023	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	113	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	<10	<10	0	113	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	110	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	113	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	112	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	114	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	112	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	19	15	24	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	96	1	117	89	27	107	[NT]
Surrogate Toluene-d8	%		Org-023	103	1	98	111	12	103	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	93	1	97	87	11	106	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	338242-1
Date extracted	-			23/11/2023	[NT]	[NT]	[NT]	[NT]	23/11/2023	23/11/2023
Date analysed	-			24/11/2023	[NT]	[NT]	[NT]	[NT]	24/11/2023	24/11/2023
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	97	86
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	106	95
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	115	94
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	97	86
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	106	95
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	115	94
Surrogate o-Terphenyl	%		Org-020	88	[NT]	[NT]	[NT]	[NT]	105	112

QUALITY CONTROL: PAHs in Water - Trace Level						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	338242-1
Date extracted	-			23/11/2023	[NT]	[NT]	[NT]	[NT]	23/11/2023	23/11/2023
Date analysed	-			24/11/2023	[NT]	[NT]	[NT]	[NT]	24/11/2023	23/11/2023
Naphthalene	µg/L	0.02	Org-022/025	<0.02	[NT]	[NT]	[NT]	[NT]	109	94
Acenaphthylene	µg/L	0.01	Org-022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.01	Org-022/025	<0.01	[NT]	[NT]	[NT]	[NT]	108	100
Fluorene	µg/L	0.01	Org-022/025	<0.01	[NT]	[NT]	[NT]	[NT]	110	98
Phenanthrene	µg/L	0.01	Org-022/025	<0.01	[NT]	[NT]	[NT]	[NT]	114	91
Anthracene	µg/L	0.01	Org-022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.01	Org-022/025	<0.01	[NT]	[NT]	[NT]	[NT]	109	104
Pyrene	µg/L	0.01	Org-022/025	<0.01	[NT]	[NT]	[NT]	[NT]	105	119
Benzo(a)anthracene	µg/L	0.01	Org-022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.01	Org-022/025	<0.01	[NT]	[NT]	[NT]	[NT]	123	94
Benzo(b,j+k)fluoranthene	µg/L	0.02	Org-022/025	<0.02	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.01	Org-022/025	<0.01	[NT]	[NT]	[NT]	[NT]	107	84
Dibenzo(a,h)anthracene	µg/L	0.01	Org-022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.01	Org-022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.01	Org-022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	91	[NT]	[NT]	[NT]	[NT]	98	97

QUALITY CONTROL: OCPs in Water - Trace Level						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	338242-1
Date extracted	-			23/11/2023	[NT]	[NT]	[NT]	[NT]	23/11/2023	23/11/2023
Date analysed	-			24/11/2023	[NT]	[NT]	[NT]	[NT]	27/11/2023	24/11/2023
alpha-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	101	94
HCB	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	97	97
gamma-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	101	77
delta-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	108	92
Heptachlor Epoxide	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	104	99
gamma-Chlordane	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	109	112
Dieldrin	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	123	119
Endrin	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	101	78
Endosulfan II	µg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	96	118
Endrin Aldehyde	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	120	128
Methoxychlor	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	88	[NT]	[NT]	[NT]	[NT]	102	83

QUALITY CONTROL: OP in water LL ANZECCF/ADWG					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	338242-1
Date extracted	-			23/11/2023	[NT]	[NT]	[NT]	[NT]	23/11/2023	23/11/2023
Date analysed	-			24/11/2023	[NT]	[NT]	[NT]	[NT]	24/11/2023	23/11/2023
Dichlorvos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	124	105
Mevinphos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phorate	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	µg/L	0.01	Org-022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Disulfoton	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos-methyl	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion-Methyl	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	104	86
Fenitrothion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	94	84
Malathion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	108	85
Chlorpyriphos	µg/L	0.009	Org-022/025	<0.009	[NT]	[NT]	[NT]	[NT]	108	88
Fenthion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	µg/L	0.004	Org-022/025	<0.004	[NT]	[NT]	[NT]	[NT]	98	78
Bromophos ethyl	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methidathion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fenamiphos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	100	78
Phosalone	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Coumaphos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	88	[NT]	[NT]	[NT]	[NT]	99	83

QUALITY CONTROL: PCBs in Water - Trace Level						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	338242-1
Date extracted	-			23/11/2023	[NT]	[NT]	[NT]	[NT]	23/11/2023	23/11/2023
Date analysed	-			24/11/2023	[NT]	[NT]	[NT]	[NT]	24/11/2023	23/11/2023
Aroclor 1016	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	97	103
Aroclor 1260	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	92	[NT]	[NT]	[NT]	[NT]	68	80

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date prepared	-			24/11/2023	[NT]	[NT]	[NT]	[NT]	24/11/2023	[NT]
Date analysed	-			24/11/2023	[NT]	[NT]	[NT]	[NT]	24/11/2023	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	85	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: PFAS in Waters Trace Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			23/11/2023	[NT]	[NT]	[NT]	[NT]	23/11/2023	[NT]
Date analysed	-			23/11/2023	[NT]	[NT]	[NT]	[NT]	23/11/2023	[NT]
Perfluorobutanesulfonic acid	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	111	[NT]
Perfluoropentanesulfonic acid	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	106	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	104	[NT]
Perfluoroheptanesulfonic acid	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	103	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorodecanesulfonic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	90	[NT]
Perfluorobutanoic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	107	[NT]
Perfluoropentanoic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	104	[NT]
Perfluorohexanoic acid	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	103	[NT]
Perfluoroheptanoic acid	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	106	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	94	[NT]
Perfluorononanoic acid	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	123	[NT]
Perfluorodecanoic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	97	[NT]
Perfluoroundecanoic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	110	[NT]
Perfluorododecanoic acid	µg/L	0.005	Org-029	<0.005	[NT]	[NT]	[NT]	[NT]	92	[NT]
Perfluorotridecanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	107	[NT]
Perfluorotetradecanoic acid	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	102	[NT]
4:2 FTS	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	110	[NT]
6:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	90	[NT]
8:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	94	[NT]
10:2 FTS	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	93	[NT]
Perfluorooctane sulfonamide	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	105	[NT]
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	106	[NT]
N-Ethyl perfluorooctanesulfon amide	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	114	[NT]
N-Me perfluorooctanesulfonamid oethanol	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	109	[NT]
N-Et perfluorooctanesulfonamid oethanol	µg/L	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	116	[NT]
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	105	[NT]
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	110	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	102	[NT]	[NT]	[NT]	[NT]	106	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	98	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: PFAS in Waters Trace Extended					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	56	[NT]	[NT]	[NT]	[NT]	53	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	75	[NT]	[NT]	[NT]	[NT]	82	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	70	[NT]	[NT]	[NT]	[NT]	71	[NT]
Extracted ISTD $^{13}C_4$ *PFBA*	%		Org-029	91	[NT]	[NT]	[NT]	[NT]	92	[NT]
Extracted ISTD $^{13}C_3$ *PFPeA*	%		Org-029	67	[NT]	[NT]	[NT]	[NT]	67	[NT]
Extracted ISTD $^{13}C_2$ *PFHxA*	%		Org-029	85	[NT]	[NT]	[NT]	[NT]	91	[NT]
Extracted ISTD $^{13}C_4$ *PFHpA*	%		Org-029	88	[NT]	[NT]	[NT]	[NT]	90	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	94	[NT]	[NT]	[NT]	[NT]	97	[NT]
Extracted ISTD $^{13}C_5$ *PFNA*	%		Org-029	85	[NT]	[NT]	[NT]	[NT]	90	[NT]
Extracted ISTD $^{13}C_2$ *PFDA*	%		Org-029	100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD $^{13}C_2$ *PFUnDA*	%		Org-029	108	[NT]	[NT]	[NT]	[NT]	101	[NT]
Extracted ISTD $^{13}C_2$ *PFDoDA*	%		Org-029	98	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD $^{13}C_2$ *PFTeDA*	%		Org-029	93	[NT]	[NT]	[NT]	[NT]	89	[NT]
Extracted ISTD $^{13}C_2$ *4:2FTS*	%		Org-029	112	[NT]	[NT]	[NT]	[NT]	115	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	127	[NT]	[NT]	[NT]	[NT]	125	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	160	[NT]	[NT]	[NT]	[NT]	157	[NT]
Extracted ISTD $^{13}C_8$ *FOSA*	%		Org-029	80	[NT]	[NT]	[NT]	[NT]	75	[NT]
Extracted ISTD d_3 *N MeFOSA*	%		Org-029	101	[NT]	[NT]	[NT]	[NT]	102	[NT]
Extracted ISTD d_5 *N EtFOSA*	%		Org-029	94	[NT]	[NT]	[NT]	[NT]	96	[NT]
Extracted ISTD d_7 *N MeFOSE*	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: PFAS in Waters Trace Extended					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Extracted ISTD d_9 *N EtFOSE*	%		Org-029	102	[NT]	[NT]	[NT]	[NT]	97	[NT]
Extracted ISTD d_3 *N MeFOSAA*	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	92	[NT]
Extracted ISTD d_5 *N EtFOSAA*	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	98	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

For PFAS Extracted Internal Standards denoted with # or outside the 50-150% acceptance range, the respective target analyte results may be unaffected, in other circumstances the PQL has been raised to accommodate the outlier(s).

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CERTIFICATE OF ANALYSIS 389035

Client Details

Client	Douglas Partners Pty Ltd
Attention	Nerilee Edwards
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**225008.02 Camperdown**
Number of Samples	6 Water
Date samples received	21/08/2025
Date completed instructions received	21/08/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client unless as indicated below in the method summaries. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	28/08/2025
Date of Issue	10/09/2025
Reissue Details	This report replaces R00 created on 26/08/2025 due to: sample ID error

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Jack Wallis, Senior Chemist
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water						
Our Reference		389035-1	389035-2	389035-3	389035-5	389035-6
Your Reference	UNITS	BH101	BH103	BH207	TB	TS
Depth		5	5	5	-	-
Date Sampled		20/08/2025	20/08/2025	20/08/2025	20/08/2025	20/08/2025
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	22/08/2025	22/08/2025	22/08/2025	22/08/2025	22/08/2025
Date analysed	-	25/08/2025	25/08/2025	25/08/2025	25/08/2025	25/08/2025
TRH C_6 - C_9	µg/L	<10	<10	<10	[NA]	[NA]
TRH C_6 - C_{10}	µg/L	<10	<10	<10	[NA]	[NA]
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	[NA]	[NA]
Benzene	µg/L	<1	<1	<1	<1	109%
Toluene	µg/L	<1	<1	<1	<1	107%
Ethylbenzene	µg/L	<1	<1	<1	<1	107%
m+p-xylene	µg/L	<2	<2	<2	<2	103%
o-xylene	µg/L	<1	<1	<1	<1	106%
Naphthalene	µg/L	<1	<1	<1	[NA]	[NA]
Surrogate Dibromofluoromethane	%	104	103	102	101	106
Surrogate Toluene-d8	%	98	98	98	99	102
Surrogate 4-Bromofluorobenzene	%	103	102	102	103	101

svTRH (C10-C40) in Water				
Our Reference		389035-1	389035-2	389035-3
Your Reference	UNITS	BH101	BH103	BH207
Depth		5	5	5
Date Sampled		20/08/2025	20/08/2025	20/08/2025
Type of sample		Water	Water	Water
Date extracted	-	22/08/2025	22/08/2025	22/08/2025
Date analysed	-	22/08/2025	22/08/2025	23/08/2025
TRH C_{10} - C_{14}	µg/L	97	<50	<50
TRH C_{15} - C_{28}	µg/L	130	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	230	<50	<50
TRH >C_{10} - C_{16}	µg/L	140	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	140	<50	<50
TRH >C_{16} - C_{34}	µg/L	110	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	240	<50	<50
Surrogate o-Terphenyl	%	81	90	91

PAHs in Water					
Our Reference		389035-1	389035-2	389035-3	389035-4
Your Reference	UNITS	BH101	BH103	BH207	BD20250820
Depth		5	5	5	-
Date Sampled		20/08/2025	20/08/2025	20/08/2025	20/08/2025
Type of sample		Water	Water	Water	Water
Date extracted	-	22/08/2025	22/08/2025	22/08/2025	22/08/2025
Date analysed	-	25/08/2025	25/08/2025	25/08/2025	25/08/2025
Naphthalene	µg/L	0.2	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	0.16	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	78	87	77	89

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			22/08/2025	2	22/08/2025	25/08/2025		22/08/2025	[NT]
Date analysed	-			25/08/2025	2	25/08/2025	26/08/2025		25/08/2025	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	2	<10	<10	0	99	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	2	<10	<10	0	99	[NT]
Benzene	µg/L	1	Org-023	<1	2	<1	<1	0	96	[NT]
Toluene	µg/L	1	Org-023	<1	2	<1	<1	0	98	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	2	<1	<1	0	99	[NT]
m+p-xylene	µg/L	2	Org-023	<2	2	<2	<2	0	100	[NT]
o-xylene	µg/L	1	Org-023	<1	2	<1	<1	0	99	[NT]
Naphthalene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	101	2	103	101	2	98	[NT]
Surrogate Toluene-d8	%		Org-023	98	2	98	98	0	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	101	2	102	104	2	100	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			22/08/2025	[NT]	[NT]	[NT]	[NT]	22/08/2025	[NT]
Date analysed	-			22/08/2025	[NT]	[NT]	[NT]	[NT]	22/08/2025	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	112	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	117	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	112	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	117	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	75	[NT]	[NT]	[NT]	[NT]	119	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W5	[NT]
Date extracted	-			22/08/2025	[NT]	[NT]	[NT]	[NT]	22/08/2025	[NT]
Date analysed	-			25/08/2025	[NT]	[NT]	[NT]	[NT]	25/08/2025	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	82	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	71	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	71	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	82	[NT]
Anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	79	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	85	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	66	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	68	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	84	[NT]	[NT]	[NT]	[NT]	89	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

For Dust Deposit Gauge (DDG) analysis the sampling, sampling period and funnel exposure area do not fall under Envirolab's NATA accreditation (unless the Newcastle laboratory where responsible for the sampling), hence the annotation on the DDG units of reporting.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

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CERTIFICATE OF ANALYSIS 389035-A

Client Details

Client	Douglas Partners Pty Ltd
Attention	Nerilee Edwards
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**225008.02 Camperdown**
Number of Samples	Additional analysis
Date samples received	21/08/2025
Date completed instructions received	26/08/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client unless as indicated below in the method summaries. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	02/09/2025
Date of Issue	29/08/2025

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Results Approved By
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

svTRH (C10-C40) in Water NEPM Silica gel		
Our Reference		389035-A-1
Your Reference	UNITS	BH101
Depth		5
Date Sampled		20/08/2025
Type of sample		Water
Date extracted	-	28/08/2025
Date analysed	-	28/08/2025
TRH (Silica) C_{10} - C_{14}	µg/L	<50
TRH (Silica) C_{15} - C_{28}	µg/L	<100
TRH (Silica) C_{29} - C_{36}	µg/L	<100
TRH (Silica) >C_{10} - C_{16}	µg/L	<50
TRH (Silica) >C_{16} - C_{34}	µg/L	<100
TRH (Silica) >C_{34} - C_{40}	µg/L	<100
Surrogate 1-Chlorooctadecane	%	115

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.

QUALITY CONTROL: svTRH (C10-C40) in Water NEPM Silica gel					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			28/08/2025	[NT]	[NT]	[NT]	[NT]	28/08/2025	[NT]
Date analysed	-			28/08/2025	[NT]	[NT]	[NT]	[NT]	28/08/2025	[NT]
TRH (Silica) C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	119	[NT]
TRH (Silica) C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	117	[NT]
TRH (Silica) C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH (Silica) >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	119	[NT]
TRH (Silica) >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	117	[NT]
TRH (Silica) >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
Surrogate 1-Chlorooctadecane	%		Org-020	85	[NT]	[NT]	[NT]	[NT]	94	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
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Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

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Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

For Dust Deposit Gauge (DDG) analysis the sampling, sampling period and funnel exposure area do not fall under Envirolab's NATA accreditation (unless the Newcastle laboratory where responsible for the sampling), hence the annotation on the DDG units of reporting.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

Appendix G

Discharge Criteria

1. Introduction

The discharge criteria have been selected based on the potential risks posed from discharge of water via the preferred method (ie. stormwater). The receptors and exposure review is summarised in Table 1.

Table 1: Summary of potential receptors and exposure risks

Receptor	Location	Exposure point	Exposure
Surface water aquatic ecosystem	Down-gradient from site.	Receiving surface water body at the stormwater discharge point.	Exposure to contaminants and physical and chemical stressors.

The rationale for the selection of discharge criteria is provided in Table 2.

Table 2: Discharge criteria rationale

Receptor / beneficial use	Source	Comments / rationale
Aquatic ecosystem	ANZG (2018)	Fresh water - slightly to moderately disturbed system • 99% LOP for bioaccumulative contaminants • 95% LOP for non-bioaccumulative contaminants
Aquatic ecosystem	HEPA (2025)	Freshwater 95% LOP for moderately disturbed ecosystems Screening values were only available for PFOS and PFOA at the time of this investigation. Only PFOA values adopted, as more recent DGV for PFOS has been issued by ANZG (2018). • 99% LOP for bioaccumulative contaminants
Aquatic ecosystem	ANZECC (2000)	Guidance for pH for lowland rivers

Notes:
% LOP percentage level of protection of species

Note, no discharge criteria have been developed for TSS or nutrients as these are addressed by the University of Sydney based on their overarching obligations for stormwater management to the City of Sydney.

2. Discharge criteria

The default guideline values (DGV) (in the absence of ecosystem specific data) for the protection of aquatic ecosystems derived from ANZG (2018) are in Table 3.

Table 3: Protection of aquatic ecosystems (µg/L)

Contaminant	Freshwater DGV 95% LOP	Notes
Metals / metalloids		
Arsenic	24 / 13	Levels provided for As III / As IV respectively. Moderate reliability.
Cadmium	0.2	Very high reliability.
Chromium (VI)	1	Chromium VI levels adopted as initial screen for total chromium. Very high reliability.
Copper	1.4	Very high reliability.
Lead	3.4	Moderate reliability.
Manganese	1900	Moderate reliability.
Mercury (inorganic)	0.06	99% LOP adopted as recommended due to potential for bioaccumulation. Moderate reliability.
Nickel	11	Low reliability.
Zinc	8	Very high reliability.
BTEX		
Benzene	950	Moderate reliability.
Ethylbenzene	80	Unknown reliability.
m-Xylene	75	Unknown reliability.
o-xylene	350	Low reliability.
p-Xylene	200	Low reliability.
Toluene	180	Unknown reliability.
PAH		
Anthracene	0.01	99% LOP adopted as recommended due to potential for bioaccumulation. Unknown reliability.
Benzo(a)pyrene	0.1	99% LOP adopted as recommended due to potential for bioaccumulation. Unknown reliability.
Fluoranthene	1	99% LOP adopted as recommended due to potential for bioaccumulation. Unknown reliability.
Naphthalene	16	Low reliability.
Phenanthrene	0.6	99% LOP adopted as recommended due to potential for bioaccumulation. Unknown reliability.
Phenols		
Phenol	320	Moderate reliability.

Contaminant	Freshwater DGV 95% LOP	Notes
Pentachlorophenol	3.6	99% LOP adopted as recommended due to potential for bioaccumulation. Moderate reliability.
2,4,6-Trichlorophenol	3	99% LOP adopted as recommended due to potential for bioaccumulation. Moderate reliability.
OCP		
Aldrin	0.001	Unknown reliability and LOP.
Chlordane	0.03	99% LOP adopted as recommended due to potential for bioaccumulation. Moderate reliability.
DDT	0.006	99% LOP adopted as recommended due to potential for bioaccumulation. Moderate reliability.
Dieldrin	0.01	Unknown reliability and LOP.
Endosulfan	0.03	99% LOP adopted as recommended due to potential for bioaccumulation. Moderate reliability.
Endrin	0.01	99% LOP adopted as recommended due to potential for bioaccumulation. Moderate reliability.
Heptachlor	0.01	99% LOP adopted as recommended due to potential for bioaccumulation. Moderate reliability.
Methoxychlor	0.005	Unknown reliability and LOP.
OPP		
Chlorpyrifos	0.01	Moderate reliability.
Diazinon	0.01	Moderate reliability.
Dimethoate	0.15	Low reliability.
Fenitrothion	0.2	Moderate reliability.
Malathion	0.05	Moderate reliability.
Parathion	0.004	Moderate reliability.
PCB		
Aroclor 1242	0.3	99% LOP adopted as recommended due to potential for bioaccumulation. Low reliability.
Aroclor 1254	0.01	99% LOP adopted as recommended due to potential for bioaccumulation. Moderate reliability.
VOC		
Tetrachloroethene (PCE)	70	Unknown reliability.
Trichloroethene (TCE)	330	Unknown reliability.

Contaminant	Freshwater DGV 95% LOP	Notes
cis-1,2-dichloroethene (DCE)	700	Unknown reliability.
Chloroethene (vinyl chloride / VC)	100	Unknown reliability.
Tetrachloromethane (carbon tetrachloride / CT)	240	Unknown reliability.
Trichloromethane (chloroform / TCM)	370	99% LOP adopted as recommended to protect key species from chronic toxicity. Unknown reliability.
1,1,1-trichloroethane	270	Unknown reliability.
1,1,2,2-tetrachloroethane	400	Unknown reliability.
1,1,2-trichloroethane	1900	Very low reliability.
1,1,2-trichloroethylene	330	Unknown reliability.
1,1-Dichloroethylene	700	Unknown reliability.
1,2,4-trichlorobenzene	85	99% LOP adopted as recommended to protect key species from chronic toxicity. Moderate reliability.
1,2-dichloroethane	1900	Unknown reliability.
1,2-dichloropropane	900	Unknown reliability.
1,3-dichloropropane	1100	Unknown reliability.
Isopropylbenzene (cumene)	30	Unknown reliability.
Monochlorobenzene	55	Unknown reliability.
Pentachloroethane	80	Unknown reliability.
Inorganics		
Ammonia	900	Very high reliability.

Notes: 95% LOP for non-bioaccumulative contaminants
99% LOP for bioaccumulative contaminants

The DGV (in the absence of ecosystem specific data) for the protection of aquatic ecosystems derived from ANZG (2018) or HEPA (2025) (as denoted) are in Table 4.

Table 4: Protection of aquatic ecosystems (µg/L) - PFAS

Contaminant / LOP	Freshwater DGV
PFOS 99% LOP (ANZG, 2018)	0.02
PFOA 99% LOP (HEPA, 2025)	19

Reference levels for physical and chemical stressors derived from ANZECC (2000) for slightly disturbed systems, or other sources as quoted, are provided in Table 5. Levels given here are based on expected ambient ranges for natural and slightly disturbed ecosystems and may, or may not be, relevant to actual conditions in the subject receiving environment. The footnotes to the table provide overarching guidance on the objectives for the actual receiving environment.

Note: ANZECC 2000 has been superseded. As such whilst it has been referenced for analytes which have no other endorsed guideline levels, the criteria are of variable quality and are considered to be reference values only. In particular values for some nitrogen compounds are considered to be of low reliability and superseded by ANZG (2018).

Table 5: Physical and chemical stressors (µg/L) [1]

Stressor	Units	South East Australia - Lowland River (East flowing)
pH [2]	pH units	6.5 - 8

Notes:
1. Sourced from ANZECC (2000) Table 3.3.2 and 3.3.3 values for south east Australia (NSW)
2. Increase or decrease in pH can be a stressor, and the overarching objective is not to significantly change the pH in the receiving waters.

In the absence of high reliability guidance for total petroleum hydrocarbons (TPH), where TPH or total recoverable hydrocarbons (TRH) (tested to screen for TPH) are recorded above the laboratory practical quantitation limit (PQL) the Environmental Consultant will assess the significance of the detection with respect to potential risk to the receiving waters ecosystem. This may include consideration of:

- What substances or compounds the recorded TPH/TRH may be recording.
- The presence of sheen, odours or other signs of gross contamination (no signs of gross contamination should be present in discharged water. Note oil and grease results above 10 mg/L are generally considered to be indicative of likely presence of gross contamination).
- The sensitivity of the receiving environment.
- Reference levels, such as the Airports (Environment Protection) Regulations (1997).

3. References

ANZECC. (2000). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.* Australia and New Zealand Environment and Conservation Council.

ANZG. (2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.* Canberra, ACT: Australian and New Zealand Governments and Australian state and territory governments.

AUS Government. (1997). *Airports (Environment Protection) Regulations.* Canberra: Office of Legislative Drafting, Attorney-General's Department.

HEPA. (2025). *PFAS National Environmental Management Plan (NEMP).* Version 3.0: Heads of EPAs Australia and New Zealand.

Landcom. (2004). *Managing Urban Stormwater: Soils and Construction, Volume 1 ("Blue Book").* 4th Edition, March 2004: Landcom, New South Wales Government.

Warne, M., Batley, G., van Dam, R., Chapman, J., Fox, D., Hickey, C., & Stauber, J. (2018). *Revised Method for Deriving Australian and New Zealand Water Quality Guideline Values for Toxicants.* Canberra: Australian Government Department of Agriculture and Water Resources.

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Project Management Plan

Managing FDC's Safety, Quality and Environmental requirements

USYD A01 – Ross Street Teaching & Learning Hub

Project Number:	250215
Project Address:	Cnr Western Ave & Science Rd, Camperdown NSW 2050
Client:	University Of Sydney
Principal Contractor:	FDC Construction NSW 22-24 Junction Street, Forest Lodge NSW 2037

Acknowledgement of Country

This project is being undertaken on Gadigal people of the Eora Nation land.



FDC are proud to acknowledge the Traditional Custodians of the land on which this project is located, and their connections to land, sea and community.

We pay our respects to their elders past and present and extend that respect to all Aboriginal and Torres Strait Islander people and all Aboriginal and Torres Strait Islander workers on this project.

FDC Commitment

"FDC are committed to a reconciled, just and equitable Australia"
(FDC Reconciliation Action Plan)

By these acknowledgements and other actions, FDC will continue to do all we can to contribute to improving the lives and communities of our First Nations People.

Table of Contents

INTRODUCTION 6

1.1 PROJECT MANAGEMENT PLAN 7

1.2 PLAN REVIEW AND APPROVAL 8

1.3 POLICIES 8

1.4 ROLES AND RESPONSIBILITIES 8

1.5 PROJECT SCOPE 9

1.6 OBJECTIVES AND TARGETS 10

QUALITY 11

2.1 LEGAL AND OTHER REQUIREMENTS 12

2.2 DOCUMENT CONTROL AND RECORDS MANAGEMENT 12

2.3 TRAINING 13

2.4 CONTRACT REQUIREMENTS 15

2.5 PROJECT ADMINISTRATION 16

2.6 REQUEST FOR INFORMATION AND INSTRUCTION 17

2.7 VARIATIONS, COMMERCIAL CONTROLS, MATERIALS AND HANDOVER 17

2.8 PROCUREMENT – SUBCONTRACTORS AND SUPPLIERS 19

2.9 DESIGN MANAGEMENT 20

2.10 SITE ESTABLISHMENT 21

2.11 EMERGENCY PREPAREDNESS AND RESPONSE 22

2.12 MEETINGS 23

2.13 MONITORING 25

2.14 NON-CONFORMANCE 26

2.15 REPORTING 26

2.16 INCIDENT MANAGEMENT 28

2.17 STAKEHOLDER COMMUNICATION 29

WORK, HEALTH and SAFETY 31
3.1 RISK MANAGEMENT 32
3.2 SAFE WORK METHOD STATEMENTS (SWMS) 34
3.3 CONSULTATION 34
3.4 DISPUTE RESOLUTION 37
3.5 INJURY MANAGEMENT 38
3.6 HAZARDOUS CHEMICALS 39
3.7 HAZARDOUS MANUAL TASKS 39
3.8 CONCRETE CUTTING – CORE HOLES 40
3.9 HOT WORKS 40
3.10 HIGH RISK CONSTRUCTION WORK 41
3.11 ASBESTOS 42
3.12 CONFINED SPACE 47
3.13 DEMOLITION 48
3.14 ELECTRICAL 50
3.15 EXCAVATION 52
3.16 FORMWORK 55
3.17 EXPOSURE MONITORING 56
3.18 HEALTH SURVEILLANCE 58
3.19 MOBILE PLANT 60
3.20 SCAFFOLD 63
3.21 STRUCTURAL STEEL 65
3.22 TILT-UP / PRECAST CONCRETE 67
3.23 TRAFFIC 68
3.24 WORKING AT HEIGHTS 70
3.25 PERSONAL PROTECTIVE EQUIPMENT (PPE) 72
3.26 HOT AND COLD WORK ENVIRONMENTS 72
3.27 PSYCHOSOCIAL HAZARDS 73
3.28 CRYSTALLINE SILICA (SILICA) 74

ENVIRONMENTAL 77

4.1 ENVIRONMENTAL ASPECTS AND IMPACTS 78

4.2 LICENSES AND APPROVALS 78

4.3 CONTAMINATED SITE MANAGEMENT 79

4.4 ENVIRONMENTAL RATING TOOLS 79

4.5 ECOLOGICALLY SUSTAINABLE DEVELOPMENT (ESD) and WHOLE OF LIFE (WOL) MANAGEMENT PLAN 80

APPENDIX A – Key Policies 81

APPENDIX B – Project Organisation Chart 82

APPENDIX C – Revision Table 83

INTRODUCTION

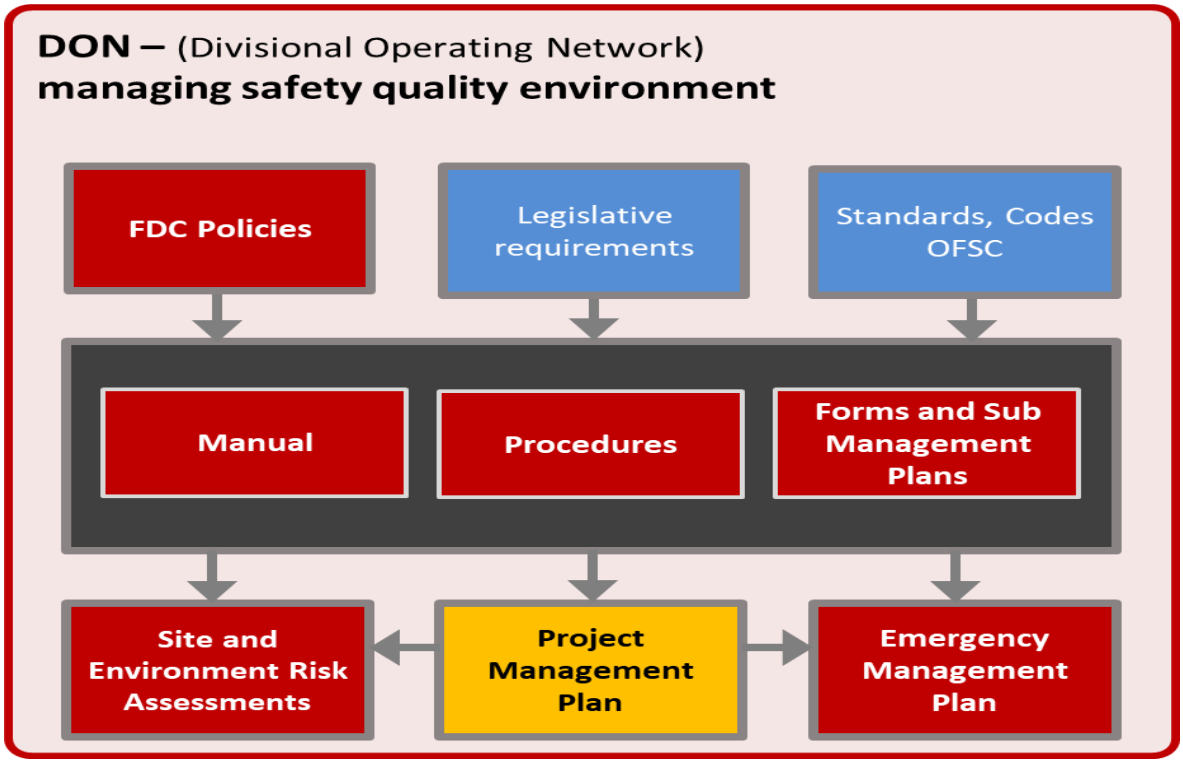
1.1 PROJECT MANAGEMENT PLAN

This Project Management Plan (PMP) has been developed in accordance with FDC's integrated management system and sets out project responsibilities to meet health, safety, quality, and environmental requirements. The PMP enables safe project delivery in accordance with client requirements and without harm to the environment or the community.

The PMP links with the site and environmental risk assessment to identify workplace hazards and environmental aspects and develop appropriate control measures to eliminate or reduce potential risks.

Documents referenced in the PMP are available to FDC workers via the Vault > Manage My Project. Software platforms including SIMPEL and PROCORE assist with system implementation. Templates shall not be downloaded or stored locally, as only current versions are maintained centrally. Updates to system documents are communicated through system improvement summary alerts to Divisional HSEQ representatives and project teams.

The PMP aligns with FDC's management system that is third-party certified to ISO 9001, ISO 14001, and ISO 45001, and accredited under the OFSC Accreditation Scheme. FDC's Divisional Operating Network (DON) integrates FDC's health, safety, quality and environmental requirements and external requirements as illustrated below:



1.2 PLAN REVIEW AND APPROVAL

The Project Manager is responsible for preparing the PMP in consultation with the project team. The PMP shall be uploaded to **SIMPEL > Safety > SWMS/Safety Plan** and approved by the General Manager and HSEQ Manager before initial issue or revision. Once approved, it is issued to the project team to confirm they have read, understood, and will comply with its requirements.

The PMP shall be accessible on site, provided to stakeholders on request, and issued to subcontractors with the Site Risk Assessment before they commence work.

The PMP is a live document and shall be reviewed during monthly site audits to ensure it remains suitable. Changes resulting from other audits, reviews, meetings, incidents, inspections or changed conditions shall be made in consultation with Divisional HSEQ and reissued following the original approval process. The Project Manager shall be responsible for communicating revisions to document holders via project correspondence.

1.3 POLICIES

FDC's WHS, Quality and Environmental policies communicate FDC's commitment to safe project delivery in accordance with client requirements and without harm to the environment or the community are included in Appendix A and available on site. Additional policies are available on the FDC Intranet – The Vault and include:

- Code of Conduct and Ethics
- Equal Employment Opportunity
- Unexpected Finds Protocol
- Subcontractor Payment Administration
- Indigenous Participation Policy
- Drug and Alcohol Policy
- Fatigue Policy
- Hot and Cold Policy
- Industrial Relations
- Return to Work Policy
- Young, Inexperienced Workers Policy
- Training Management Policy
- Travel Policy
- FDC Group Motor Vehicle Policy
- Whistleblower Policy
- Modern Slavery

1.4 ROLES AND RESPONSIBILITIES

General employee roles and responsibilities are defined in individual position descriptions. This PMP outlines project specific requirements and responsibilities in line with the DON and the Training and Experience Register (F024). The Project Manager has overall responsibility and authority for implementing the PMP.

1.5 PROJECT SCOPE

The Ross Street Teaching and Learning Hub Project involves the construction of a five-storey university teaching facility (Building A01) with an approximate gross floor area of 6,913 m². The building is designed to provide flexible, future-ready learning spaces that support all faculties and enhance student engagement across the campus.

The works include the construction of Building A01, associated earthworks, public domain upgrades, traffic and pedestrian access improvements, landscaping works, and supporting infrastructure. Public realm improvements will incorporate a new open plaza, food and beverage facilities, outdoor seating, pedestrian pathways, and soft landscaping to create an active and accessible campus environment.

The project also includes demolition and modification works, comprising the removal of existing structures, including the Western Avenue guard house, the removal of 22 existing trees, create discrete openings in the fence per HNSW requirements along Parramatta Road, and the relocation and refurbishment of the Ross Street entrance stone pillars. The project will also improve both pedestrian and vehicular access at the Ross Street entrance to the Camperdown Campus, as well as traffic management along Science Road. These works will include a new pedestrian accessway between Building A01 and the A02 Social Sciences Building, providing a direct connection to Parramatta Road, and the provision of a new University shuttle bus drop-off point to enhance pedestrian circulation and safety.



1.6 OBJECTIVES AND TARGETS

Project objectives and targets reflect FDC targets and objectives that are established, reported, monitored, and reviewed annually for suitability and adequacy in accordance with the HSEQ Strategic Framework and company policies. The Project Manager shall be responsible for measuring performance against these targets and reporting to Divisional management through the Project Monthly HSEQ Report (F090). Project specific objectives and targets can be added where appropriate.

TABLE 1 – OBJECTIVES AND TARGETS

Objective	Target	Measure
Quality		
Project Planning Identify and manage project requirements	▪ Develop and implement a Project Management Plan before works commence	▪ Approved Project Management Plan
Quality performance and compliance Monitor compliance with requirements and specifications	▪ Review risks, hold points and inspection requirements before works commencing ▪ Monitor identified inspections and hold points as work packages progresses	▪ Completed inspection and test plans and checklists ▪ Closed Tasks within nominated timeframes
Project Review Monitor the implementation and effectiveness of the Project Management Plan	▪ Project Manager to conduct and document a monthly review of Project Management Plan implementation	▪ Monthly Site Audit ▪ Closed Tasks within nominated timeframes
Safety		
Risk Management Identify project activities and potential hazards	▪ Develop and implement the Site Risk Assessment before works commence	▪ Approved Site Risk Assessment
WHS consultation and engagement Ensure workers are consulted and understand site hazards, controls and safety requirements	▪ Complete site induction for 100% of workers and visitors before commencing work ▪ Conduct at least one toolbox talk per week ▪ Conduct a Weekly Site Inspection	▪ Induction records ▪ Toolbox attendance records ▪ Closed Tasks within nominated timeframes
Hazard Identification and worker participation Encourage worker involvement in identifying and managing workplace hazards	▪ Conduct observation of safe system of work including SWMS	▪ Task Observations ▪ Closed Tasks within nominated timeframes
Environment		
Environmental Planning Identify and manage environmental aspects and impacts	▪ Develop and implement the environmental risk assessment before commencing works	▪ Approved Environmental Risk Assessment
Waste Management Manage waste through consultation and planning	▪ Achieve 90% waste diversion from landfill through recycling and reuse ▪ Monitor performance monthly with project teams and subcontractors.	▪ Recycling and waste disposal reports ▪ Weekly Site Inspections
Pollution Prevention and Environmental Protection Prevent incidents and minimise impacts on the surrounding environment and community	▪ Deliver project without significant environmental incidents resulting in regulatory action, notices, or fines throughout the project	▪ Complete 100% of scheduled environmental inspections and erosion/sediment control checks ▪ Closed Tasks within nominated timeframes

QUALITY

2.1 LEGAL AND OTHER REQUIREMENTS

Section	Requirements	Responsibility	Tools
2.1.1	The legal and other requirements (including Legislation, Australian Standards, Codes of Practice and guidelines) are identified in the Legal Register in accordance with Cor-4.2-003 Legal and Other Requirements. The Legal Register shall be made project specific, considering client requirements, local government requirements, and relevant licences or permits. Remove any legislation, standards, codes, or other requirements that do not apply, and add any contract-specific legal or other requirements. The register shall assist determine appropriate controls for potential hazards in accordance with site safety and environmental risk assessments. Request for access to legal requirements shall be made to the FDC team.	Project Manager	Legal Register G11
2.1.2	Changes to the legal register, or the management system, due to legal changes shall be communicated to project teams. Project teams shall be responsible for communicating changes on site using prestart / toolbox meetings, Subcontractor Meetings, or other correspondence. Review of project plans, risk assessments, SWMS and other documents shall be conducted to determine if changes are required due to legal changes.	Project Manager	Legal Register G11
2.1.3	Potential system changes resulting from legal changes shall be documented via Systems Change Request and assessed by the National HSEQ Systems Manager.	Divisional HSEQ	Systems Change Request F056.
2.1.4	*NSW Projects Only:* FDC and its subcontractors shall comply with the requirements of the New South Wales Industrial Relations Guidelines: Building and Construction Procurement 2017. The CCU are responsible for monitoring the implementation of the Guidelines and may visit site to confirm and assist implementation.	Project Manager	DON > FDC Guidance

2.2 DOCUMENT CONTROL AND RECORDS MANAGEMENT

Section	Requirements	Responsibility	Tools
2.2.1	Aconex, Beakon & Simpel shall be used to communicate and manage the project including: ▪ Specifications ▪ Drawings ▪ Transmittals of design documentation for review / approvals ▪ Shop Drawing Review ▪ Claims and other commercial correspondence	Project Manager	Transmittal – Platform (e.g. SIMPEL, Beakon CSMS)

2.2.2	**Filing Structure** The platforms nominated above shall be used to file electronic records. Where electronic records are generated outside of these platforms, records shall be filed in accordance with Project Filing Guides located at The DON > DON Policy and Procedures > 6 – Guidance. Hardcopy files shall follow the same structure.	Project Manager	Project Filing Guides.
2.2.3	**Archiving** Project records, including those related to PMP implementation, shall be kept in electronic or hardcopy format. At project completion, hardcopy records shall be archived for at least 10 years, unless stated otherwise. Electronic records are backed up daily and archived by FDC ICT Department at project completion and retained for at least 10 years, unless noted otherwise. The PMP, Site Risk Assessment, Environmental Risk Assessment, and Emergency Management Plan in place at the time of a notifiable incident shall be kept and easily accessible for at least 2 years after the incident.	Project Manager	Cor-4.2-002 Records

2.3 TRAINING

2.3.1 Training and Experience Register

Section	Requirements	Responsibility	Tools
2.3.1.1	**Training and Experience Register** identifies minimum training requirements for positions and provides a record of individual's training and qualifications. Training requirements are reviewed throughout the project when there's a change in project resources, where a skill gap has been identified, or as required by the Project Manager. The register is available through Divisional Management. Additional training for workers shall be arranged with Divisional management where there's a change in project resources, promotion, where a skill gap has been identified, or where unforeseen or special training skills have been identified (e.g. High risk licence, Confined Space, Working at Heights etc.), to ensure appropriate training and qualifications are gained. Copies of training documentation (certificates, statements of attainment and induction record forms) shall be held in the Personnel files.	Project Manager	Training and Experience Register F024

2.3.2 Site Specific Induction

Section	Requirements	Responsibility	Tools
2.3.2.1	FDC site management shall use the Site Induction on SIMPEL to induct workers into site specific requirements and site rules. Officials, delegates, or other representatives of a building association shall not conduct site inductions.	Site Manager	SIMPEL Site Induction-Site Rules F018
2.3.2.2	Workers shall complete a site-specific induction before starting work on site. Photo identification and evidence of a valid Construction Industry Induction Card (e.g. White Card/Blue Card) shall be recorded in SIMPEL. Task-specific training, qualifications, or licences required to perform work or operate plant or equipment shall be recorded at induction. Where, copies	Project Manager	SIMPEL Site Induction-Site Rules F018

	of certification cannot be obtained, the person conducting the induction shall sight the documents, note this on the induction form, and record the relevant details.		
2.3.2.3	Workers who have limited English proficiency shall have a translator provided by their employer to ensure the site induction content is clearly understood.	Project Manager	SIMPEL Site Induction-Site Rules F018
2.3.2.4	Visitors shall sign in and be advised of relevant site-specific information and always be accompanied by an inducted worker. Visitors are not permitted to performing high risk construction work.	Site Manager	Visitor – SIMPEL; Site Sign In
2.3.2.5	FDC shall ensure the security of completed site inductions by a secure and lockable location and use of computer access / passwords to prevent misuse, interference or loss, unauthorised access, modification, or disclosure of information.	Site Manager	SIMPEL Site Induction-Site Rules F018
2.3.2.6	All contractors required to do USYD 'Contractor online Induction' in accordance with to UI/COS Contractor Handbook section 2.4 Induction and Location-Specific Inductions After completing the Contractor Online Induction, you may be eligible for a University of Sydney Contractor ID card (photo ID required at collection). UI contractors • ID card is only required if building access is needed. • Steps: 1) Submit an Access Request permit via CSMS. 2) Once approved, collect your ID card from the G12 Front Desk – bring photo ID, CSMS permit parent and child numbers, and the RUS's name. While on campus you must, on demand, show proof of induction: either your Contractor ID card or compliance status on CSMS. Card validity: 3 years from date of issue.	Site Manager	UI/COS Contractor Handbook, CSMS Beakon, Online Induction

2.3.3 Work Activity Training

Section	Requirements	Responsibility	Tools
2.3.3.1	Workers shall complete work activity training before starting tasks. This includes being inducted into and signing relevant SWMS and safe operating procedures for high risk work. Training can be provided through toolbox talks, SWMS, procedures, instruction, or a combination of these.	Site Manager	SWMS; Toolbox Site Induction-Site Rules F018.

2.3.4 High Risk Work Licences

Section	Requirements	Responsibility	Tools
2.3.4.1	Workers performing high risk work including scaffolding, dogging, rigging, operating cranes, hoists reach stackers, forklifts and pressure equipment shall have a high risk work licence. Licences for works in these categories shall be verified and recorded during the site induction process. Further guidance on tickets and licences is available through G012 Plant and Equipment Competency and Inspection Schedule.	Site Manager	Site Induction-Site Rules F018. SW

2.3.5 Young and Inexperienced Workers

Section	Requirements	Responsibility	Tools
2.3.5.1	FDC is committed to ensuring that young and inexperienced workers are identified and provided the required training, instruction, and supervision to be able to work safely, and identify potential hazards that may affect health and safety. ▪ A young worker is an apprentice or construction worker under 24. ▪ An inexperienced worker is a construction worker with less than two years in the construction industry.	Project Manager	Young Worker Policy
2.3.5.2	The site induction identifies young and inexperienced workers and assesses their competency, supervision, and training needs with the nominated supervisor and an FDC representative. Where a worker is not yet deemed competent, a Young / Inexperienced Worker Management Plan is developed during induction and approved by the worker's supervisor. Consideration should be given to appropriately identifying workers on site such as by issuing an alternative vest, hard hat, or similar, where it would assist in recognising those who are young or inexperienced and support their safety.	Project Manager	Site Induction – Site Rule F018; Young / Inexperienced Workers Management Plan F025

2.4 CONTRACT REQUIREMENTS

Section	Requirements	Responsibility	Tools
2.4.1	Start-up requirements ▪ Review the contract, preliminaries and trade specifications and create a list of required submissions, hold points, witness points, tests and warranties. Responsibilities for tracking each item and where evidence will be filed shall be established.	Project Manager	Procurement Start-up 7.5-001, Head Contract Admin 7.5-004, ITP's
2.4.2	Program control ▪ Monitor the latest approved program and record and control program revisions. ▪ Use the program to identify upcoming inspections, submissions and handover requirements.	Project Manager	Program; Procurement Start-up 7.5-001
2.4.3	Certifier and approvals ▪ Contact the Principal Certifying Authority early after award and confirm agree mandatory inspections and timing. Construction Certificate / Building Permit and approved plans shall be maintained and available. ▪ Before taking over a site with preliminary works completed by others, confirm required inspections have been completed.	Project Manager	Certificates and Correspondence
2.4.4	Completion checklist ▪ Plan for project completion and add relevant items needed for practical completion and occupation certification. ▪ Review and update the checklists as the project progresses.	Project Manager	Practical Completion / Occupation Certificate Checklist F099

2.5 PROJECT ADMINISTRATION

Section	Requirements	Responsibility	Tools
2.5.1	Daily records ▪ Maintain the Site Diary daily to record site activities including delays, directions, site events, labour, plant, weather and issues that may support claims. Review diary entries for possible EOTs, variations or other contractual claims.	Project Manager	SIMPEL > Safety > Site Diary
2.5.2	Samples ▪ Identify and register all samples and technical submissions and maintain throughout delivery. ▪ Track approval status, dates and comments and record approvals from meetings, email or collaboration tools.	Project Manager	Sample Submission Register F085
2.5.3	Technical submissions ▪ Register samples, technical data, shop drawings and builder sketches. Submissions shall be identified, date submitted and approval status. ▪ Approvals shall be recorded during the project.	Project Manager	Sample Submission Register F085
2.5.4	Dilapidation reports ▪ Prepare a dilapidation report at project start-up for relevant structures and adjoining areas and issue to the client and other stakeholders as requested. ▪ Repeat the report at project completion and report any differences to the client.	Project Manager	Dilapidation Report
2.5.5	ITPs and inspections ▪ Identify key trades, stages and inspection and testing requirements and confirm what will be inspected, how, when, by whom and against what standard. Include relevant WHS risks, hold points, witness points, tests and sign-off points. ▪ Register ITPs, have them approved, complete them progressively and file completed records. ITPs shall be managed through Simpel. Client inspection points ▪ Where the contract requires it, submit ITPs to the client's representative before starting the activity. ▪ Identify client hold and witness points ▪ Update the ITP if extra points are added or non-applicable items are removed. ▪ The University's Build Quality Inspector will be notified of nominated hold points and provided the opportunity to witness inspections in accordance with the project notification requirements.	Project Manager	Refer to DON > DON Policy and Procedures > 6 – Guidance for ITP templates; ITP Register G006.1
2.5.6	Subcontractor ITPs ▪ Obtain subcontractor ITPs before the relevant work starts and check they suit the project and identify critical control points, WHS risks, hold points and witness points. ▪ Verify ITPs are completed correctly and supporting records are available.	Project Manager	ITP's via Simpel

2.5.7	Concrete pours ▪ Record concrete pour locations on a site drawing and maintain records of concrete supply and placement.	Project Manager	Concrete Supply Register F126

2.6 REQUEST FOR INFORMATION AND INSTRUCTION

Section	Requirements	Responsibility	Tools
2.6.1	RFIs ▪ Raise RFIs whenever a trackable response is needed from a consultant, client, client representative or subcontractor. ▪ Register, distribute and file each RFI and record responses and close out when answered.	Project Manager	RFI Register F130
2.6.2	Client and architect instructions ▪ Register client, architect or superintendent instructions when received and record actions required or taken. ▪ Issue related instructions to consultants, suppliers or subcontractors as needed.	Project Manager	Collaboration tool or Site Instruction Register
2.6.3	Site instructions to subcontractors ▪ Use Site Instructions to formally direct subcontractors and keep instructions clear, dated and filed. ▪ Use instructions to manage them for scope changes, performance issues, required actions or pricing requests.	Project Manager	Collaboration tool or Site Instruction Register
2.6.4	Contra charges ▪ Record damage, clean-up, FDC-supplied materials or incomplete subcontractor work in the Site Diary or through site instructions. ▪ Notify the subcontractor in writing before applying a contra charge and attach rectification costs where available and process with the next claim.	Project Manager	Site Diary; Site Instruction; Vista
2.6.5	Extensions of time ▪ Record delay events in the Site Diary and detail in the EOT Register. ▪ Where the contract allows, prepare and submit the delay notice or EOT claim to the client/superintendent.	Project Manager	Collaboration tool or EOT F135; Vista

2.7 VARIATIONS, COMMERCIAL CONTROLS, MATERIALS AND HANDOVER

Section	Requirements	Responsibility	Tools
2.7.1	Variations ▪ Assess FDC and client variations against the Head Contract and obtain subcontractor pricing where needed. ▪ Record variations in the Vista and update approval status.	Project Manager	Vista

2.7.2	Claims and payment disputes ▪ Monitor claims in line with project contract subcontract administration procedure. ▪ Identify disputed amounts and notify the subcontractor within the required timeframe.	Project Manager	Vista
2.7.3	Non-conforming work, products or services ▪ Raise Non-Conformance Reports when work, products or services do not meet specified requirements and monitor and record actions taken. ▪ Quarantine non-conforming materials where required, and record actions taken. ▪ Include non-conformances in monthly reporting.	Project Manager	SIMPEL > eForms > Non-Conformance Report F039; Project Monthly HSEQ Report F090
2.7.4	Purchasing materials ▪ FDC Purchase Order shall include description, delivery details, project details, price, drawing references and WHS requirements. Send the Purchase Order with relevant FDC terms and conditions.	Project Manager	Vista Purchase Order
2.7.5	Deliveries and storage ▪ Deliveries shall be checked against Delivery Dockets and Purchase Orders. ▪ Record discrepancies, quarantine non-conforming goods and resolve issues with the supplier. ▪ Identify materials and securely and protect them from damage or deterioration. ▪ Apply the same controls for purchasing and delivery of client supplied products and services.	Project Manager	Delivery Docket; Purchase Order; Non-Conformance Report F039
2.7.6	Calibration ▪ Identify equipment requiring calibration and maintain calibration in line with manufacturer requirements. ▪ Check subcontractor equipment calibration where relevant and track calibration through the register and relevant ITPs.	Project Manager	SIMPEL > eForms > Calibration Register F080; ITPs
2.7.7	Defects ▪ Maintain a list of defects throughout the project and record defect type, responsible party, date identified and date rectified. Prioritise, track and close defects with subcontractor sign-off. ▪ Engage the client or representative where prototype or standard approval is needed.	Project Manager	Collaboration tool or equivalent Defects List
2.7.8	Project Handover Inspections ▪ Areas shall be cleaned, and a final defects list prepared for the area prior to areas being handed over to the client. This list shall be presented to the Client's representative for review and concurrence. ▪ Any further defects identified by the Client's representative at project handover shall be added to the list. Once the final list has been compiled, FDC shall close out the identified defects as soon as practicable. ▪ Update reports shall be issued to relevant parties until all items are closed out. Once all defects have been closed off, a copy of the completed Defects Lists shall be forwarded to the client for verification/sign-off.	General Manager	Defects List

2.7.9	**Practical Completion** ▪ The Practical Completion / Occupation Certificate Checklist shall be developed based on the Head Contract shall be initiated at a suitable time to assist practical completion. The checklist shall be updated as actions are progressively completed by trades prior to the final inspection occurring. ▪ Maintenance manuals, certificates and as built drawings shall be compiled progressively. ▪ The Project Completion form shall be completed after practical completion and approved by the General Manager. This form ensures our work is documented and can be searched and shared for future reference.	Project Manager	Practical Completion / Occupation Certificate Checklist F099; Project Completion
2.7.10	**Defects Liability Period** ▪ During the Defects Liability Period (DLP), FDC will utilise the University's asset and workflow management system, (Currently Archibus), to schedule and complete all maintenance activities and update the system with a true and accurate record of all maintenance undertaken.	Project Manager	Archibus or equivalent Defects List
2.7.11	**Bank Guarantee/Cash Retentions** Prepare and issue the request for release of Bank Guarantee or Cash Retention when contract requirements are met. A letter requesting the release of the Bank Guarantee or Cash Retention shall be forwarded to the client.	Project Manager	Head Contract Administration procedure 7.5-004

2.8 PROCUREMENT – SUBCONTRACTORS AND SUPPLIERS

Section	Requirements	Responsibility	Tools
2.8.1	The Tender Analysis shall be used to assist the project team's subcontractor procurement and selection. The HSEQ rating system guides the evaluation of subcontractor's suitability as follows: 3 - System accredited to either OFSC, ISO 45001, ISO9001, ISO14001 2 - System not accredited, subcontractor HAS worked with FDC before 1 - System not accredited, subcontractor HAS NOT worked with FDC before 0 - No system in place For subcontractors with a rating less than 2 – in addition to being managed in accordance with the requirements of this plan, further FDC management actions shall be noted on the tender analysis sheet. Actions may include development of safe systems of work, Task Observations, prestart meetings or audits to monitor performance. For subcontractors with a rating greater than 1 - they shall be managed in accordance with the requirements of this plan.	Project Manager	Tender Analysis Sheet F115; Tenders & Quotations 7.2-001
2.8.2	Successful tenders shall be onboarded via SIMPEL to ensure safe systems of work are implemented in accordance with this plan. Details of subcontractor insurances and workers compensation shall be recorded and monitored to ensure they remain valid during the project.	Project Manager	SIMPEL > Manage Project > Project > Organisations
2.8.3	Subcontractor performance shall be monitored to ensure contract requirements are being fulfilled, including compliance with the PMP, Site Risk Assessment and Environmental Risk Assessment.	Project Manager	Refer Monitoring section.

2.8.4	In addition to the above procurement activities, purchased goods and services shall be subject to a risk assessment through activities that include: • Design Management (where applicable) • Hazardous Chemicals; • Risk Management (Site Risk Assessment); • Safe Work Method Statements; and • Environmental Aspects and Impacts (Environmental Risk Assessment).	Project Manager	SWMS; Safety in Design Risk Assessment F008. SIMPEL > eForms > Hazardous Chemical Register F086.

2.9 DESIGN MANAGEMENT

2.9.1 No FDC design input

Section	Requirements	Responsibility	Tools
2.9.1.1	FDC shall request a Safety in Design Risk Assessment (or similar) from the client or consultant. If available, FDC shall review this to identify design related buildability hazards and determine opportunities to eliminate design hazards prior to, during, and post construction. Issues shall be actioned with the client or consultant. Where an assessment is not available FDC shall complete a Safety in Design Risk Assessment in consultation with relevant stakeholders to identify design related buildability hazards and determine opportunities to eliminate design hazards prior to, during, and post construction. The hierarchy of control and applicable legislation, codes of practice and Australian standards shall be used to reduce the potential risk so far as reasonably practicable where hazards are unable to be eliminated. Hazards that cannot be eliminated shall be transferred to the Site Risk Assessment for control during construction.	Project Manager	Safety in Design Risk Assessment F008; Site Risk Assessment F001.

2.9.2 Design and Construct Projects

Section	Requirements	Responsibility	Tools
2.9.2.1	A project specific Design Management Plan addressing design requirements in accordance with procedure Con7.3-001 Design Construct may be developed where required by contract or at the discretion of Divisional management. Where a Design Management Plan is not required, the following requirements shall be applied in accordance with procedure Con7.3-001 Design Construct.	Project Manager	Design Management Plan
2.9.2.2	FDC shall request a Safety in Design Risk Assessment from the client or consultant. Where this is not available, FDC shall undertake the assessment in consultation with relevant stakeholders to identify design-related buildability hazards and opportunities to eliminate risks prior to, during, and after construction. Where hazards cannot be eliminated, the hierarchy of control and relevant legislation, codes of practice, and Australian Standards will be applied to minimise risk so far as reasonably practicable.	Project Manager	Safety in Design Risk Assessment F008; Site Risk Assessment F001

Potential hazards in the design phase shall remain Open until Closed or Transferred. Hazards that cannot be eliminated (or 'Closed') shall be transferred to the Site Risk Assessment for control during construction.

2.9.3 Communicating Design Risk

Section	Requirements	Responsibility	Tools
2.9.3.1	The Safety in Design Risk Assessment shall identify the method for communicating construction related risks. Methodologies include marked up drawings, amended Site Risk Assessment, toolbox/prestart talks, Site Instructions etc.	Project Manager	Safety in Design Risk Assessment F008. SIMPEL > eForms > Toolbox Talk F050.
2.9.3.2	Potential hazards identified through the Safety in Design Risk Assessment that remain after construction shall be communicated to end users of the building by inclusion in the handover documentation/manuals.	Project Manager	Operations Manuals; handover documentation

2.9.4 Design Changes

Section	Requirements	Responsibility	Tools
2.9.4.1	Changes to approved "For Construction" issued drawings/specification shall be identified, documented, and approved prior to use. Changes shall assess impacts in terms of safety against the Safety in Design Risk Assessment and Site Risk Assessment to determine new hazards or changes to existing hazard controls.	Project Manager	Safety in Design Risk Assessment (F008). Site Risk Assessment F001 Drawing/Design Change Register via Aconex
2.9.4.2	Changes that introduce new hazards or involve changes to existing hazard controls shall be communicated to workers through toolbox/prestart meetings or correspondence so that safety documentation can be reviewed and updated as required.	Project Manager	Toolbox / Prestart / Meeting Minutes

2.10 SITE ESTABLISHMENT

Section	Requirements	Responsibility	Tools
2.10.1	The Site Establishment Checklist may assist site and amenities setup in accordance with legal requirements in accordance with Con-7.5-001 Project Start-up.	Project Manager	SIMPEL > eForms > Site Establishment Checklist F002, Amenities Checklist F006

2.10.2	Perimeter fencing, security and amenities shall be installed and inspected through the Weekly Site Inspection, and if damage has occurred, and after adverse weather events. There is a requirement for the temporary fencing to be certified and uploaded as a document for review in CSMS as complying with Australian Standard AS 4687:2022 Temporary fencing and hoarding	Site Manager	SIMPEL > eForms > Weekly Site Inspection F049.
2.10.3	Details of inspections of overhead protection structures and hoardings shall be recorded. An Engineer's Certificate is required for installation and inspection of overhead protection and shall be maintained.	Site Manager	SIMPEL > eForms > Hoarding Inspection Checklist F081.
2.10.4	Signage shall be displayed as required by legislation or as directed by FDC and for any work activity where signage is noted in safety documentation. Signs that seek to vilify or harass employees who participate, or do not participate, in industrial activities shall not be displayed on FDC sites. Building association logos, mottos or indicia shall not be applied to clothing, property or equipment supplied by FDC. Conduct that implies that membership of a building association is anything other than an individual choice for each employee is not permitted.	Site Manager	SIMPEL > eForms > Site Establishment Checklist F002;
2.10.5	In accordance with the Site Risk Assessment, a search of potential services (e.g. gas, electricity, fire, water, sewer, telecommunications, etc.) shall be conducted to prevent a breach of service. Services searches, including walls and slabs, shall be conducted by engaging contractors to complete investigations including: ▪ Electrical Contractors to investigate and complete Electrical Survey and Protection Plan; ▪ Contact Before You Dig Australia (BYDA) byda.com.au; ▪ Look up and live App. ▪ Scans; and ▪ Requesting information from client and relevant stakeholders. This information, including location of temporary lighting, shall be transferred to drawings, be displayed on site, and updated throughout the project. Workers shall be notified of these services through inductions, toolbox/prestart meetings or by other means of communication. This information can be used in completion of permits including the Termination of Services Permit, All Services Isolation Permit, Excavation Permit and Concrete Cutting and Coring permit.	Site Manager	SIMPEL > eForms Electrical Survey and Protection Plan F069; BYDA; Scans; other available information; Site Risk Assessment (F001).

2.11 EMERGENCY PREPAREDNESS AND RESPONSE

Section	Requirements	Responsibility	Tools
2.11.1	The Emergency Management Plan (EMP) shall be prepared to address site specific potential emergency situations and controls. The EMP shall be reviewed for ongoing suitability:	Project Manager	Emergency Management Plan

- during monthly site audits;
- following emergencies or incidents; and
- where there are significant changes to the workplace or workforce.

2.11.2	In the event Emergency Services are contacted, notify University of Sydney Security on 9351 3333 as well as the respective UI representative to inform them of the situation and impending arrival of Emergency Services.	Project Manager	Refer to UI/COS contractor handbook.

2.12 MEETINGS

Section	Requirements	Responsibility	Tools
2.12.1	**Client Meetings** These meetings are initiated by FDC and include the Project Manager, Site Manager and Contracts Administrator to deal with project specific issues as required. FDC shall be responsible for minuting the meeting and distributing to stakeholders. The Project Manager shall be responsible for allocating tasks and to ensure the action has been completed in a timely manner. Evidence that the task has been completed should be noted on the minutes and reported to the client.	Project Manager	Meeting Minutes
2.12.2	**Project Control Group** The monthly Project Control Group (PCG) involves major stakeholders in the project and are run by the client. The Project Manager shall prepare a Project Report for submission to the PCG meeting and attend meetings on behalf of FDC.	Project Manager	Meeting Minutes
2.12.3	**Construction Interface User Group (CIUG) Meeting** The Fortnightly CIUG involves University representatives, primary and secondary stakeholders to inform stakeholders of the look ahead programme that may cause disruption to normal operations and potential impacts. TMP	Project Manager	Meeting Minutes
2.12.4	**Subcontractor Meetings** The weekly meeting involves the Project Manager, Site Manager or Site Foreman, and subcontractors with the meeting agenda including: ▪ Safety; ▪ Quality; ▪ Environment; ▪ Industrial Relations; ▪ Program; ▪ General business; and ▪ Actionable items from the other meetings. Minutes shall be taken to identify action items for distribution.	Project Manager	Meeting Minutes

2.12.5	**Services Coordination Meetings** The weekly meeting involves the Project Manager, Site Manager or Site Foreman, Service Coordinator, and services consultants. The meeting covers issues regarding the coordination of drawings and installation of services. Minutes shall be taken to identify action items for distribution.	Project Manager	Meeting Minutes
2.12.6	**Site Coordination Meetings** The weekly meeting involves the Site Manager or Site Foreman and Leading Hand to discuss site issues and to plan the day's / week's activities with meeting actions recorded.	Project Manager	Meeting Minutes
2.12.7	**Project Team Meetings** The meeting involves the FDC project team at least weekly to discuss project, safety, and environmental issues and to plan the project activities. Minutes shall be taken to identify action items for distribution. The meeting shall include: ▪ Status Task and HSE Actions ▪ Review of Project Management Plan and Emergency Management Plan; ▪ Review of Site Induction - Site Rules; ▪ Review of Site Risk Assessment and its effectiveness; ▪ Review of Environmental Risk Assessment and its effectiveness; ▪ Project training requirements; ▪ Non-conformances; ▪ Subcontractor performance – safety, environmental, quality; ▪ Incidents and incident close out; ▪ Audit and site inspection results; and ▪ Recent System Improvement Summaries.	Project Manager	Meeting Minutes
2.12.8	**WHSE Project Startup Meetings** UI contractors are required to participate in a project-specific pre-commencement WHSE meeting with the relevant Responsible University Supervisor (RUS) and a WHS representative. This requirement applies to all UI projects and COS deferred maintenance projects, including user-funded projects. The purpose of these meetings is to review the key WHSE requirements of the project with the nominated site supervisor, discuss identified hazards and controls, and confirm that WHSE planning and preparation have been satisfactorily completed before the project begins. These meetings typically generate actions for follow-up, which must be closed out before the commencement of the project. The RUS is responsible for planning and chairing the meeting.	Project Manager	Project Manager

2.13 MONITORING

2.13.1 Weekly Site Inspection

Section	Requirements	Responsibility	Tools
2.13.1.1	FDC shall conduct inspections weekly to monitor work practices and identify areas for improvements. Inspections shall include subcontractors and extend beyond their immediate work area. Upon request, copies of Weekly Site Inspections will be made available to UI via the responsible University Supervisor (RUS). Mandatory photographic close-of-workday inspections of site boundaries, fencing, barricades, emergency exits, adjacent pedestrian paths, and general housekeeping will be completed daily and documented within the FDC Site Diary (Simpel).	Site Manager	SIMPEL > eForms > Weekly Site Inspection F049

2.13.2 Task Observations

Section	Requirements	Responsibility	Tools
2.13.2.1	Task Observations shall be conducted monthly, as a minimum, to evaluate and confirm SWMS for high risk construction works are being complied with and are effective and aligned with current work activities. Observations shall determine if hazard controls measures are adequate, and if SWMS addresses identified hazards. Observations of activities not involving high risk work may be conducted at the team's discretion. Independent HSE Observations can be raised through SIMPEL to identify Positive activity or areas where Improvement is required.	Site Manager	SIMPEL > eForms > Task Observation F053. SIMPEL > HSE Observations

2.13.3 Monthly Site Audit

Section	Requirements	Responsibility	Tools
2.13.3.1	Monthly site audits shall be conducted and be included in Monthly Project Report and forwarded to the General Manager. The audit reviews the physical site and checks the ongoing suitability of key documents, including the PMP, Site Risk Assessment, and Environmental Risk Assessment. Updated documents shall be reissued to key stakeholders. Upon request, copies of Monthly Site Audits will be made available to UI via the Responsible University Supervisor (RUS).	Project Manager	SIMPEL > eForms > Monthly Site Audit F054

2.13.4 Senior Management Inspections

Section	Requirements	Responsibility	Tools

2.13.4.1	Senior management, including the General Manager, Construction / Operations Managers, Project Directors / Senior Project Managers and HSEQ Managers, shall attend sites to proactively engage with project teams on WHS and other relevant matters at the frequencies defined in the HSEQ Strategic Framework, ensuring visible leadership and effective communication of safety expectations. Inspections can be documented through a weekly site inspection, observation, monthly site audit, HSEQ assessment, project team meeting, record of inspection and or toolbox or any other format. Additional audits and assessments may be conducted in accordance with the Audit procedure COR 8.2-001 by the HSEQ team to verify implementation of the PMP and elements of the integrated management system and identify improvement opportunities.	Nominated Senior Managers	SIMPEL > eForms

2.14 NON-CONFORMANCE

Section	Requirements	Responsibility	Tools
2.14.1	Where a non-conformance with planned requirements has been identified a Non-Conformance Report shall be issued and actions established, monitored and closed out in consultation with the non-conformance recipient. Non-conformance may arise through departures from the PMP, SWMS, contract, products and materials, legal requirements or repeat issues/offences. Non-Conforming product or materials shall be quarantined and either returned to the supplier, disposed of, or used with client approval. Non-conformance can be identified through Weekly Site Inspection, Work Observations, Monthly Site Audit, internal/external audits, or general observations. Non-Conformances reports shall be included in Project Monthly HSEQ Report (F090). Where non-conformance has the potential to impact FDC's integrated management system these shall be communicated with the Division HSEQ representative for consultation with the National HSEQ Systems Manager. The University of Sydney also can raise corrective actions through the CSMS/ Beakon system for non-conformances on site. These can be referenced on CSMS/ Beakon under the corrective actions tab. These are not only limited to incidents.	Project Manager	SIMPEL > eForms > Non-conformance Report (F039). Project Monthly HSEQ Report (F090).

2.15 REPORTING

2.15.1 Internal Monthly Report

Section	Requirements	Responsibility	Tools

2.15.1.1	The Monthly Report, including the Cost to Complete and Project Monthly HSEQ Report is submitted to Divisional management for review. The meeting between the team and management shall address the report and determine actions to assist successful project delivery.	Project Manager	Internal Monthly Report F191 or division equivalent (eg Divisional PowerPoint Template); Project Monthly HSEQ Report F090

2.15.2 Project Monthly HSEQ Report

Section	Requirements	Responsibility	Tools
2.15.2.1	Project HSEQ performance shall be reported monthly via the Project Monthly HSEQ Report to the Divisional HSEQ representative on the 1st working day of the following month. The report summarises the month's activities including: ▪ Incidents / LTI / MTI /First aids reports; ▪ Regulatory / statutory / union notices; and ▪ Non-conformance reports. These reports are collated into a Divisional Monthly HSEQ Report and the summary is distributed within Divisions in the interest of keeping employees informed and consulted. The summary forms part of the Divisional Monthly HSEQ Report and reviewed by the General Manager at Senior Managers Meetings Cor-5.6-002. Relevant statistics and other required information to be submitted to UI on a monthly basis via the Contractor Monthly WHS Statistics portal, in accordance with the UI/COS contractor Handbook. These must be submitted within the first week of the month for the previous month.	Project Manager	Project Monthly HSEQ Report (F090) Contractor Monthly WHS Statistics

2.15.3 Hazard Reporting

Section	Requirements	Responsibility	Tools
2.15.3.1	**Physical Hazard Reporting** - Notify a supervisor, manager and FDC site management when hazards, including unsafe activities, are identified on site. Workers have a responsibility to ensure the health and safety of others. Work shall be stopped immediately until the hazard, activity and / or SWMS is rectified. Hazards identified shall be made safe where practical and details of rectification, or actions required recorded. Communicate tasks and close actions promptly. WHS dispute resolution may be required through section 3.4 as applicable. Psychosocial Hazards shall be managed through section 3.27 of this plan.	Project Manager	SIMPEL > HSE Observations; Tasks

Where there is an imminent risk of injury or incident, work must be stopped immediately. In addition to FDC hazard reporting requirements, all hazards must also be reported to the Responsible University Supervisor (RUS) in writing within 24 hours

2.16 INCIDENT MANAGEMENT

Section	Requirements	Responsibility	Tools
2.16.1	**Incident Notification** - Incidents shall be managed at the time of the occurrence in accordance with the Incident Notification Flowchart and be verbally notified immediately to offsite management when: ▪ Emergency services, unions or the media attend site; or ▪ A notifiable incident (eg serious Injury / illness or fatality or dangerous incident) is likely or ▪ A Lost Time or Medical Treatment Injury is likely. All incidents and/or near misses arising from the activities undertaken by Contractors must be reported to the Responsible University Supervisor (RUS) in writing within 24 hours. Any notifiable incident (fatality, serious injury/illness and dangerous incident – potentially resulting in injury, or a pollution incident with potential to materially harm the environment) is to be reported to the RUS immediately.	Project Manager	Incident Notification Flowchart G014
2.16.2	**Critical Incidents** – Class 1 incidents shall be managed in accordance with the Emergency Management Plan that addresses critical incident protocols for trauma counselling, legal privilege and media management and require senior management involvement.	HSEQ Manager	Emergency Management Plan
2.16.3	**Non-disturbance** – Where incidents are notifiable to the regulator the incident location shall remain unaltered until an inspection / investigation or direction has been provided by the Regulator. Work shall cease in the immediate area and appropriate barricades and signage displayed to prevent unauthorised entry and having the scene altered and/or contaminated. The non-disturbance provision does not prevent such actions as helping or removing trapped or injured persons or actions directed by the Regulator.	Project Manager	Nil.
2.16.4	**Regulatory notices** (e.g. Prohibition, Improvement etc.) issued in relation to an incident shall be addressed in consultation with Divisional HSEQ representatives and the regulator to determine and implement suitable actions. Work related to an incident related Prohibition notice shall not recommence until the notice has been closed as advised by the regulator. Notices shall be copied to the General Manager, Division HSEQ and National HSEQ Systems Manager and the Responsible University Supervisor (RUS) notified.	Project Manager	Regulatory notices

2.16.5	**Incident Investigation** - HSEQ Managers, trained in FDC incident management requirements, shall be responsible for incident notification, investigation and reporting and involving the project team and senior management as required to identify causes, contributing factors and actions for improvement. Incident investigations shall be completed for Notifiable Incidents, Near Misses or where an incident occurs due to an absence of safe works procedures or physical controls. Investigations shall include members of the project team and FDC senior managers. Relevant subcontractors and other stakeholders may be consulted in the investigation as required. Incident Reports shall be completed to assist FDC understand how the incident occurred and identify contributing factors that lead to the incident. HSEQ Manager to review report and work with project teams to close out actions. Incidents shall be communicated through monthly project, division, and group HSEQ reports and monthly HSEQ meetings and HSEQ management reports. This enables FDC to take suitable projects/system actions, including lessons learned as relevant, to prevent incident recurrence. Incident Reports shall not be distributed externally without approval from the General Manager or a Director.	HSEQ Manager	Cor-8.5-001 Incident Management; SIMPEL > Safety > Incidents
2.16.6	Where HSEQ Corrective Action Requests are received from UI in relation to an incident, the required corrective actions will be closed out in consultation with the Responsible University Supervisor (RUS) and in accordance with stipulated timeframes. This procedure is managed on the CSMS/ Beakon system through the CAR tab (Corrective action register)	Project Manager	Site Manager

2.17 STAKEHOLDER COMMUNICATION

Section	Requirements	Responsibility	Tools
2.17.1	The planning and conduct of works shall be carefully considered to minimise interference with the local community and the environment. The Communication and Stakeholder Plan may be developed in accordance with contract or Divisional requirements. In the absence of a Communication and Stakeholder Plan the relevant details shall be provided to clients, community representative and other interested parties regarding project duration, peak periods of construction, hours of operations, specific environmental management issues, complaints management procedures and project contact details, night work, change in work hours, and disruption to services. Communication pathways, including open forums and/or letterbox drops shall be conducted to inform the residents of the works being undertaken. Confirm project specific feedback mechanism to a designated University of Sydney site representative e.g. forums, meetings, or specific correspondence. CIUG Meeting, PCG meeting and the fortnightly newsletter.	Project Manager	Communication and Stakeholder Plan

2.17.2	External complaints from the community, client and stakeholders shall be reported to the Project Manager for assessment of appropriate action. Where a complaint is found to be an outcome of site activities, a Nonconformance Report shall be issued to the party responsible and actioned as soon as practicable. Information to be included shall address complaint details, action taken to correct the problem and further action recommended to prevent recurrence. Where the complainant leaves contact details, a response shall be communicated regarding the above outcomes.	Project Manager	SIMPEL > eForms > Non-conformance Report F039. Correspondence
2.17.3	Where complaints have the potential to impact the management system the Nonconformance report shall be communicated with Divisional HSEQ representatives for consultation with the National HSEQ Systems Manager for action.	Project Manager	SIMPEL > eForms > Non-conformance Report F039.

WORK, HEALTH and SAFETY

3.1 RISK MANAGEMENT

Section	Requirements	Responsibility	Tools
3.1.1	The Site Risk Assessment shall be developed to inform FDC, subcontractors, and relevant parties of potential hazards and FDC's minimum controls. The risk assessment identifies work activities and the minimum requirements to be addressed through relevant safety documentation (e.g. SWMS, permits, or other documented safe work procedures). These documents shall apply the hierarchy of control and relevant legislation, codes of practice, and Australian Standards to eliminate hazards where possible, or minimise risk so far as reasonably practicable.	Project Manager	Site Risk Assessment F001
3.1.2	The Site Risk Assessment shall be established prior to work commencing and be communicated with the project team to confirm potential hazards and control requirements during the project. The Site Risk Assessment shall be: ▪ prepared by employees trained in FDC risk management procedures; ▪ approved by the Project Manager; ▪ approved by the Division HSEQ Manager; and ▪ issued to subcontractors prior to them commencing work and where revisions are made during the project. The ongoing suitability of the Site Risk Assessment to address hazards and controls shall be reviewed at the Monthly Site Audit and changes prepared, approved and reissued as above.	Project Manager	Site Risk Assessment F001
3.1.3	Only employees trained in FDC risk management procedures addressing the Hazard Identification Risk Assessment and Control (HIRAC) process, including the use of the Site Risk Assessment, shall be responsible for managing HIRAC activities.	Project Manager	See HSEQ / Division Admin for Training and Experience Register F024
3.1.4	The HIRAC process shall be evaluated to determine its effectiveness in managing risk through: ▪ Task Observations; Weekly Site Inspections and Monthly Site Audits (Project team); ▪ HSEQ Assessments (Divisional HSEQ); and ▪ HSEQ Management Meeting (National HSEQ Systems Manager). Project safety improvements are managed through respective site activities above, and system improvements shall be raised with the National HSEQ Systems Manager.	Project Manager	SIMPEL > eForms > Task Observation F053; Weekly Site Inspection F049; Monthly Site Audit F054. HSEQ Assessments

3.1.5	**CSMS Permit to Work** For certain activities and for working in certain areas, a Permit to Work must have been requested from the RUS and approved (e.g. roof access, working at heights, working in a confined space, asbestos removal, lead paint removal, excavation, hot works etc.). A minimum notice will be required depending on the type of permit required, unless it is an emergency situation/call out. Urgency, operational pressure, cost, program impacts, or reputational risk do not, of themselves constitute emergency works. For any hazardous material removal, where applicable, ensure that the Asbestos Management Plan (AMP) and Hazardous Infrastructure Materials Management Plan (HIMMP) are read, understood and complied with. Refer to the Permit to Work section of this handbook for further information. Permits to work are required for the following tasks and a Permit to Work must be obtained prior to the commencement of work: • Access request • Asbestos removal • Confined space work (A Confined Space Entry Permit is to be provided, managed and authorised by the Contractor, however, will be required to be notified to the RUS prior to commencement of the work and upon completion. Copies of the permit must be displayed at the work site.) • Dust works (creating excessive dust) • Electrical power shutdown • Excavation and ground penetration • Fire systems interruption • Hot works (including welding) • Lead paint removal • Lifting (cranes and hoists) • Natural gas isolation and shutdown • Roof access (and roof spaces) • Traffic and pedestrian management • Working at heights (including scaffolding, use of EWP, use of ladders with risk of fall > 2 m etc.) These permits must be submitted through the CSMS unless otherwise directed by the UI and COS Health & Safety Partner or nominated representative. In certain circumstances the contractor will be able to use their own permit systems, or those of a principal contractor, and this will be through consultation and agreement with the UI and COS Health & Safety Partner or nominated representative. No work can be commenced until the appropriate permits or approvals have been obtained and approved by UI/COS. It is the responsibility of the Contractor to liaise with the RUS to obtain approval of the Permit to Work. On completion or suspension of works where a permit has been issued, these permits, along with documentation supporting the implementation of the permit (such as risk assessments or results of gas monitoring), must be returned to the RUS (or where appointed the Principal Contractor). Support resources for the Contractor Safety Management System (CSMS), including Frequently Asked Questions and Quick Reference Guides, are available at the Contractors public page.	Project Manager	UI/COS Contractor Handbook, Beakon CSMS

3.1.6	**Non Conformance and Corrective Action** Non-conformance with the requirements of this Handbook, University WHS Policy and Procedure, the Contractor's Safe Work Method Statement, or other known conditions and requirements may be recorded on the Corrective Action system in CSMS. Corrective actions will be raised in CSMS, and contractors will be required to investigate the root cause and implement corrective actions. A review of effectiveness of the corrective actions is carried out by the University. Corrective Actions will be monitored by UI/COS representatives. The same Corrective Action system will be used to record Opportunities for Improvement.	Site Manager / Project Manager	UI/COS Contractor Handbook, Beakon CSMS

3.2 SAFE WORK METHOD STATEMENTS (SWMS)

Section	Requirements	Responsibility	Tools
3.2.1	SWMS shall be developed for high risk construction work activities in consultation with workers. SWMS and relevant safe operating procedures shall be reviewed and accepted by FDC using the SWMS Checklist via SIMPEL > Safety > SWMS/Safety Plan to ensure potential hazards and controls are in accordance with the Site Risk Assessment prior to works commencing on site. Monitoring of safe work practices shall be in accordance with PMP Section 2.13 Monitoring. The SWMS will be reviewed against the relevant requirements of the UI/COS Contractor Handbook and contractors' own safety requirements. Product-specific requirements such as selected PPE, first aid, ventilation, storage, spill response and disposal must be incorporated into the applicable work controls.	Site Manager	SIMPEL > eForms > SWMS Checklist F029. FDC SWMS Template F030 UI/COS Contractor Handbook, UI/COS Contractor Handbook
3.2.2	SWMS and/or safe operating procedures shall be reviewed and revised where work changes, or where risk controls are no longer adequate to control the level of risk. All persons affected by the amendment shall be informed of the changes and retrained as required.	Site Manager	SIMPEL > eForms > Toolbox Talk F050; Pre-Start Meeting F051

3.3 CONSULTATION

Section	Requirements	Responsibility	Tools
3.3.1	Consultation involves the sharing of WHS information with the workforce and providing the workforce an opportunity to contribute to the improvement and resolution of WHS issues including: ▪ Work policies, systems, procedures and consultative arrangements; ▪ Risk assessments and control measures; ▪ Work premises, work environment, plant, equipment or substances used for work; ▪ Incidents, illnesses (including mental health), or injuries (in a way that protects the confidentiality of personal information); ▪ Reporting procedures; and ▪ WHS and welfare with workers.	Project Manager	SIMPEL > eForms > Toolbox Talk F050; Consultation Statement F047; Weekly Site Inspection F049

Consultation occurs when:

- changes to premises, work environment, work methods, plant, and substances that may affect health, safety or welfare are proposed;
- risks to health and safety arising from work are assessed or when the assessment of those risks is reviewed;
- decisions are made about the measures to be taken to eliminate or control hazards;
- When introducing or altering the procedures for monitoring hazards.

The Site Manager shall facilitate a toolbox meeting with workers at project commencement to establish the consultation arrangements. Consultative arrangements may include a Health and Safety Representative, a Health and Safety Committee, or any other agreed arrangements in accordance with the legislation and documented on the Consultation Statement to be displayed on site and referenced at site inductions. Changes to the established consultation arrangements shall be made in writing to FDC site management and any WHS disputes shall be managed per section 3.4 Dispute Resolution.

Nominated consultation arrangements shall monitor the workplace and related activities (eg plant and equipment, substances, access and egress) using the Weekly Site Inspection. The inspection shall be made available and communicated to workers to enable issues to be rectified and information shared. Raised issued shall be actioned, closed out and a copy of the completed report shall be filed.

FDC Vault Resources:
- Mental Health.

- FDC Employee Assistance Program (EAP)

- Mates in Construction

3.3.2 **Health and Safety Representatives**

Site Manager

SIMPEL > e Forms > Weekly Site Inspection F049; Toolbox Talk F050; Consultation Statement F047

A worker may request the election of a health and safety representative to represent them on work health and safety matters. If a worker makes this request, work groups shall be established to facilitate the election. Health and Safety Representatives shall be elected by members of the work group unless the number of nominations equals the number of vacancies whereby the Site Manager shall facilitate the election if requested to do so by the work group.

Negotiations shall commence within 14 days after a worker makes the request and may involve a worker's representative (such as a union official) if requested. Workers shall be notified of the outcome of the negotiations and of any work groups determined by agreement as soon as practicable after negotiations are complete.

Management and workers shall agree on the formation of work groups including:
- The number of health and safety representatives and deputy health and safety representatives (if any) to be elected;
- The workplace or workplaces to which the work groups will apply, and
- The businesses or undertakings to which the work groups will apply.

The elected Health and Safety Representatives shall hold their position whilst on the project, but no longer than 3 years, unless they leave employment, are removed from office by the members of the work group or are disqualified from holding the position as per the WHS Act.

Health and Safety Representatives shall:

- Confirm the consultation statement;
- represent the work group in matters relating to work health and safety,
- monitor the measures taken by the person conducting the relevant business or undertaking or that person's representative in compliance with this act in relation to workers in the work group,
- investigate complaints from the work group relating to work health and safety, and
- inquire into potential risks to the health or safety of the work group arising from the conduct of the business or undertaking.
- Not be entitled to have access to personal or medical information concerning a worker without the worker's consent, unless the information is in a form that does not identify the worker, and could not reasonably be expected to lead to the identification of the worker;
- Attend prescribed training to be eligible to be a Health and Safety Representatives; and
- Conduct a site inspection with work group representatives to identify areas for improvement.

3.3.3	**Health and Safety Committee** A Health and Safety Committee shall be established within two months after being requested to do so by 5 or more workers or by a Health and Safety Representative. If agreement about the Health and Safety Committee cannot be reached in a reasonable time, either party can request the regulator to appoint an inspector to decide on the make-up of the Health & Safety Committee, or whether it should be established at all. Health and Safety Representatives are eligible to be on the Committee and nominations shall be held for the remaining positions. At least half of the members of the committee shall be workers not nominated by management. If there are more nominations than positions, then an election shall be held, and results published. Health and Safety Committees shall meetings shall not exceed 3 monthly intervals and meeting minutes published. The first meeting of the Health and Safety Committee should establish the constitution for that committee with the constitution displayed on site and referenced in the site induction. Committee members shall have appropriate prescribed training to be eligible to participate as a Health and Safety Committee member. The functions of the Health and Safety Committee are to: - facilitate cooperation between FDC and workers in instigating, developing, and carrying out measures designed to ensure the workers' health and safety at work;	Site Manager	SIMPEL > e Forms > Weekly Site Inspection F049; Toolbox Talk F050

- assist in developing standards, rules and procedures relating to health and safety that are to be followed or complied with at the workplace,
- address other functions prescribed by the regulations or agreed between FDC and the committee; and
- Conduct a site inspection to identify areas for improvement.

3.3.4	**Agreed Arrangements** Any other arrangements for consultation shall be established to suit workers and workplace situations ensuring these are consistent with the requirements of the WHS Act. Agreed arrangements shall be determined by the workers at a meeting, records made, and Consultation Statement confirmed. The statement shall be displayed on site and referenced at site inductions. If there are WHS issues for FDC to address, these shall be communicated at the above inspection/toolbox or directly with FDC site management. Additional toolbox talks/prestarts may be held at any time in support of worker / project needs or as directed by FDC. Where directed by FDC, evidence of subcontract toolbox talks shall be collected and maintained by FDC.	Site Manager	SIMPEL > e Forms > Weekly Site Inspection F049; Toolbox Talk F050

3.4 DISPUTE RESOLUTION

Section	Requirements	Responsibility	Tools
3.4.1	**WHS Disputes:** Where WHS issues cannot be resolved, the disputed issue shall be resolved in accordance with local legislation where the dispute has been raised. The agreed procedure to resolving WHS disputes includes: ▪ Notifying the FDC Supervisor in charge of the area of the issue. The FDC Supervisor shall, where possible, organise to have the matter rectified immediately. If this is not possible the FDC Supervisor shall inform affected parties of the issue and arrange for workers affected by the issue to be relocated until rectified if necessary; ▪ An inspection shall be then undertaken of the disputed area by the Site Manager per the project consultation arrangements with the FDC Supervisor and affected parties where practical. Where the dispute involves a subcontractor their Site Supervisor and HSR (where nominated) may also be present. ▪ Where the dispute cannot be resolved, the matter may be determined through the local regulatory authority. Records of the issue and agreed action shall be maintained.	Project Manager	SIMPEL > eForms > Toolbox Talk F050. Correspondence

3.4.2	**Industrial Disputes:** Potential disputes shall be notified to FDC site management. Resolution is to be sought through consultation between affected parties and in accordance with applicable regulatory and industrial instruments. Escalation of disputes beyond the directly affected parties, should not occur unless all other possible remedies and negotiations have been exhausted. Records of the issue and agreed action shall be maintained.	Project Manager	SIMPEL > eForms > Toolbox Talk F050. Consultation Regulatory and/or Industrial Instrument

3.5 INJURY MANAGEMENT

Section	Requirements	Responsibility	Tools
3.5.1	Conduct a First Aid and Emergency Equipment Risk Assessment in Appendix A of the Emergency Management Plan to identify site first aid equipment and requirements in accordance with relevant legislation, codes of practice and Australian standards. This assessment shall be completed by a qualified first aider prior to commencement to ensure adequate first aiders, first aid equipment and facilities are supplied. Equipment shall be listed on the First Aid and Emergency Equipment Register in SIMPEL to assist the ongoing suitability inspection, testing and maintenance of equipment.	Site Manager	Training and Experience Register F024; First Aid and Emergency Equipment Register F060
3.5.2	Locations of equipment, facilities, and First Aiders, shall be communicated at site induction and displayed on site. Equipment and facilities shall be inspected weekly and maintained in compliance with manufacturers and/or legal requirements.	Site Manager	SIMPEL > eForms > Weekly Site Inspection F049
3.5.3	Designated First Aiders shall provide first aid and coordinate additional medical assistance / emergency services as required. First aid events shall be recorded in SIMPEL. Injuries, and provision of first aid, shall be notified to FDC on the day of the occurrence to be reported. Late notifications of injuries, without FDC first aid treatment or where circumstances cannot be verified, shall be recored as a Report Only. First aid injuries shall be verbally notified immediately per the Incident Notification Flowchart to offsite management when: ▪ Emergency services, unions, or the media attend site; or ▪ A notifiable incident (eg serious Injury / illness or fatality) is likely or ▪ A Lost Time or Medical Treatment Injury is likely.	Site Manager	Incident Notification Flowchart G014; SIMPEL > Safety > Incidents - First Aid
3.5.4	For FDC employees – Where an injured worker seeks additional offsite medical assistance the Divisional HSEQ shall assist the injured worker with the completion of workers compensation paperwork.	Site Manager	SIMPEL > Safety > Incidents > First Aid Reports

	Where a Medical Practitioner prescribes time off work due to reported work related injuries, a clearance certificate from a Medical Practitioner shall be provided prior to returning to work.		
3.5.5	For FDC employees – Workers compensation, return to work and rehabilitation activities shall be managed in consultation with the Divisional HSEQ representative in accordance with Cor8.5-002 Injury Management.	Divisional HSEQ Representative	Workers compensation forms

3.6 HAZARDOUS CHEMICALS

Section	Requirements	Responsibility	Tools
3.6.1	Where Safety Data Sheets (SDS) identify chemicals to be hazardous or dangerous these shall be risk assessed for use and registered on SIMPEL. Suitable safety documentation (eg SWMS, standard operating procedures etc) shall be developed prior to works commencing for the safe use, handling, and storing of chemicals. Current SDS shall be identified and readily accessible in either hard copy or electronic format through SIMPEL > Safety > SWMS/Safety Plans > SDS. Hazardous chemicals and dangerous goods shall be stored and separated as required by the Dangerous Goods Regulation.	Site Manager	SIMPEL > Safety > SWMS/Safety Plans > SDS. SIMPEL > eForms > Hazardous Chemical Register F086
3.6.2	The use of hazardous chemicals requiring health surveillance, as defined by legalisation, shall be managed in accordance with the Site Risk Assessment and the Health Surveillance section of this PMP.	Site Manager	Site Risk Assessment F001

3.7 HAZARDOUS MANUAL TASKS

Section	Requirements	Responsibility	Tools
3.7.1	Hazardous manual tasks require someone to lift, lower, push, pull, carry or otherwise move, hold or restrain something involving one or more of the following: ▪ repetitive or sustained force (eg steel fixing, formwork…) ▪ high or sudden force (eg plasterboard install…); ▪ repetitive movement (eg steel fixing…); ▪ sustained or awkward posture (eg concreting…); ▪ exposure to vibration (eg concreting, using a wacker packer). Mechanical aids shall be utilised, so far as is reasonably practicable, to eliminate or minimise the risk of hazardous manual task related musculoskeletal disorders, including injuries to muscles, nerves, tendons, joints, cartilage, and spinal discs. Safe systems of work, including Safe Work Method Statements (SWMS) and Standard Operating Procedures (SOPs), shall be	Site Manager	Site Risk Assessment F001; SWMS

developed, implemented, and maintained in accordance with the Site Risk Assessment. These systems shall identify, assess, and control the risks associated with hazardous manual tasks.

3.7.2	Effectiveness of controls shall be reviewed through: ▪ task observation; ▪ where task circumstances change; or ▪ when a musculoskeletal injury has been recorded.	Project Manager	SIMPEL > eForms > Toolbox Talk F050; Task Observation F053; SIMPEL > Safety > Incidents

3.8 CONCRETE CUTTING – CORE HOLES

Section	Requirements	Responsibility	Tools
3.8.1	A Concrete Cutting and Coring Permit shall be completed and issued for coring works or penetrating concrete slabs and managed in accordance with controls in the Site Risk Assessment and Crystalline Silica section in the PMP.	Site Manager	SIMPEL > Safety > Permits > Concrete Cutting and Coring Permit F068
3.8.2	**Core Holes on USYD Sites** At the University, coring activities through floors, slabs, ceilings and walls carry significant risks. These include potential damage to structural elements, hazards from electrical, gas and plumbing services, and complications with ICT infrastructure. Such risks can result in costly repairs, legal issues and serious safety incidents. It is therefore essential that thorough site assessments are carried out and appropriate technology is used to identify and mitigate risks before any cutting begins. Prior to commencing coring activities, contractors must: • Identify the location of all services in the area (e.g. through scanning). • Check whether any services are controlled by timers (such as electrical systems), as these may not be detected during scanning if inactive, but could be live during coring. • Determine the safest method of core extraction (e.g. drawing the core back toward the worker, rather than coring through into another space). • Drill pilot holes as part of the investigation process. • Assess where spotters are required (e.g. on the opposite side of the structure being cored, where live services may be present but not visible). • Isolate services where required.	Project Manager	UI/COS Contractor Handbook, Beakon CSMS

3.9 HOT WORKS

Section	Requirements	Responsibility	Tools
3.9.1	Work including oxy/acetylene welding/brazing and cutting, electric welding and cutting, grinding, works that involve the use of a naked flame or other heat-producing or spark-producing source in a hazardous environment require a Hot Works Permit. The permit shall be completed in accordance with the Site Risk Assessment when any one of the following conditions apply:	Site Manager	SIMPEL > Safety > Permits > Hot Works Permit F062

- hot work is being completed within a client or user occupied area (e.g. breaking through into an occupied or completed area such as an extension to the building services / involve retro fitting in a completed area / post occupancy work); and/or
- hot work in a high risk zone. A high risk zone is an area containing readily flammable material below, or within 10m of works, that cannot be removed (i.e. carpet and furnishings, cardboard, paper and packaging, dry grass, straw and litter, stored flammable gas or liquids, glues, cleaners, lubricants, oils, paper, insulation, PVC plastic etc.); and/or
- hot work is likely to trigger thermal (heat) detectors or activate sprinklers and/or smoke detectors.

A permit is not required where the above conditions do not apply. This will be agreed with RUS and relevant safety representative for specific tasks. In such cases, the hot works shall be managed through safe systems of work including SWMS, standard operating procedures, ensuring first attack firefighting equipment is readily available after consultation.

3.9.2	All works above to be in accordance with UI/COS Contractor Handbook section 4.14 Fire Prevention & 4.15 Welding with reference to 'Application for Fire System Interruption'. Any exception from a CSMS Hot Works Permit must be agreed with the RUS and relevant safety representative for the specific task. Single-shift permit validity, fire-watch start and finish records, fire-system interruption requirements and the restriction on planned hot work near aluminium composite cladding	Site Manager	UI/COS Contractor Handbook
3.9.3	Lithium-ion batteries shall be managed as a potential fire hazard due to the risks associated with fire, explosion, toxic fumes, electrical energy, and chemical exposure. The use, charging, and storage of lithium-ion batteries and charging equipment shall be considered during site setup and safety planning. Controls shall include the use of suitable charging locations, appropriate storage arrangements, inspection of batteries prior to use, and removal from service of damaged or defective batteries. In the event of a lithium-ion battery fire or thermal runaway, the affected area shall be evacuated, and the incident shall be managed in accordance with the Project Emergency Management Plan and emergency response procedures.	Site Manager	UI/COS Contractor Handbook, SWMS, Emergency Management Plan

3.10 HIGH RISK CONSTRUCTION WORK

Section	Requirements	Responsibility	Tools
3.10.1	The following high risk construction work activities establish FDC minimum requirements and shall be managed in accordance with the Site Risk Assessment. Potential hazards shall be controlled through safety documentation including SWMS, safe operating procedures, permits, other documented safety procedures or a combination of these relevant to the specific tasks. Emergency procedures and safe systems of work, including SWMS, safe work/operating procedures, permits etc. shall be established by person's trained in and conducting high risk construction work activities.	Project Manager	Site Risk Assessment F001

3.11 ASBESTOS

Section	Requirements	Responsibility	Tools
3.11.1	Where asbestos or asbestos containing material (ACM) is present in the workplace, or where asbestos removal work is required, FDC shall obtain a current Asbestos Register and Asbestos Management Plan from the person with management and control of the workplace to identify the presence and location of asbestos or ACM. If these are not available, and there is reason to believe asbestos or ACM may exist, a hazardous material survey (including asbestos or ACM and known health hazards) shall be conducted by an Occupational Hygienist. Where asbestos or ACM is identified and an asbestos register is not available, one shall be developed in accordance with the Asbestos Management Plan to record: ▪ Dates and specific locations of when and where the asbestos or ACM was identified; and ▪ the Occupational Hygienist who identified the asbestos or ACM as friable or bonded. The Asbestos Management Plan shall be provided by an Occupational Hygienist to address regulatory requirements including type and location of asbestos or ACM, safe systems of works, incidents and emergency procedures, and exposure monitoring standards. Contractors shall consult the Site Register(s) and Hazardous Infrastructure Materials Reports for asbestos information on buildings. These reports are currently available on the Alpha Tracker web site which can be accessed through CSMS (see 4.16). Note that several hazardous infrastructure materials reports also contain information on lead paint, lead dust, PCB's, SMF and heavy metals that may have been identified during inspections. The AMP and HIMMP are also housed within Alpha Tracker. All asbestos work must be carried out in accordance with the AMP and HIMMP and the SafeWork NSW requirements and as set out in Code of Practice: How to Safely Remove Asbestos and Code of Practice: How to Manage and Control Asbestos in the Workplace. The CSMS Asbestos Removal Work Permit application must be completed for all asbestos removal works. Asbestos-containingmaterials can only be removed	Site Manager	Asbestos Register, Asbestos Management Plan, Hazardous material survey

3.11.2	A licensed asbestos removalist shall provide written notice to the regulator at least 5 days before commencing licensed asbestos removal work. In the ACT, all asbestos removal work shall be notified to the regulator. FDC shall ensure notice of asbestos removal work is provided to: ▪ Workers, other persons, and other PCBU's at the workplace; ▪ The person who commissioned the work (eg the client); ▪ The occupier and owner of the premises; and ▪ Other stakeholders potentially affected by the activities (eg businesses and residents in the immediate vicinity).	Site Manager	Correspondence
3.11.3	Asbestos removal work shall be in accordance with an Asbestos Management Plan by licenced asbestos removalists in accordance with their Asbestos Removal Control Plan (ARCP). The ARCP and nominated safe systems of work (eg SWMS, safe work procedures) shall be readily available and address regulatory requirements including removal method, equipment, PPE and the location, types and condition of the asbestos or ACM. Class A licensed asbestos removalists can perform work with friable and non-friable asbestos or ACM. An asbestos removal supervisor shall be present at the asbestos removal area during asbestos removal work. An asbestos removal supervisor shall hold a nationally recognised 'Supervise Asbestos Removal' qualification. Class B licensed asbestos removalists can only perform work with non-friable asbestos or ACM. An asbestos removal supervisor shall be readily available to a worker involved in asbestos removal work. For example, if the supervisor is contactable by phone and able to arrive at the workplace within 20 minutes, this would be regarded as accessible. There is no licence required when removing: ▪ up to 10 m2 of non-friable asbestos or ACM or asbestos containing dust associated with the removal of that amount of non-friable asbestos or ACM; or ▪ Asbestos containing dust that is not associated with the removal of friable or non-friable asbestos and is only a minor contamination. Workers removing asbestos where a licence is not required shall hold nationally recognised training in asbestos removal or asbestos awareness course by an RTO. Asbestos Awareness Training, where required by legislation, shall also be conducted by workers removing any asbestos. Records of worker licences, qualifications and training and evidence that health surveillance monitoring has been conducted shall be made available to FDC.	Site Manager	Asbestos Management Plan, Asbestos Removal Control Plan; training records; health monitoring records

3.11.4	Air monitoring shall be undertaken by an independent licensed asbestos assessor for asbestos removal work requiring a Class A licence, and for all asbestos removal in the ACT. If respirable asbestos fibre levels are recorded at the asbestos removal area at 0.01 fibres/ml or more, but not more than 0.02 fibres/ml, immediately investigate the cause of the fibre level, implement controls to prevent exposure and prevent the further release of fibres. In all states and territories except Victoria, if air monitoring shows more than 0.02 fibres/ml, asbestos removal work shall stop, notify the regulator, investigate causes and implement controls to prevent exposure and further release of fibres. Work shall not recommence until fibre levels are at or below 0.01 fibres/ml. In Victoria, if air monitoring shows more than 0.05 fibres/ml, the same actions above shall apply. Where air monitoring is carried out, records of the results shall be kept for 30 years and the results shall be readily accessible to persons at the workplace who may be exposed to asbestos or ACM.	Site Manager	Air monitoring results
3.11.5	The licensed asbestos removalists ARCP shall ensure decontamination procedures are available for the asbestos removal work area, any plant used in that area, and workers carrying out the asbestos removal work including in emergencies. Where practical, asbestos removalists shall decontaminate prior to departing removal areas, or have access to other means possible (eg additional disposable coveralls) to prevent possible contamination during an emergency. Where decontamination is unsafe in an emergency, asbestos removalists, in consultation with the Chief Warden, shall adopt protocols to avoid potential contamination of other workers. Protocols may include alternative routes and muster locations based on the day's activities and the emergency. Contaminated items, tools, equipment and clothing shall not be removed from the removal work area unless they have been decontaminated or contained. If an item cannot be decontaminated, or is not suitable for decontamination, it shall be contained and sealed and disposed of in accordance with the WHS Regulations. Asbestos waste and contaminated PPE to be removed shall be contained, labelled and disposed of as soon as practicable at sites authorised to accept asbestos waste. Waste disposal records shall be obtained from the asbestos removalists and kept on file.	Site Manager	Asbestos Removal Control Plan; Emergency Management Plan Waste removal receipts,

3.11.6	A clearance inspection shall be conducted of an asbestos removal area after asbestos removal work has been completed to verify that the area is safe for normal use. The inspection shall be carried out and clearance certificates issued by: ▪ an independent licensed asbestos assessor, for work that shall be carried out by a Class A licensed asbestos removalist (eg if the removal work involved friable asbestos); or ▪ an independent competent person, for licensed asbestos work that is not required to be carried out by a Class A licensed asbestos removalist (eg if removal work involved more than 10m2 of non-friable asbestos); or ▪ An independent licensed asbestos assessor for all asbestos removal work in the ACT. The licensed asbestos assessor or competent person who carried out the clearance inspection shall issue a certificate before the asbestos removal area at the workplace can be reoccupied. The clearance certificate shall be in writing and state that the assessor or competent person: ▪ found no visible asbestos residue from asbestos removal work in the area, or in the vicinity of the area, where the work was carried out; ▪ and if air monitoring was carried out as part of the clearance inspection, that he airborne asbestos fibre level was less than 0.01 asbestos fibres/ml. Note 1: To be independent, the licensed asbestos assessor or competent person shall not be involved in the removal of asbestos for that specific job and is not involved in a business or undertaking involved in the removal of the asbestos for that specific job. Note 2: The competent person in relation to carrying out clearance inspections is someone with relevant asbestos removal industry practice and certification in relation to the specified VET course for asbestos assessor work or a tertiary qualification in occupational health and safety, occupational hygiene, science, building, construction environmental health.	Project Manager	Clearance certificate
3.11.7	Where a failure of control measures is suspected, or exposure limits are exceeded: ▪ Work shall cease immediately and the asbestos work area evacuated; ▪ the work area shall be made safe and secured where safe to do so; ▪ notify potentially affected workers; and ▪ Review monitoring activities and nominated control measures. Workers potentially exposed to asbestos and ACM shall be referred to registered medical practitioner for health surveillance monitoring if there is any uncertainty if they have possibly been exposed to the hazard.	Site Manager	Correspondence, Toolbox records

3.11.8	In the event of a suspected unexpected find of ACM, FDC site management shall: ▪ cease work in the area and adjacent work area and establish a 10m exclusion zone where practicable; ▪ communicate the unexpected find and immediate control measures to potentially affected workers; and ▪ initiate actions in accordance with the section 3.11.1 above to assess suspected material and determine next steps. Under the USYD Contractor handbook As detailed in the AMP and HIMMP, if the Contractor finds suspected "new" asbestos-containing materials (ACM) or other hazardous materials during the works, they must stop work immediately and contact the RUS to discuss further action. Contractors are expected to comply with the requirements of their own 'unexpected finds procedure', or equivalent, to ensure the safety and wellbeing of persons potentially impacted by the find. Such materials include: • Asbestos • Polychlorinated Biphenyls (PCBs) • Lead dust and lead paint • Heavy metals • Flammable or explosive liquids or gases • Toxic, infective or contaminated materials • Radiation from radioactive materials • Noxious or explosive chemicals • Tanks or other containers which are not labelled and/or have an unknown history	Site Manager	Unexpected Finds Protocol
3.11.9	Health surveillance involves monitoring the health of workers to identify any changes that may be due to occupational exposure to identified health hazards. Workers working with asbestos are subject to health surveillance in accordance with licencing and regulatory requirements. Evidence that health surveillance monitoring has been conducted for workers shall be made available to FDC. The PCBU who commissioned health surveillance monitoring shall provide a copy of the report, as soon as reasonably practicable after obtaining it from the medical practitioner, to: ▪ the worker; ▪ the regulator, if the report contains any advice that test results indicate that the worker may have contracted a disease, injury or illness from the work that triggered the need for health monitoring, or any recommended remedial measures, including whether the worker can continue to carry out the work; and ▪ all other PCBUs who have a duty to provide health monitoring for that worker. Worker health monitoring reports shall be: ▪ kept as a confidential record for at least 40 years after the record is made and not disclosed to another person without the worker's written consent; ▪ Identified as a record about the worker for at least 40 years after the record is made; and	HSEQ	Personnel Files - health monitoring reports

- Not disclosed to another person without the worker's written agreement.

3.11.10	All works above to be in accordance with UI/COS Contractor Handbook section 4.16 Asbestos, Lead and other Hazardous Infrastructure Materials including Asbestos Removal Permit.	Site Manager	Foreman
3.11.11	As detailed in the Asbestos Management Plan (AMP) and Hazardous Infrastructure Materials Management Plan (HIMMP), prior to any works, the Contractor must check the applicable Hazardous Infrastructure Materials Registers for the building and determine whether works will disturb hazardous materials and therefore be considered as hazardous infrastructure materials-related works. These reports are available on CSMS. Hazardous Infrastructure Materials surveys organised by UI/COS to develop the registers are non-intrusive surveys that do not inspect inaccessible areas and do not take samples where this could damage the facilities. These registers often do not provide sufficient information for demolition or refurbishment works where materials not assessed in the surveys will be disturbed. If works will disturb materials and if presence of hazardous infrastructure materials is unknown, works must not start until a competent person (a licensed asbestos assessor) determines whether hazardous infrastructure materials are present. Any works that may disturb hazardous infrastructure materials must be considered as hazardous infrastructure materials-related works and managed as such. Therefore, certain legislative requirements may apply such as health monitoring for workers conducting hazardous infrastructure materials-related works, notification to the regulator, licences, etc. Also, air monitoring must be conducted in the work area if there is uncertainty as to whether the exposure standards are likely to be exceeded. All hazardous infrastructure materials inspections, whether organised for compliance purposes or via a contractor, must be provided to the RUS for updating of university hazardous materials records. Additional information on the management of hazardous infrastructure materials, reports and permits is available on CSMS.	Project manager	Site Manager

3.12 CONFINED SPACE

Section	Requirements	Responsibility	Tools

3.12.1	The Confined Space Entry permit shall be used to determine the presence of confined spaces. Inadvertent access to confined spaces shall be prevented by securing the confined space, installing confined space signage, and ensuring access is only by workers with a permit and training as follows.	Site Manager	SIMPEL > Safety > Permits > Confined Space Entry F063
3.12.2	Persons entering the confined space, and standby persons, shall hold Nationally Recognised Training in Confined Space and have SWMS for the proposed activities. Where a harness is required for access a Harness Permit shall be required.	Site Manager	Training; SWMS; SIMPEL > Safety > Permits > Harness Permit F064
3.12.3	When confined space requirements including qualifications, PPE, emergency procedures, equipment maintenance and calibration, isolations, signage, barricading, hot works, and air monitoring have been met a Confined Space Entry permit for the duration of the activity shall be issued. The permit shall be closed out on completion of the activity.	Site Manager	SIMPEL > Safety > Permits > Confined Space Entry F063
3.12.4	All works above to be in accordance with UI/COS Contractor Handbook section 4.18 Confined spaces	Site Manager	UI/COS Contractor Handbook, Beakon CSMS

3.13 DEMOLITION

Section	Requirements	Responsibility	Tools
3.13.1	An Occupational Hygienists shall determine the presence of hazardous substances, including review of available asbestos registers, which may be hazardous to the health of the site personnel or the public if disturbed by the stripping or demolition. The nature, location, and proposed methods to control the hazards shall be recorded and provided to FDC and the demolition contractor prior to demolition activities. FDC shall engage a suitably licence demolition contractor relevant to the scope of works. Where required by contract or Divisional requirements a Hazardous Material Management Plan may be used.	Site Manager	Asbestos Register; Hazardous Material Management Plan University of Sydney Hazardous Infrastructure Material Register (available on UI/COS partners Site has reference for known hazardous building materials)
3.13.2	Notice of demolition work shall be issued by the Subcontractors to the relevant authority prior to commencement of demolition work if the demolition involves: • demolition of a structure, or a part of a structure that is load-bearing or otherwise related to the physical integrity of the structure, that is at least 6m in height;	Site Manager	Notice of demolition work

	• demolition work involving load-shifting machinery on a suspended floor; • demolition work involving explosives.		
3.13.3	Demolition contractors shall provide FDC with SWMS and a Demolition Work Plan addressing Hazardous Material Management Plan, the building structure, including adjacent structures and materials prior to commencing works. Safe systems of work, including SWMS, shall address requirements for working at heights and protecting persons from falling objects.	Site Manager	Demolition Work Plan; SWMS
3.13.4	Prior to commencing demolition work Before You Dig Australia requests, Electrical Safety Survey, All Services Isolation Permit or Termination of Services Permit and/or specific client, contractor or utilities permit requirements shall be completed.	Site Manager	SIMPEL > eForms > Electrical Safety Survey and Protection Plan F069; All Services Isolation Permit F071; Termination of Services Permit F070. BYDA
3.13.5	A demolition plan is not required for demolition consisting of non-structural strip out. However, safe systems of work including the Electrical Safety Survey, All Services Isolation Permit or Termination of Services Permit and or specific client, contractor or utilities permit requirements shall be completed as applicable. Safe systems of work, including SWMS, shall address non-structural strip out requirements including working at heights and protecting persons from falling objects.	Site Manager	SIMPEL > eForms > Electrical Safety Survey and Protection Plan F069; All Services Isolation Permit F071; Termination of Services Permit F070. SWMS
3.13.6	Demolition work on university campuses must comply with all WHS legislative requirements, including the requirements specified for demolition licensing. Demolition work must be: • Planned, risk assessed and carried out by those with appropriate demolition licences: – Restricted: For structures 6–15 m or involving load shifting machinery. – Unrestricted: For structures > 15 m, chemical installations, pre/post-tensioned components, tower/mobile cranes, floor propping, explosives. • Undertaken only when a named supervisor (nominated during the licence application process) is present and actively supervising licensed demolition work. • Carried out by appropriately trained workers: – Supervisors must complete 10 units from Certificate III/IV in Demolition. – Workers must complete: CPCCDE3016 – Identify, remove, and handle hazardous materials; CPCCWHS2001 – Work safely in the construction industry (prerequisite).	Project Manager	UI/COS Contractor Handbook, Beakon CSMS

– Exemptions: Truck drivers (in cabin), traffic controllers outside site, and non-site personnel.

To carry out demolition (or partial demolition) of any building, structure, major plant, or installation that contains or may contain hazardous chemicals, an Unrestricted Demolition Licence is required. This requirement is waived only if a competent person, as defined under the WHS Regulation, has provided a written declaration confirming the site is free of hazardous chemicals. The declaration must include an expiry date indicating how long the assessment remains valid.

3.14 ELECTRICAL

Section	Requirements	Responsibility	Tools
3.14.1	A Licensed Electrical Contractor shall be responsible for developing safe systems of work, including SWMS and safe work procedures for work on electrical installations (e.g. construction wiring, high voltage power, switchboards, and isolation). The Licensed Electrical Contractor shall ensure workers are licensed and trained in safe systems of work involving the installation, modification, testing and certification of electrical installations. Evidence of licensing and qualifications shall be reviewed during site induction. The Licensed Electrical Contractor shall be responsible for the training and supervision of unlicensed workers (e.g. apprentices, trade qualified workers) whilst on site. Non-Conductive ladders (fibreglass) are required near potential electrical risk, electrical contractor must ensure correct ladders are provided on site – works will not be permitted if this isn't upheld.	Site Manager	Qualifications
3.14.2	The Electrical Safety Survey and All Services Isolation Permit (for de-energising and re-energising) or Termination of Services Permit shall be completed for works involving: • isolation, de-energisation and re-energising activities; • lockout and tag out of electrical isolations; and • working near energised parts. Work on, or testing of, energised electrical equipment shall only be conducted by a Licensed Electrical Contractor in accordance with task specific procedures and legislative requirements. The permits shall only be issued to a Licensed Electrical Contractor when safe systems of work, including SWMS, have been developed for these specific works. A live electrical work must not be undertaken unless it is not reasonably practicable to isolate. Where live work is justified, a contractor-managed live-work permit and associated procedure will be notified to the RUS before work	Site Manager	SIMPEL > eForms > Electrical Safety Survey & Protection Plan F069; All Services Isolation Permit F071; Termination of Services Permit F070. SWMS UI/COS Contractor Handbook

3.14.3	The Licensed Electrical Contractor shall ensure electrical work, including switchboards, distribution boards, temporary and permanent wiring has been installed, inspected prior to use, and conforms with relevant legislation, codes of practice and Australian standards (AS3000, AS3012, AS3760) by a qualified electrician. Construction wiring shall be adequately secured, protected, and clearly marked accordingly with "Construction Wiring" sticker and not be tied, bundled, or grouped with permanent wiring.	Site Manager	Regulatory Compliance Certificates
3.14.4	Testing and tagging of electrical equipment shall be completed at maximum 3-month intervals by a qualified electrician, or competent person with an industry recognised test and tag training course (e.g. UEENEEPO26A) in accordance with relevant legislation, codes of practice and Australian standards (AS3760). Records of testing and inspection activity, including Electrical registers and Compliance Certificates, shall be maintained.	Site Manager	Subcontractor Electrical Test and Tag Register
3.14.5	RCD protection is required for portable generators, construction wiring and electrical systems to protect workers from electrical contact. RCD's shall be tested by a Licensed Electrical Contractor at maximum 3 monthly intervals or in accordance with regulatory requirements and results recorded.	Site Manager	Subcontractor Electrical Test and Tag Register
3.14.6	The Licensed Electrical Contractor shall develop safe systems of work to prevent workers from contacting energised cables. Safe systems of work to ensure electrical cable ends are terminated safely shall consider taping the ends of the cables, installing a “j-box”, twisting and/or taping the cables during rough-in, or altering existing electrical cabling to prevent the cables from becoming live.	Site Manager	SWMS, Safe operating procedures SIMPEL > eForms > All Services Isolation Permit F071; Termination of Services Permit F070
3.14.7	All works above to be in accordance with to UI/COS Contractor Handbook section 4.10 Lock-Out, Tag-Out and Test, for project team's awareness, in situations where plant/equipment are in an area outside the management control of FDC while conducting work. Incl.4.10. 4 Procedure for the Removal of Lockout/Tagout Devices by Persons Other Than Those Who Fitted Them. Live electrical work must not be undertaken unless it is not reasonably practicable to isolate. Where live work is justified, require a contractor-managed live-work permit and associated procedure, with notification to the RUS before work.	Site Manager	UI/COS Contractor Handbook

One person one lock
University sites require each person working under a Lock-Out, Tag-Out and Test procedure to have, and attach, their own lock to prevent the isolator being opened while their task is in process. If two or more people are working on machinery, plant and equipment that is isolated through several lock out points, each person must attach a lock and tag to each lock out point. To avoid the need for multiple locks on each lock out point, a lock box may be used. Under this system, each lock out point is locked by only one lock, and the keys to the locks of the machinery's lock out points are placed inside a box that is locked by all the individual locks of people working on the same plant.

3.15 EXCAVATION

Section	Requirements	Responsibility	Accountability
3.15.1	The Site Risk Assessment will be used to develop safe systems of work for excavation activities, including managing: ▪ Impacts to nearby buildings, structures, materials, and foundations to ensure controls are suitable to prevent ground collapse (eg using benching or battering instead of shoring where possible); ▪ Excavations near above-ground and underground services, including consultation with asset owners and clearly identifying how work near services will be managed; ▪ Mobile plant operating in or around excavations; ▪ The risk of falls into excavations; and ▪ Excavation-related emergencies. Safe systems of work may include permits, SWMS, drawings or plans, engineering reports, or a combination of these, in line with the requirements below.	Site Manager	Site Risk Assessment; SWMS, permits, drawings/plans; haz mat, Geotech / dilapidation reports
3.15.2	Identify and locate services by contacting Before You Dig Australia (BYDA) on 1100 or at www.byda.com.au. BYDA plans and the Enquiry Confirmation Sheet shall be available on site for the duration of the excavation. BYDA plans have an expiry date shown on the confirmation sheet; a new enquiry is required if works continue past this date. Contact relevant asset owners to assess the impacts of above-ground and underground services on the excavation. Document the asset owner requirements and comply with all permit, training, and exclusion or encroachment distance requirements. **Termination of Services terminations** and **All Services Isolation Permit** may be required. If drawings show services within 2 metres of the proposed excavation or penetration, the exact location of s services shall be confirmed using a locating device, hand excavation, or non-destructive digging (such as potholing).	Site Manager	BYDA; Drawings/plans; SWMS; SIMPEL > eForms > Termination of Services F070; All Services Isolation Permit F071. SIMPEL > Safety > Permits > Excavation F066;

3.15.3	If excavation support systems are required (incl. hydraulic shoring, sheet piling, steel shoring/trench lining, sheeting, ground anchors etc.) they shall be: ▪ Designed by a qualified Geotechnical, Civil, or Structural Engineer; ▪ Detailed on current drawings; and ▪ Installed and verified by persons trained in the support system being installed in accordance with documented designs/drawings. Changes to the design or the installed support system shall be approved by a qualified Geotechnical, Civil, or Structural Engineer.	Site Manager	Drawings / designs / Geotech reports
3.15.4	An Excavation Permit shall be completed before excavation and issued to the supervisor responsible for the excavation. One permit shall be issued for each excavation; multiple excavations cannot be covered by a single permit. The permit shall describe the work and the controls to prevent ground collapse. Relevant drawings, plans, permits, or reports shall be listed on the permit and available on site. FDC Excavation Permits are **not required** for: ▪ Aqua Vac exploratory excavation; ▪ Service potholing; ▪ Hand tool excavations; or ▪ Ground-penetrating works (e.g. driving star pickets). However; A University Permit to Dig for these works will still have to have to be submitted for review under CSMS. For these activities, asset owner instructions (such as maximum nozzle pressures) and BBYDA requirements shall be followed and available on site.	Site Manager	SIMPEL > Safety > Permits > Excavation F066; drawings/plans; Geotech reports; SWMS ;UI/COS Contractor Handbook

3.15.5	Safe systems of work shall ensure: ▪ where ladders are used for access/egress they shall extend 1 metre past the landing place and be secured top and bottom to prevent slipping; ▪ Excavations greater than 1.5 metres shall be benched, battered or shored, or a combination of these. If the ground is unstable, advice from a Geotechnical, Civil or Structural Engineer may be required. ▪ Excavations shall not be left exposed if unattended. Flagging, para webbing and/or barricading shall be erected at a minimum of 1 metre from the edge and warning signs displayed to protect persons from falling into the excavation; ▪ Sufficient controls (eg signage, flagging/para webbing/barricading) are implemented where mobile plant is working in and around excavations in accordance with the Vehicle Movement Plan.	Site Manager	SWMS; Vehicle movement plan
3.15.6	Inspection of excavation and control measures shall be conducted each day the excavation is accessed and recorded on the **Excavation Permit**. The soil condition and the state of shoring, battering, benching and trench walls shall be inspected for signs of earth fretting, slipping, slumping or ground swelling. Inspections shall be conducted by a competent person with at least one of the following: ▪ Geotechnical Engineer or Civil Engineer, or Structural Engineer; ▪ Conduct Civil Construction Operations Course (eg RIIMPO32F/LE ticket); or ▪ Certificate in Plumbing and Draining; or ▪ Certificate in Drainage. Where excavation support systems are used for excavations deeper than 1.5 metres, inspections shall be conducted in accordance with designs, drawings, or permits by persons trained and competent in the specific support system being used.	Site Manager	SIMPEL > Safety > Permits > Excavation F066; Geotech reports;
3.15.7	All works above to be in accordance with UI/COS Contractor Handbook section 4.12 Trenching and Excavation - in particular Permit to Dig, 4.8 Essential Services and 4.13 Respirable Silica and Engineered Stone	Site Manager	UI/COS Contractor Handbook

3.16 FORMWORK

Section	Requirements	Responsibility	Tools
3.16.1	FDC shall ensure formwork is designed by a qualified person, documented on drawings/plans and installed as per the plan, and changes to the design or installed system are authorised by a qualified person. FDC shall conduct a workshop with subcontractors to confirm formwork requirements for vertical and suspended formwork systems. Attendees shall include FDC Site Manager, Subcontract Supervisor as a minimum.	Project Manager	Formwork Workshop F044
3.16.2	Subcontractors shall provide the following documentation that shall be available for inspection on site: • certification of the maximum loads from stacked materials that the formwork assembly can withstand; • specifications for the concrete and when formwork can be removed; • back-propping details (plans and elevations including tying in); • drawings for the formwork design. The drawings shall be signed by a formwork designer/structural engineer or be accompanied by a certification letter that lists the drawing numbers and drawing revision numbers; and • written confirmation by a structural/geotechnical engineer of the assessment of building structures / materials / foundations and identify controls required prior to commencing formwork.	Site Manager	Designs, Engineers Certificate; drawings
3.16.3	Subcontractors shall be responsible for developing safe systems of work and providing competent persons for the: ▪ erection, use and stripping of formwork; ▪ prevention of persons falling and the management of falling objects, including exclusion zones; ▪ management of penetrations - open penetrations such as stairwells shall include handrails, mesh, and plywood covers. Slabs shall include cast in mesh to be secured prior to pouring concrete. Penetrations on poured slabs shall be covered with form play and secured in place to prevent inadvertent removal; and ▪ correct installation and conformation of systems/structures, including the ongoing monitoring/inspections of the effectiveness of the systems/structures in accordance with legislative and manufactures requirements and applicable drawings or plans; ▪ Installation of multiple formworks systems, including how they are shown on drawings and how they interact; ▪ review design variations that deviate in the erection from the plan or that fall outside the design parameters and ensure designs/drawings are updated and approved; and ▪ review modifications to erected formwork, outside specified design parameters and ensure designs/drawings are updated and approved.	Project Manager	SWMS

	Verification by a competent person that formwork has been installed as designed shall be provided prior to use. A competent person has at least one of the following: ▪ Cert III Carpentry, ▪ VoC for Formwork by a registered RTO, ▪ Formwork certificate; or ▪ Licenced Builder, Qualified Carpenter, Structural engineer or equivalent.		
3.16.4	An Engineer with experience in structural design shall inspect and certify that the completed formwork, including reinforcement, meets the design specifications, manufacturers' instructions and relevant legislation, codes of practice, Australian standards and applicable drawings/plans and is structurally sound prior to concrete pours.	Project Manager	Engineers Certificate

3.17 EXPOSURE MONITORING

Section	Requirements	Responsibility	Tools
3.17.1	Projects shall identify potential health hazards including biological, chemical and atmospheric contaminants. FDC workers trained in FDC Hazard Identification Risk Assessment and Control (HIRAC), including the use of the Site Risk Assessment, shall be responsible for conducting this preliminary assessment. The Site Establishment Checklist helps check the availability of project specific investigations and assessments (eg hazardous material survey) to assess potential health hazards and determine if additional health risk assessments are required, or if an Occupational Hygienist should be engaged. If project specific documentation is not available, and there is reason to believe health hazards may exist, an Occupational Hygienist shall be engaged to conduct further assessments (eg hazardous material survey, health risk assessments) if necessary. Management of asbestos and ACM shall be in accordance with the Asbestos section of this Project Management Plan.	Project Manager	Site Establishment Checklist; Site Risk Assessment F001; Occupational Hygienist reports
3.17.2	Where documentation identifies potential health hazards, further investigations and assessments (eg Health Risk Assessment) shall be conducted by an Occupational Hygienist to identify types and locations of health hazards, evaluate risks and determine exposure standards and recommended controls for working with the health hazard. Project specific controls for working with health hazards shall be developed in consultation with relevant stakeholders, and include, but not be limited to, developing safe systems of work and control measures.	Project Manager	Site Risk Assessment F001; Health Risk Assessments

	If potential physical health hazards (eg dust, noise, vibration etc) exist, these shall be managed in accordance with the Work Environment section of the Site Risk Assessment to develop safe systems of work and control measures.		
3.17.3	Workplace and worker exposure monitoring activities for work potentially affected by health hazards shall be developed in consultation with the Occupational Hygienists. Safe systems of work including Occupational Health and Hygiene Management Plans, SWMS, Permits or a combination of these shall address the following activities: ▪ Method and frequency of monitoring; ▪ Sampling and analytical method (including exposure standards); ▪ Interpretation and consultation of results; ▪ Nomination and maintenance of control measures; and ▪ The need for individual health surveillance. When monitoring activities identify that exposure to potential health hazards are approaching accepted exposure standards, the suitability of nominated control measures shall be reviewed in consultation with site management and the Occupational hygienist to determine appropriate actions where appropriate.	Project Manager	Occupational Health and Hygiene Management Plans, SWMS; Permits; Reports
3.17.4	The inspection, measuring and test equipment related to health and safety monitoring shall be managed in accordance with manufacturer's specifications and legal requirements with records of calibration maintained. In the absence of registers or calibration certificates from the subcontractor, FDC shall maintain a register of project specific on the Calibration Register.	Site Manager	Calibration Register F080
3.17.5	A review of monitoring activities and nominated control measures shall be undertaken when: ▪ a failure of nominated control measures is suspected; ▪ accepted exposure limits are exceeded; or ▪ when individuals are unexpectedly exposed to health hazards that weren't previously known to be present on-site. Where potential exposure to known or unknown health hazards has occurred, work shall cease immediately, and the area evacuated and secured. Further work activities shall be assessed in consultation with site management and the Occupational Hygienist to determine improvements to work methods and control measures. Workers potentially exposed to hazards shall be referred to registered medical practitioner for health surveillance monitoring if there is any uncertainty if they have possibly been exposed to the hazard.	Project Manager	Reports and results; clearance certificates

	Access to closed secured areas due to potential health hazards shall not be permitted until certification is received from the Occupational Hygienist and the suitability of monitoring requirements and nominated control measures have been assessed, recorded, and improved as necessary.		
3.17.6	General information on health surveillance, exposure monitoring and control measures is communicated as appropriate through inductions, toolbox talks, noticeboard etc. Records of health surveillance and exposure monitoring activities however contain personal information and shall remain confidential.	Project Manager	Site Induction-Site Rules F018.Toolbox Talks F050.
3.17.7	All works above to be in accordance with UI/COS Contractor Handbook section 4.16 Asbestos, Lead and other Hazardous Infrastructure Materials including Asbestos Removal Permit.	Site Manager	UI/COS Contractor Handbook

3.18 HEALTH SURVEILLANCE

Section	Requirements	Responsibility	Tools
3.18.1	Health surveillance involves monitoring the health of workers to identify any changes that may be due to occupational exposure to identified health hazards. Workers working with health hazards (eg hazardous chemicals, asbestos etc) are subject to health surveillance in accordance with licencing and regulatory requirements. Evidence that health surveillance monitoring has been conducted for workers shall be made available to FDC. Where it is determined that there is a potential hazard exposure to a worker, a registered medical practitioner shall be consulted to develop a health surveillance program. Ongoing individual health surveillance shall be provided in accordance with the recommendations of registered medical practitioners. Health surveillance requirements shall be communicated to relevant employees and shall remain confidential. Where registered medical practitioner advise that health surveillance is required, a review of monitoring activities and nominated control measures, including any recommendations by the registered medical practitioner, shall be undertaken in consultation with site management and Occupational Hygienist to determine appropriate actions.	Project Manager	Occupational Health and Hygiene Management Plans, Reports and results

3.18.2	As soon as reasonably practicable after obtaining the health monitoring report from a registered medical practitioner doctor a copy shall be provided to: ▪ the worker; ▪ all other PCBUs who have a duty to provide health monitoring for that worker; and ▪ to the WHS regulator if: - the test results show the worker may have contracted an injury, illness or disease from working with a chemical that triggered health monitoring; - the health monitoring doctor recommends remedial measures, including whether the worker can continue to carry out work or a review of control measures; or - for lead risk work, the test results show the worker has reached a blood lead level at or above the relevant removal level.	Project Manager	Reports; Correspondence
3.18.3	Project teams shall notify workers health hazards, work activity, and the details of the health surveillance program. Workers potentially exposed to hazards shall be encouraged to report on their wellbeing and referred to registered medical practitioner if there is any uncertainty if they have possibly been exposed to the hazard. Workers shall be permitted to access their own results.	Project Manager	Toolbox, prestarts; Personnel Files - health monitoring reports
3.18.4	Worker health monitoring reports for health hazards, including hazardous chemicals and lead shall be: ▪ identified as a record about the worker; ▪ held separately from normal workers records (eg payroll) to prevent unauthorised access; ▪ kept confidential and not disclosed to another person without worker's written consent, except where records are required under a law; and ▪ maintained for at least 30 years after the record is made, even if the worker no longer works at your workplace. Asbestos records shall be managed in accordance with the Asbestos section of this plan.	Project Manager	Personnel Files - health monitoring reports
3.18.5	Contractors must comply with all requirements of the ban on engineered stone in 2024. All workers must be provided with information regarding the silica worker register (SWR) notification, including the requirement for employers to register all workers undertaking high-risk silica processing activities. Contractors are reminded they are legally required to provide regular health monitoring to workers if there is a significant risk to their health from exposure to respirable crystalline silica.	Project Manager	UI/COS Contractor Handbook

3.19 MOBILE PLANT

Section	Requirements	Responsibility	Tools
3.19.1	The Mobile Plant Induction shall be completed for mobile plant prior to commencing works on site through *SIMPEL > Manage Project > Plant Inductions*. The induction shall ensure, as a minimum, a plant risk assessment specific to the plant, maintenance records, log books and original equipment manufacturers manuals are available. Plant risk assessments shall focus on higher order controls including plant specific warning devices, ROPs/FOPs, guarding, edge protection etc. Operator controls are considered lower order controls and on their own are not acceptable as a plant risk assessment. The mobile plant induction process aims to establish safe systems of work addressing original equipment manufacturers requirements, plant risk assessment outcomes and controls, and the need for ROP's and FOP's. Safe systems of work may include SWMS, plant risk assessments, permits, SOP's or a combination of these to enable the safe use of mobile plant. Plant operators shall confirm they're qualified to use the plant, that they have read, understood and will comply with the plant risk assessment, will monitor plant controls and confirm if additional actions are required to manage uncontrolled hazards. All mobile plant, lifting equipment and associated activities shall be managed in accordance with the requirements of the Contractor Handbook Sections 4.6.7, 4.6.8 and 4.20. Mobile plant activities must be assessed and controlled to minimise risks to workers, pedestrians, the public and surrounding areas. Controls must include suitable traffic management, separation of pedestrians and plant, use of warning devices and spotters where required, maintenance of safety systems, and ensuring plant is safely secured when unattended. Plant shall be maintained in a safe condition, parked securely when not in use with keys removed and attachments lowered, and protected from unauthorised access or operation. Any unauthorised access or movement must be managed as a safety incident. A spotter is required for each mobile plant movement. Plant and equipment entering site shall be approved, inspected and managed in accordance with site requirements, including controls for plant access, security, key management and third-party collection arrangements.	Site Manager	*SIMPEL > Manage Project > Plant Inductions*. Mobile Plant Induction F077, Plant Risk Assessment Confirmation (via or Toolbox Talks F050

3.19.2	Inducted plant shall be registered on SIMPEL and receive a plant identification sticker to be displayed with the plant Registered plant shall be randomly selected, and records verified through Weekly Site Inspections and Monthly Site Audits. The Plant and Equipment Competency and Inspection Schedule is available as guidance regarding plant inspection requirements. SIMPEL shall record plant inspections and maintenance specific to the needs of each type of plant. Inspections shall be in accordance with regulatory inspections, registrations, and manufacturers requirements, including pre-start inspections and/or commissioning prior to commencing on site. Crane Safe is the preferred registration for cranes. The register shall be used to manage ongoing maintenance requirements.	Site Manager	*SIMPEL > Manage Project > Plant Induction;* Plant and Equipment Competency and Inspection Schedule G012
3.19.3	Where a mobile crane or boom pump is required, the Mobile Crane / Boom Pump Setup form shall be completed. This is required for each new location that a Mobile Crane / Boom Pump is set up for operation. The set-up location and ground conditions shall be communicated to relevant parties. The subcontractor shall develop safe system of work, including SWMS, in addition to the above documentation.	Site Manager	Mobile Crane/Boom Pump Setup F078
3.19.4	**Lifting procedures for Tower Cranes** – the subcontractor shall provide lifting procedures/lift plan when working outside the Original Equipment Manufacturers requirements and when multiple cranes are involved in a lift. Procedures shall include crane type / capacity, weight of lift, load charts, rigging/lifting equipment, lifting methods and sequence etc.	Site Manager	Lifting procedures / lift plan; SWMS
3.19.5	**Lifting procedures for Mobile Cranes** - Documented lifting procedures shall be provided by persons responsible for mobile cranes, in addition to safe work method statements, for work associated with cranes in the following situations: ▪ tilt-up panel jobs ▪ multiple crane lifts - where more than one crane is used to lift a load at any one time ▪ lifting of workboxes with persons in the boxes ▪ installation of bridge beams during bridge installation work ▪ working near live overhead powerlines ▪ lifting large pressure vessels or tanks ▪ the use of mobile cranes on barges ▪ erection of tower cranes or ▪ heavy lifts where the load is 50 tonnes or more.	Site Manager	Lifting procedures / lift plan; SWMS

	Lifting activities shall be planned and managed in accordance with the project lifting procedures. Lifts shall be classified as simple/routine or complex in accordance with the Contractor Handbook requirements. Complex lifts, including those involving tower cranes, building hoists, bridge installation or non-standard loading arrangements, shall require appropriate lift planning, approvals and an approved CSMS Lifting Permit prior to commencement.		
3.19.6	The mobile cranes lifting procedures for the above situations shall include: ▪ maximum load radius to be used for the cranes ▪ where spotter duties are required (e.g. for preventing collision or contact with powerlines), what the duty is and who is responsible for performing the duty ▪ position of the load to be lifted and the final position to which it is to be lifted, where practicable ▪ diagram that shows a plan view of the site may assist ▪ maximum wind speed where the load has a large surface area ▪ verification of the maximum allowable ground bearing pressure (this shall be carried out for heavy lifts including tilt up panels and loads of 50 tonnes or more.) ▪ allowance for any factors that may require de-rating of the crane (e.g. for multiple crane lifts, additional radius caused by tilting of tilt-up panels) ▪ rigging requirements of the job.	Site Manager	Lifting procedures / lift plan; SWMS
3.19.7	Work boxes - Subcontractors shall develop safe systems of work in accordance with relevant legislation, standards, and codes of practice for using crane lifted work boxes, including crane lifted first aid work boxes. Safe Work Australia has an information sheet including reference to AS 1418.17 and AS 2550.1 crane use, design and construction requirements. The safe systems of work shall address requirements for the use of work boxes and cranes.	Site Manager	Lifting procedures / lift plan; SWMS
3.19.8	Operator licensing, qualifications or competency requirements shall be identified through the Mobile Plant Induction. These documents shall be verified at worker site inductions. Further guidance on competency/qualifications is available through the Plant and Equipment Competency and Inspection Schedule to assist this process. NOTE: a letter signed by an employer or supervisor claiming that the worker is competent is not acceptable.	Site Manager	Site Induction-Site Rules F018; Mobile Plant Induction F077; Plant and Equipment Competency and Inspection Schedule G012

3.19.9	A vehicle movement plan shall be maintained to manage interactions between people and mobile plant. Plans shall show work areas and pedestrian access, be displayed on site, communicated at toolbox / pre-start meetings, and updated as site activities change. Plans shall consider site conditions, barricading, exclusion zones, warning devices, and plant, vehicle, and worker interactions.	Site Manager	Vehicle Movement Plan

3.20 SCAFFOLD

Section	Requirements	Responsibility	Tools
3.20.1	FDC shall ensure where a person or object could fall greater than 4m that scaffold is designed by a qualified person, documented on drawings/plans and installed as per the plan, and changes to the design or installed system are authorised by a qualified person. FDC shall conduct a workshop with subcontractors to confirm scaffold requirements for high risk scaffolds, including where an object or person could fall greater than 4 metres. Attendees shall include FDC Site Manager, Subcontract Supervisor as a minimum.	Project Manager	Scaffold Workshop F045
3.20.2	Scaffold where a person or object could fall greater than 4m shall be designed by a qualified structural engineer who shall: ▪ provide a scaffold design/plan that includes a site layout, engineer sketch plan, engineer approved as-built or standard drawings for scaffolds; ▪ provide documented design parameters provided by the scaffold manufacturer. These should be located on the scaffold drawings or associated documents; ▪ provide designs and drawings that reflect interactions between multiple scaffold systems where applicable; ▪ review design variations that deviate in the erection from the plan or that fall outside the design parameters and ensure designs/drawings are updated and approved; and ▪ review modifications to erected scaffold, outside specified design parameters and ensure designs/drawings are updated and approved. A structural/geotechnical engineer shall provide written confirmation of the assessment of building structures/materials/foundations and identify controls required prior to commencing scaffolding.	Site Manager	Scaffold Workshop F045; Design/drawings; qualifications
3.20.3	Scaffold where a person or object could fall greater than 4m shall be erected by a person holding a High Risk Work Licence (Basic, Intermediate or Advanced Scaffolder).	Site Manager	High Risk Work Licence

3.20.4	Scaffold where a person or object could fall greater than 4m shall not be used or accessed unless a written inspection certificate from the scaffold inspector (HRWL Intermediate or Advanced Scaffolder), has been obtained for the scaffold, or its relevant portion, and is complete, and verified as installed in accordance with the manufacturers' instructions and relevant legislation, codes of practice and Australian standards and applicable drawings/plans. Scaffold inspections shall be conducted: ▪ prior to initial use; ▪ after repairs and alterations; ▪ before scaffold is used after an incident (eg heavy weather events, unplanned impact to scaffold) that may affect the stability of the scaffold; and ▪ at least every 30 days. The inspections shall include methods to check base plates and sole boards are correctly installed per design and supported on solid ground. Inspection records by the scaffold inspector shall be in accordance with AS 4576 and include the: ▪ individual identification number or mark of the scaffold; ▪ design, drawing, specification, or manufacturers reference; ▪ location of the scaffold; ▪ purpose for which the scaffold is provided; ▪ date and time of each inspection; and the ▪ name and signature of the person conducting the inspection. Written inspections shall be maintained in site files. Where scaff tags (or similar are used), the above records of inspection are still required to meet AS 4576. The Safe Work Australia – Guide to scaffold inspection and maintenance can be used by FDC team to monitor scaffold suitability. The scaffold over 4m will require 2.8m hoarding, and lockable access/egress points.	Site Manager	Scaffold Inspections
3.20.5	The assembly, dismantling and re-assembly of fixed or mobile scaffolds where a risk of fall of a person or object is less than 4m shall be by competent persons including:	Site Manager	Evidence of training; SWMS, Weekly Site

	▪ a person holding a High Risk Work Licence (Basic, Intermediate or Advanced Scaffolder) and SWMS; or ▪ persons trained in the use of the scaffold components in accordance with manufacturers requirements and SWMS. These scaffolds shall be inspected to monitor the effectiveness of the system / structure in accordance with specified requirements through the Weekly Site Inspection. The Task Observation may also be used as applicable to observe the scaffold in use for a specific task. Where inspections are also conducted by competent persons records shall be maintained. Work platforms with no assembly requirements (e.g. Snappy Scaffold) are exempt from this process.		Inspection F049. Task Observation F053
3.20.6	Swinging stages shall only be erected and operated by persons holding the relevant VOC by an RTO (ie 10910NAT).	Site Manager	G012 Plant and Equipment Competency and Inspection Schedule
3.20.7	All works above to be in accordance with UI/COS Contractor Handbook section 4.4 Scaffolds and section 4.5 Prevention of falls, working at heights and accessing roofs	Site Manager	Foreman

3.21 STRUCTURAL STEEL

Section	Requirements	Responsibility	Tools

3.21.1	Consultation with workers for the planning and erection of structural steel shall be initiated through the Structural Steel workshop. Consultation shall address potential hazards, risks and control measures, fabrication, transportation, and erection and include structural design engineer, fabricator, and erector on: ▪ the structural design of the building; ▪ plant and equipment to be used; ▪ erections sequence; ▪ training and qualification of workers and engineers; ▪ emergency management; and ▪ access to the structure. Information from consultation activities shall be available to parties involved and reviewed and updated as required to enable for the safe erection and handover. The workshop shall address hazards associated to the proposed works including working at heights, falling materials, electrical and plant management. Attendees shall include FDC Site Manager, Subcontract Supervisor as a minimum.	Project Manager	Structural Steel Workshop F046, Site Risk Assessment F001
3.21.2	Design and planning by the structural design engineer shall consider: ▪ the effect of the erection sequence on the stability of the structure; ▪ safe access and working places including anchorage points for fall prevention/arrest systems; ▪ the ease of connections for components such as landing cleats; ▪ safe handling storing and transport of components including providing details of lifting points, and ▪ all materials, for example grades of steel and welding comply with standards specified in the design; and ▪ ensure shop drawings comply with the structural design before steel members are fabrication. The erection sequence shall be documented and supplied to FDC and parties involved in the fabrication and erection of the steelwork. Structural steel shop drawings shall be reviewed by the Permanent Works Engineer, and Temporary Works Engineer where applicable, prior to fabrication and erection respectively.	Project Manager	Design Plan / Design Drawings; Shop drawings

3.21.3	Persons responsible for structural steel fabrication shall: ▪ Ensures the accurate detailing and manufacture of the steelwork according to the shop drawings; ▪ Ensures steel members are identifiable for the sequence of erection and fit together correctly; ▪ Structural steel shall be supported and tied to prevent movement during loading or unloading and transport; and ▪ Logistics for site delivery have been coordinated.	Project Manager	Shop drawings
3.21.4	Persons responsible for structural steel erection shall ensure site specific safe systems of work are developed and: ▪ Obtain the approved erection sequence documentation; ▪ Prepares the method of erection according to the drawings; ▪ Provide a site plan with detailed information on the location and coverage of cranes and lift plans where required, workers, unloading points and storage areas, and exclusion zones; ▪ Consider the stability requirements of all items of the structure, including temporary works; and ▪ Consider the suitability of ground conditions for the safe movement of mobile plant. If the erection process is split into shifts, a defined process for beginning of a shift, and ending of a shift shall be determined by the persons responsible for structural steel erection.	Project Manager	Structural Steel Workshop F046
3.21.5	Persons responsible for structural steel erection shall provide written confirmation that the structural steel erection meets design requirements in accordance with the structural steel high risk workshop.	Project Manager	Handover inspections, ITPs'

3.22 TILT-UP / PRECAST CONCRETE

Section	Requirements	Responsibility	Tools
3.22.1	A Design Plan for Tilt-up/Precast activities shall be developed and certified by a qualified Structural Engineer to address: ▪ design and construction of panels including identifiers for each panel; ▪ lifting points and panel placement; ▪ erection requirements that include panel bracing and details of anchorage designs; and ▪ inspection requirements for panels, lifting points, bracing prior to, during and after installation.	Site Manager	Design Plan
3.22.2	Prior to commencing Tilt-up/precast activities the following shall be provided to FDC: ▪ project design engineer's certificate of compliance;	Site Manager	Compliance certificates;

	▪ manufacturer's certificate of compliance; ▪ component schedule; ▪ design drawings, including approval of proprietary or manufactured inserts and fixings; and ▪ shop drawings.		drawings; schedules
3.22.3	The subcontractor shall develop safe system of work, including SWMS prior to activities commencing on site to address: ▪ that a Lift Plan has been developed in consultation with crane crew; ▪ erection, bracing and stripping; ▪ protection of workers under and around Tilt-up/Precast; ▪ falls and falling objects; ▪ unloading and slinging panels and cranage requirements and the protection of panels and bracing from damage by inadvertent contact with Mobile Plant or other site activities; and ▪ changes to the design approved by the design engineer	Site Manager	SWMS; Lift Plan
3.22.4	Subcontractors shall provide FDC evidence of inspections to verify that Tilt-up/Precast panels have been installed in accordance with the manufacturers' instructions and relevant legislation, codes of practice and Australian standards and applicable drawings/plans. Changes to the design or installed system shall be approved by the design engineer. Ongoing inspection by subcontractors that provide FDC evidence of ongoing inspection of braces / props / fixtures / bolts conducted in accordance with the frequencies and requirements of the Design Plan. Daily visual inspections of braced and bracing concrete elements shall be conducted and recorded where corrective action is required.	Site Manager	Inspection records

3.23 TRAFFIC

Section	Requirements	Responsibility	Tools
3.23.1	The Site Risk Assessment shall identify who is responsible for developing and implementing the traffic management plan for roads around the site. A Vehicle Movement Plan shall be developed for onsite activities in accordance with the Mobile Plant section of this PMP.	Site Manager	Site Risk Assessment F001

3.23.2	Where required, a Traffic Management Plan (TMP) and associated control plans shall be prepared by qualified and licensed personnel to inform, control and guide road users and to protect the safety of construction personnel and the public. The TMP shall: ▪ be prepared in accordance with relevant legislation, Codes of Practice, Australian Standards, or other requirements; ▪ include location specific traffic control plans (e.g. diagrams/drawings); ▪ detail the methodology for safely implementing and dismantling traffic control devices; and ▪ be approved as specified by the relevant authority prior to implementation where required. The FDC Traffic Management Plan template shall be used in the absence of any externally provided TMP. Traffic management requirements shall be communicated through Site Inductions, as a minimum, and other communication forums (e.g. Prestart Meetings) as required.		Traffic Management Plan
3.23.3	FDC shall ensure that personnel developing, installing, using, and monitoring traffic control devices are suitably qualified and licenced with the relevant road authority. G012 Plant and Equipment Competency and Inspection Schedule is available for further guidance. Evidence of specific qualifications and licensing shall be recorded through the site inductions.	Site Manager	SIMPEL Site Induction-Site Rules F018
3.23.4	Monitoring of traffic management shall be conducted at least daily when traffic controls are active. Inspections shall ensure controls are in accordance with requirements specified in the TMP and that controls have not been vandalised or tampered with. Inspections shall be documented and maintained.	Site Manager	Traffic control inspections
3.23.5	FDC shall ensure that the TMP is reviewed at frequencies specified in the plan and following an incident to determine its adequacy in managing traffic and potential hazards. Reviews shall verify that: ▪ Revisions to the plan have been made, approved/acknowledged, uploaded, and communicated; or ▪ the current plan remains unchanged and has been confirmed as adequate in managing project requirements.	Site Manager	TMP Review
3.23.6	All works above to be in accordance with UI/COS Contractor Handbook section 4.7 Traffic Management - in particular review and approval of TMP by protective services. Qualified Traffic Controllers shall be used where required to manage delivery vehicle movements. Spotters may be used to assist with internal plant movements(including scissor lifts on podium), reversing activities and restricted visibility areas but shall not undertake traffic control duties unless appropriately qualified.	Site Manager	All works above to be in accordance with UI/COS Contractor Handbook section 4.7 Traffic Management - in

	Roles and responsibilities for Traffic Controllers and Spotters shall be clearly identified within the Construction Traffic Management Plan and site logistics arrangements. Any temporary road closure, lane closure or restriction affecting University operations will require prior approval through the University's Contractor Safety Management System (CSMS) in accordance with Section 4.7.2. Road closures will not be implemented until the required University approval has been obtained		particular review and approval of TMP by protective services.

3.24 WORKING AT HEIGHTS

Section	Requirements	Responsibility	Tools
3.24.1	The primary methods to prevent falls from height and falling objects shall be managed in accordance with safe systems of work for Demolition, Excavation, Formwork, Mobile Plant, Scaffold and Tilt Up / Pre Cast activities. Proposed working at heights activities not covered by those activities shall be identified, assessed, and controlled in accordance with the hierarchy of control and applicable legislation, codes of practice and Australian standards in the Site Risk Assessment and the following requirements. To reduce potential risk of harm work methods to avoid working at heights shall be considered. Where not reasonably practicable the following sections for harness use; temporary edge protection and ladder use shall apply.	Site Manager	Site Risk Assessment F001
3.24.2	**Harness Use** **Training** - Workers using fall restraint/fall arrest equipment shall hold Nationally recognised Work at Height training course or applicable high risk construction work license including EWP >11m, Riggers/Scaffolders tickets. **Maintenance** - Evidence of equipment maintenance and inspections shall be provided prior to works commencing and continue throughout the project in accordance with an equipment maintenance schedule. **Attachment Point Design** - Engineering design for proprietary attachment points (e.g. eye bolts, static lines) shall be in accordance with manufacturers' requirements and provided and certified by a qualified Engineer with experience in fall restraint/fall arrest equipment. Evidence of qualifications and competency shall be readily accessible. **Attachment Point Installation** - Installation and inspection of proprietary attachment points (e.g. eye bolts, static lines) shall be in accordance with manufacturers' requirements and conducted, certified and provided by a competent height safety equipment inspector. A competent person for this is a worker trained in the use of the anchor points design and manufacturers requirements and holds work at height training.	Site Manager	Inspections and certifications; Training / Qualification Equipment maintenance; Design documentation

	Attachment Point Inspection – Prior to harness use, inspections of installed anchor points and fall arrest / restraint equipment shall be conducted by a competent person trained in the use of the installed systems manufacturers requirements. Where fall restraint / fall arrest equipment is attached to a structural element (e.g. a concrete column) this shall be done so by a person holding Riggers (All) / Scaffolders (Advanced / Intermediate) high risk work license.		
3.24.3	The Harness Permit shall be issued by FDC where safe systems of work, including SWMS and associated design, installation, maintenance, inspection, and training records are developed where a harness is the primary control measure. The Permit shall be approved by FDC when safe systems of work have been developed and evidence of SWMS, equipment inspections, design and installation information of attachment points and training records have been received. The Permit shall remain valid for one week from date of issue unless a new harness user is required, or equipment and attachment points change within that period. A permit is not required when using a harness as a secondary control measure such as EWP and Work Box.	Site Manager	Harness Permit (F064).
3.24.4	**Temporary edge protection** systems (including proprietary and engineered systems) shall be: ▪ installed as directed by either the designers, manufacturers, or suppliers of the system by a Ticketed Scaffolder, or Rigger, or worker trained in the use of the system as specified by the manufacturer, supplier or installer; ▪ inspected by a Ticketed Scaffolder, or Rigger, or worker trained in the use of the system prior to handover. Evidence of the initial installation and inspection shall be documented; ▪ inspected at intervals not exceeding 30 days and be documented.	Site Manager	Training/Qualification Equipment maintenance; Design documentation; SWMS
3.24.5	Safe systems of work shall be developed to prevent people or objects falling through penetrations. Safe system may include handrails, mesh, plywood covers and signage. Where subcontractors are installing roof safety mesh the Roof Installation Permit shall be required in accordance with the Site Risk Assessment and SWMS. Safe access and egress for workers working at height shall be assessed and controlled in accordance with the Site Risk Assessment > Working at Heights. Controls may include scaffold stair access, hoist, good lift etc.	Site Manager	SWMS, Roof Installation Permit (F061), Site Risk Assessment F001

	Hosit and cranes standards and codes shall be followed for design, installation, use and maintenance whilst on site and shall be inducted as plant.		
3.24.6	**Ladders** shall primarily be used as a means of access (e.g. access to mobile scaffolds, formwork decks etc.) and not a working platform. The use of ladders (i.e. A frames/rung ladders) for other purposes shall only be considered if safer alternatives, such as scaffolding or elevating work platforms, Platform Ladders or trestles are not reasonably practicable. The Ladder permit is required where scaffolding, elevating work platforms, platform Ladders or trestles are not reasonably practicable. The permit shall ensure safe systems, including SWMS, Site Risk Assessment or other standard operating procedure shall be developed to address potential hazards and controls relating to working from the ladder. In these cases the safe use of ladders shall only be used for light duty work of short duration. Domestic ladders are not permitted. Non-Conductive ladders (fibreglass) are required near potential electrical risk, electrical contractor must ensure correct ladders are provided on site – works will not be permitted if this isn't upheld.	Site Manager	Ladder Permit F065; SWMS
3.24.7	All works above to be in accordance with UI/COS Contractor Handbook section 4.5 Prevention of falls, working at heights and accessing roofs in particular 'roof access permit' and 'working at heights permit'.	Site Manager	UI/COS Contractor Handbook

3.25 PERSONAL PROTECTIVE EQUIPMENT (PPE)

Section	Requirements	Responsibility	Tools
3.25.1	Workers shall wear personal protective equipment (PPE) including hard hats, high visibility clothing and steel capped safety footwear when performing construction work. It is mandatory for all outdoor workers to wear long sleeves and long pants. Additional PPE shall be worn where specified in safe systems of work, including SWMS, permits or the workplace specific induction. Visitors shall wear personal protective equipment (PPE) including hard hats, high visibility clothing and enclosed footwear when visiting construction sites. Additional PPE shall be worn where specified by FDC.	Project Manager	Site Risk Assessment; SWMS; Site Induction

3.26 HOT AND COLD WORK ENVIRONMENTS

Section	Requirements	Responsibility	Tools

3.26.1	Where work is conducted in extreme temperatures these require hazard identification, risk assessment and control through the Site Risk Assessment in accordance with the Hot and Cold Work Environment Policy. Safe systems of work, including SWMS, shall be developed in consultation with workers to consider: ▪ The nature and location of the work; ▪ Alternate work hours; ▪ sun protection (eg shade structures, clothing, sunscreen, hats/brims); ▪ shelter (eg temporary structures, clothing, portable heating); ▪ rest breaks and adequate recovery between shifts; and ▪ alternatives to working alone.	Site Manager	Site Risk Assessment F001; Hot and Cold Work Environment Policy.

3.27 PSYCHOSOCIAL HAZARDS

Section	Requirements	Responsibility	Tools
3.27.1	**Psychosocial hazards** are factors in the workplace that may cause psychological and/or physical harm. These hazards may arise from, or be associated with: ▪ the design, organisation, or management of work; ▪ the physical and social working environment; ▪ plant, equipment, or systems of work at the workplace; and ▪ workplace interactions, behaviours, or relationships. Psychosocial hazards shall be identified, assessed, and controlled through the Site Risk Assessment and safe systems of work, including SWMS. The nature of psychosocial hazards and the effectiveness of control measures may vary between workplaces and individual workers, depending on factors such as the work environment, organisational context, and the type of work being performed. When determining appropriate control measures, consideration shall be given to the duration, frequency, and severity of workers' and other persons' exposure to psychosocial hazards.	Project Manager	Site Risk Assessment, SWMS

3.27.2	Workers are responsible for their own safety and of those working with and around them. Potential psychosocial hazards can be raised through the agreed consultation process or site management and the privacy and confidentiality of parties involved maintained. Professional services support is available via the project noticeboard, Employee Assistance Program and FDC's intranet 'The Vault').	Project Manager	Consultation arrangements FDC Vault: -EAP -Guidance – Mental Health in our Workplaces
3.27.3	Psychosocial hazard training is included in FDC HIRAC recorded on the Training and Experience Register (F024). Additional training and information is provided through the site induction and may be addressed through toolbox talks and the agreed consultation arrangements. Education and awareness is supported through various programs including R U O K, Mates in Construction, Bluehats, Foundo blue, International Women's Day, Safe Work Month to draw awareness to psychosocial hazards in the workplace. Information on programs is available through FDC's intranet 'The Vault'.	Project Manager	Training and Experience Register (F024), Site Induction-Site Rules F018; consultation, tool box talks; FDC Vault
3.27.4	Investigations into reports of incidents involving psychosocial hazards aim to identify hazards, improve control measures, and prevent recurrence. Reported incidents may be investigated through project consultation arrangements or an agreed reviewer at the request of an affected worker. Investigations shall be conducted to maintain privacy and confidentiality of workers involved to the extent permitted by law. Records of the incident and actions shall be maintained and registered on the Project Monthly HSEQ Report. The incident management procedure can be enacted at the discretion of an affected worker in consultation with FDC management.	HSEQ Manager	Project Monthly HSEQ Report (F090).Cor-8.5-001 Incident Management

3.28 CRYSTALLINE SILICA (SILICA)

Section	Requirements	Responsibility	Tools
3.28.1	Silica is found in building materials including engineered stone, concrete, bricks, mortars, tiles, some plastics, and in its natural form of sand and stone. Workers involved in Crystalline Silica Processing (CSS) Processing, including cutting, chasing, sawing, grinding, drilling, polishing, excavating or cleaning up the dust and debris created by these activities may be exposed to Respirable Crystalline Silica (RCS).	Project Manager	Site Risk Assessment

Safe systems of work (eg SWMS, standard operating procedures, permits etc) shall be developed in accordance with the Site Risk Assessment to manage the risk of exposure. Where workplace exposure monitoring and health surveillance activities are required, these shall follow controls specified in the PMP.

The management of respirable crystalline silica risks shall include the identification of crystalline silica containing substances prior to processing, a documented task-specific assessment to determine whether the activity is classified as high-risk crystalline silica processing, consultation with competent occupational hygiene professionals where required, implementation of a Silica Risk Control Plan or qualifying SWMS, worker training, controlled processing methods, establishment of exclusion zones, appropriate selection and fit testing of respiratory protective equipment (RPE), assessment of air monitoring requirements, notification to SafeWork NSW following an exposure-standard exceedance where required, maintenance of the Silica Worker Register, and implementation of health monitoring requirements.

3.28.2	SWMS shall be used to control CSS processing provided it: ▪ identifies potential exposure activities; ▪ nominates control measures to control the risks; ▪ defines how control measures will be implemented, monitored and reviewed; and ▪ is readily accessible and understandable to workers who use it. Managing risks and worker exposure to RCS shall be through the hierarchy of controls to reduce exposure so far as reasonably practicable through: ▪ **substitution** choosing a product or activity that does not contain / expose workers to crystalline silica where possible ▪ **isolation** of the hazard – using safe work design to designate areas for tasks that generate dust and appropriate worker positioning during these tasks, using enclosures and automation to conduct dust generating tasks ▪ **engineering controls** - minimise the risk of exposure to generated dust including local exhaust ventilation, wet cutting or using tools with dust collection attachments where practicable; ▪ **administrative** including good housekeeping policies, shift rotations and modifying cutting sequences; ▪ **personal protective equipment** including appropriate respiratory protective equipment (generally a minimum of a P2 efficiency half face respirator) and work clothing that does not collect dust.	Project Manager	Site Risk Assessment, SWMS

3.28.3	Nominated control measures shall be reviewed when: ▪ these are no longer effective (i.e. a breach of controls occurs); or ▪ these are impacted by a change at the workplace; or ▪ where a new hazard or risk is identified.	Project Manager	Site Risk Assessment, SWMS

ENVIRONMENTAL

4.1 ENVIRONMENTAL ASPECTS AND IMPACTS

Section	Requirements	Responsibility	Tools
4.1.1	Potential environmental obligations and risks associated with the project shall be identified prior to the start of the project by commencing the Environmental Risk Assessment. The Environmental Risk Assessment identifies project specific aspects and impacts, and operational controls used to manage and monitor environmental issues. The Environmental Risk Assessment shall be developed, approved, and issued to subcontractors and be reviewed for ongoing suitability during the monthly project review. Where updates are required, these shall be made, approved, and reissued to relevant parties.	Project Manager	Environmental Risk Assessment F010
4.1.2	Information of hazardous materials, including material's potential impact on the environment and measures to be taken in the event of accidental release will be managed via the Hazardous Chemical Register.	Project Manager	Hazardous Chemical Register F086
4.1.3	FDC shall notify as soon as possible the statutory authority in the event of pollution incidents that have occurred during its activities that has caused or is likely to cause serious or material environmental harm from pollution. Failure to notify may lead to regulatory financial penalties for individuals and companies.	Divisional HSEQ representative	SIMPEL > Safety > Incidents

4.2 LICENSES AND APPROVALS

Section	Requirements	Responsibility	Tools
4.2.1	Licences and approvals required for the project are listed below (Insert relevant local authorities): **Licence/Approval:** / **Number:** Council – City of Sydney: 02 9265 9333 Water NSW: 1300 662 077 Sydney Water: 132092 Transport for NSW: 13 22 13 Ausgrid: 13 13 65 Heritage NSW: (02) 9873 8500	Project Manager	Licence/approval documents
4.2.2	In addition to key aspects and impacts identified through the Environmental Risk Assessment Additional Sub Plans may be required by the contract, Development Application or as deemed necessary by the Project Manager shall be developed. The following environmental sub plans are available for FDC workers on the Vault > Manage My Project > Project Set Up > Plans: ▪ Air Quality Management Plan ▪ Flora and Fauna Management Plan ▪ Hazardous Materials Management Plan ▪ Noise and Vibration Management ▪ Noise Management and Communication Plan ▪ Soil and Water Management Plan	Project Manager	Environmental Risk Assessment F010; Sub plans

- Infection Control Management Plan
- Waste Management Plan
- ESD and WOL Management Plan

4.3 CONTAMINATED SITE MANAGEMENT

Section	Requirements	Responsibility	Tools
4.3.1	Projects undertaken on contaminated sites shall undergo a Contaminated Site Assessment (CSA) by an external consultant. A report of the CSA shall be provided as part of planning approvals process of a proposed development. All relevant CSA reports, documents and approvals will be obtained and reviewed prior to site activities commencing. Operational controls may include any specific procedures described in the report or approvals.	Project Manager	CSA Report
4.3.2	Where required, ITPs and/or SWMS will be developed to address requirements of CSAs and to ensure verification of the works being completed safely and with minimal impact as described.	Project Manager	SWMS; ITP's
4.3.3	The site workforce shall be made aware of potential contamination issues through the site induction, toolbox, or prestart meetings. Advice shall be provided should problems be identified. Spoil disposal records shall be maintained.	Site Manager	Site Induction – Site Rules (F018). Toolbox Talks (F050).

4.4 ENVIRONMENTAL RATING TOOLS

Section	Requirements	Responsibility	Tools
4.4.1	The National Australian Built Environment Rating System (NABERS) is a performance-based rating system that measures the environmental impact of buildings in Australia. It provides a star rating (from 1 to 6) for various sustainability metrics, including: ▪ Energy efficiency ▪ Water usage ▪ Waste management ▪ Indoor environment quality NABERS is widely used across commercial, residential, and government sectors to benchmark and improve building performance. It plays a key role in sustainability and GHG reporting, investment strategies and leasing decisions.	Project Manager	NABERS rating tool and records.
4.4.2	Green Star rating system is a comprehensive, national, voluntary environmental rating scheme that evaluates the environmental design and achievements of buildings. Green Star is Australia's trusted mark of quality for the design and construction of sustainable buildings, fit out, and communities. Green Star rating tools help the property industry to reduce the environmental impact of buildings, improve occupant health and productivity and achieve real cost savings, while showcasing innovation in sustainable building practices. New Generation (and recent) Green Star rating tools include Green	Project Manager	Environmental Risk Assessment (F010).

	Start – Communities; Green Star - Design and As Built; Green Star – Buildings; Green Star – Interiors; Green Star – Fitouts and Green Star – Performance. Potential risks to Green Star including controls measures and responsible parties shall be documented in the Environmental Risk Assessment. The Green Star rating for this project is 5 stars		Green Star Rating Tool and records.

4.5 ECOLOGICALLY SUSTAINABLE DEVELOPMENT (ESD) and WHOLE OF LIFE (WOL) MANAGEMENT PLAN

Section	Requirements	Responsibility	Tools
4.5.1	FDC is committed to responsible and sustainable environmental management practices and has developed processes to embed sustainability into the design and construction of our projects. The purpose of the ESD/WOL Plan is to describe the systems and processes that FDC shall implement to embed sustainability into the construction of our projects, as specified and as required. The ESD/WOL Plan and ESD and WOL Measures Matrix (F011) may be used to complement the FDC Project Management Plan, as specified and as required.	Project Manager/ Delegated ESD & WOL Manager	FDC ESD and WOL Management Plan. F011 - FDC ESD & WOL Measures Matrix

APPENDIX A – Key Policies

WORK HEALTH AND SAFETY POLICY

The work, health and safety elements of FDC's integrated management system manages the provision of project and construction management for residential, industrial and commercial building, including ground up construction, refurbishment or additions and interior fitout to existing buildings and the provision of project management, design management, installation and maintenance of electrical, communication and mechanical services to industrial, commercial and civil buildings.

The directors and senior management of FDC are committed to ensuring the health and safety of workers and visitors and stakeholders that interact with our activities.

Our aim is to provide safe and healthy work conditions to prevent work related injuries and illness.
To achieve this, FDC is committed to the following key objectives:

- Implementing a strategic framework to enable continual improvement of systems, people and performance;
- Providing systems and resources to effectively manage work, health and safety including rehabilitation and return to work processes;
- Ensuring work is conducted in accordance with applicable WHS legislation, standards and workplace directions;
- Identifying and eliminating hazards and reducing the risks of activities with the potential to produce injury or illness;
- Consulting with workers on work, health and safety matters and ways to identify, assess and control workplace hazards;
- Providing instruction, training and supervision to enable understanding of workplace hazards, safe work practices and emergency procedures and
- Conducting workplace inspections to identify opportunities for improvement.

FDC managers and supervisors are responsible and accountable for the health and safety of workers, visitors and company property and ensuring applicable WHS legislation, procedures and safe work practices are followed.

Russell Grady
Managing Director

QUALITY POLICY

The quality elements within the integrated management system manage the provision of the project and construction management for residential, industrial and commercial buildings, including ground up construction, refurbishment or additions and interior fitout to existing buildings and the provision of project management, design management, installation and maintenance of electrical, communication and mechanical services to industrial, commercial and civil buildings.

The directors and senior management of FDC recognize the importance of providing quality management to meet the needs and expectations to our clients. FDC is committed to the achievement of a level of quality and professional competence to ensure our clients receive the best value for service in the market. Our aim is to be recognized for outstanding performance, the quality of our people, our relationship with clients and associated enterprises and authorities.

Our goal and commitment to providing quality management solutions is maintained by:

- Compliance with statutory obligations, standards and relevant codes of practice;
- Establishing, monitoring and auditing our system that meet the requirements of AS/NZS ISO 9001;
- Providing resources to implement and maintain the quality management system;
- Continually improving worker skills and knowledge via education and further training of staff;
- Identifying, investigating and suitable resolving any non-conformances to maintain and improve compliance;
- Reviewing performance measures and taking action to improve performance; and
- Monitoring and evaluating quality performance via implementing effective communication on quality and non-conformance issues.

The FDC quality framework is based upon the requirements of AS/NZS ISO 9001 and allows workers at all levels within the company structure to understand the quality and organizational objectives of the company, and position themselves to achieve these goals.

Russell Grady
Managing Director

ENVIRONMENTAL POLICY

The environmental elements within FDC's integrated management system manage the provision of project and construction management for residential, industrial and commercial building, including ground up construction refurbishment or additions and interior fitout to existing buildings.

FDC shall:

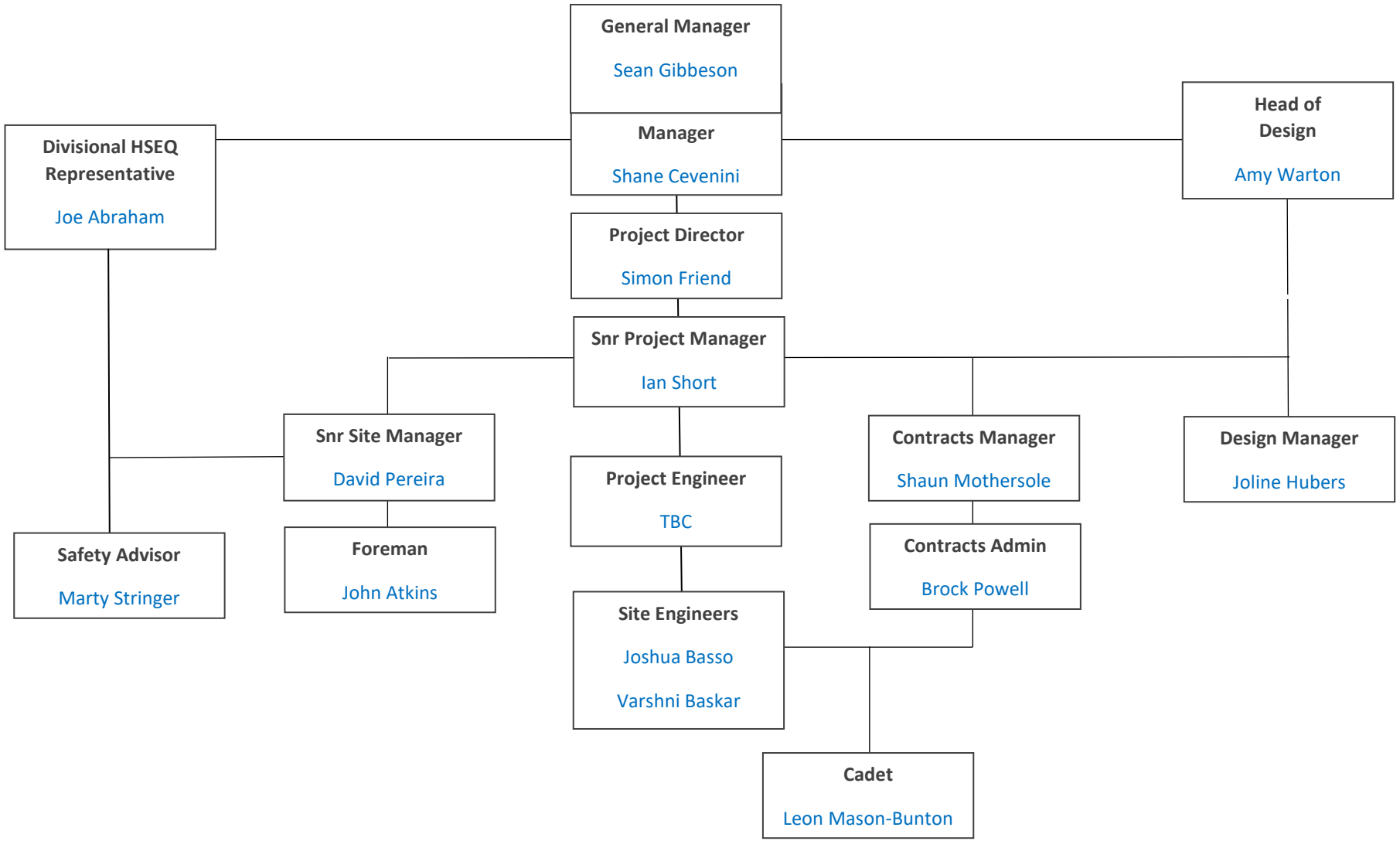
- "Reduce, re-use and recycle" wherever possible, be it on site or within the office environment;
- Promote environmentally friendly solutions;
- Ensure that environmental considerations form part of our business planning and decision-making processes;
- Promote a culture of responsible environmental management;
- Protect the natural environment and social surroundings, preserve biodiversity, prevent pollution and minimize waste;
- Comply with applicable environmental laws;
- Continually improve our environmental performance;
- Establish measurable objectives and targets; and
- Communicate with stakeholders on environmental matters.

FDC encourage, on a personal and corporate basis, sound environmental considerations for protection of our natural resources.

We discourage any practice or product selection that is knowingly detrimental to environmental protection. FDC Management and staff are committed to the implementation and maintenance of an environmental management system based on ISO14001.

Russell Grady
Managing Director

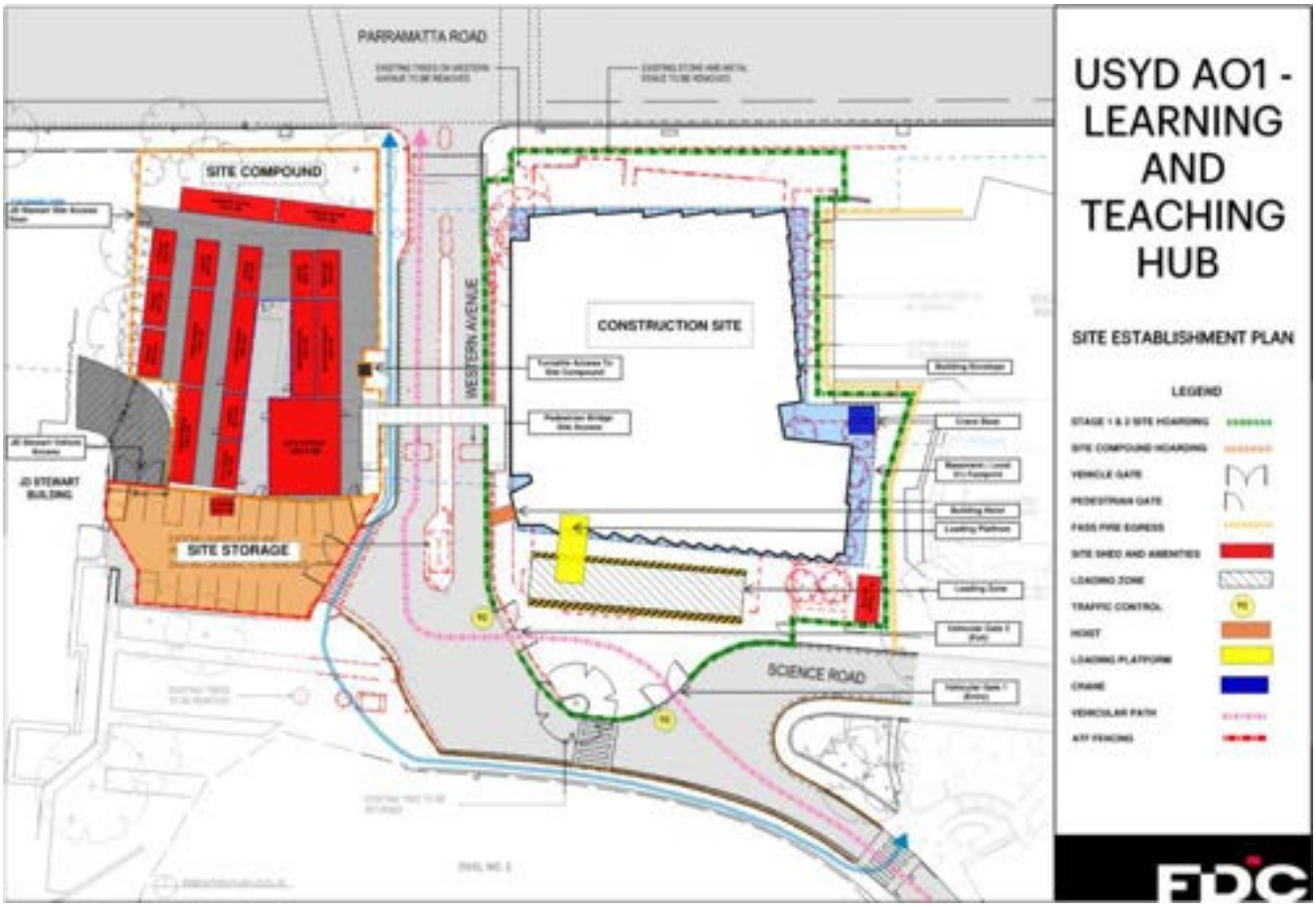
APPENDIX B – Project Organisation Chart



APPENDIX C – Revision Table

Rev.:	Rev. Date	REVISION DESCRIPTION	
A	29/06/2026	PMP Completed – For Construction	IS
B	20/07/2026	PMP Update - USYD Project Management Review Comments	IS
C	30/07/2026	PMP Update - USYD Safety Review Comments	IS
D	04/08/2026	PMP Update - USYD Safety Review Comments – 3.19 Mobile Plant	IS

APPENDIX D – Site Establishment Plan



APPENDIX E – UI/COS Contractor Handbook

THE UNIVERSITY OF SYDNEY

Contractor Handbook

University Infrastructure (UI) & Central Operations Services (COS)

Document Edition Control

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3.0	May 2016	CIS Compliance Manager	Minor Update	Approved
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4.1	August 2018	CIS Compliance Manager	Minor Corrections	Approved
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7.0	October 2025	Compliance & Assurance Manager, University Infrastructure (UI)	Major Update Click to view – Change Log	Approved
8.0	June 2026	Compliance & Assurance Manager, University Infrastructure (UI)	Major Update Click to view – Change Log	Approved

Table of Contents

1 Introduction 7
1.1 Purpose and Objectives of Handbook 7
1.2 Culture Statement 7
1.3 Community Engagement 7
1.4 About the University 8
1.5 Vision and Values 8
1.6 University Campuses 8
1.7 Disclaimer 9
1.8 Code of Conduct/Policy 9
2 Getting Started 13
2.1 Contractor Safety Management System (CSMS) Software Platform 13
2.2 Qualification and Approval 13
2.3 WHSE Project Startup Meetings 14
2.4 Induction and Location-Specific Inductions 14
2.5 Gaining Site Access, Protective Services and Emergency Management 16
2.6 Vehicles 19
2.7 Faculty & School Information 20
3 Work Health, Safety & Environment General Requirements 21
3.1 Responsibilities 21
3.2 Instruction and Direction from University Staff 23
3.3 Communications to University Staff 23
3.4 Regulators on Site 24
3.5 Supervision, inspection, auditing and performance monitoring 24
3.6 Managing Risks to Health and Safety 26
3.7 Consultation, Coordination and Cooperation 29
3.8 Design Standards and Signage Manuals 30
3.9 Personal Protective Equipment (PPE) 31
3.10 Sanitary Provisions/Use of Amenities 32
3.11 Housekeeping, Storage of Equipment and Leaving the Work Area 32
4 Work Health and Safety (WHS) Special Requirements / High Risk Work 33
4.1 Permit to Work 33
4.2 Start and close of workday inspections 34
4.3 Preventing Unauthorised Access, Use of Barricades, Fencing, Hoarding and Signs 34
4.4 Scaffolds 37
4.5 Prevention of falls, working at heights and accessing roofs 38
4.6 Plant, Tools and Equipment 38
4.7 Traffic Management 41

4.8 Essential Services 43
4.9 Electrical Safety 44
4.10 Lock-Out, Tag-Out and Test 46
4.11 Isolation and shutdown of services 51
4.12 Trenching & Excavation 52
4.13 Respirable Silica and Engineered Stone 53
4.14 Fire Prevention 55
4.15 Welding 56
4.16 Asbestos, Lead and other Hazardous Infrastructure Materials 57
4.17 Prevention of needle stick/sharps injuries 59
4.18 Confined Spaces 59
4.19 Demolition 60
4.20 Lifting, Cranes and Hoists 60
4.21 Vaccinations 64
4.22 Working Outdoors 64
5 Environmental and Sustainability Requirements 66
5.1 Sustainability Commitments/Policy 66
5.2 Environmental Management Requirements 66
5.3 Energy and Resource Efficiency 69
5.4 Waste Management 69
5.5 Refrigerant Gases 72
5.6 Vibration and Noise Management 73
5.7 Flora and Fauna 74
5.8 Heritage and Cultural Areas 75
5.9 Water Quality 77
5.10 Contaminated Land 77
5.11 University Farms 77
6 Emergency Preparedness and Response 79
6.1 University Emergency Procedures 79
6.2 First Aid 79
6.3 Contractor Emergency Procedures 80
6.4 Building Specific Evacuation Plans 80
6.5 Emergency Contact List 81
6.6 Work on Isolated or Remote Locations 81
7 Hazard and Incident Reporting 82
7.1 Hazard and Incident Reporting 82
7.2 Access to RiskWare 82
7.3 Notifiable Incidents 82

8 Definitions 85

1 Introduction

1.1 Purpose and Objectives of Handbook

The University of Sydney (the University) is committed to ensuring the rights of everyone to a safe workplace for workers, including Contractors and subcontractors, students, visitors and the general public who may potentially be affected by activities on the University campuses and other facilities (e.g. research stations, farms, hospitals). The University is committed to working sustainably to protect the environment, prevent pollution, reduce resource consumption and minimise waste. The University is also committed to comply with compliance regulations.

This Contractor Handbook has been developed to outline the requirements for Contractors undertaking works (construction, maintenance, cleaning, technical, consulting etc.) for University Infrastructure (UI) and Central Operations Services (COS) on behalf of the University.

As a prior condition to commencing any work the University, Contractors engaged by UI/COS are required to read through this Handbook to ensure an understanding of the UI/COS Work Health, Safety & Environment Management System which provide specific rules for working on site. By reading and understanding this guide, everyone working within the University will be able to play their role in maintaining a safe workplace for all. All Contractor workers are required to be familiar with the necessities of this document and effectively implement its requirements.

Any failure to always obey and follow these rules whilst onsite can result in:

- You or others around you being harmed or suffering injuries
- Your immediate removal from the site
- You / your company being issued with a Non-Conformance Report
- Your company's removal from the University site
- Your company ceasing contract work with the University
- You / your company being fined and/or prosecuted by SafeWork NSW
- You / your company being fined and/or prosecuted by the Environmental Protection Authority

All UI/COS Contractors are required to work to all relevant legislative requirements associated with their scope of engagement.

1.2 Culture Statement

The University has laid out a path towards best practice in health, safety and environmental sustainability with an ultimate goal of achieving a genuine commitment to health, safety and the environment by everyone involved with University related activities, resulting in a positive Work Health, Safety & Environment culture.

The way Contractors carry out their work, their behaviour, their appearance, their communications with and attitude to others while on campus is a direct reflection of UI/COS. It is therefore essential that all Contractors keep this in the forefront of activities. This, along with the purposes and objectives outlined above, should provide a clear indication of the UI/COS expectations of Contractors.

1.3 Community Engagement

The University is more than a workplace for our staff and a classroom for our students. We welcome visitors and take particular pleasure in seeing local residents making the most of our cultural, and sporting activities, or simply enjoying the blend of heritage and modern architecture, gardens and public spaces our campuses provide.

We are working to re-emphasise partnerships with our neighbours in the suburbs that surround our campuses. We aim to improve local infrastructure and access to campus facilities, provide employment and education opportunities, and broaden the experience of our students.

Contractors are expected to respect the community that the University operations may influence, understanding that their actions can either positively or negatively impact and reflect upon the University.

1.4 About the University

The University of Sydney is Australia's oldest university, with over 70,000 students and over 9,000 continuing and fixed-term staff, based on the 2024 Annual Report. It provides a platform for teaching, learning and research. The University has a large and diverse portfolio of physical assets, which includes buildings, grounds, site services and other infrastructure. These assets are essential to the efficient and effective functioning of the University and support its core teaching and research activities.

UI and COS are located on the University of Sydney Darlington Campus (Building G12, 22 Codrington Street, Darlington). UI/COS are responsible for the University long and short-range campus planning, capital resource planning, project delivery, property management, assets and services management and operations.

1.5 Vision and Values

This University has stood for more than 170 years – the oldest university in the country. Our vision for the next decade is unashamedly aspirational – based around what we want the University to be known for in 2032.

When people speak about the University of Sydney in 10 years' time, we want it to be about the extraordinary power our world-class research and teaching has to transform people's lives – and for the pride it generates throughout our city, our state and our nation.

The 2032 Strategy was approved by the Senate in August 2022. It is intentionally different to previous University strategies.

- It takes a longer-term view.
- It is focused on the change we need for our work to be more compelling, and more important to society, than at any other time in our history.
- It aims to establish us firmly on the path to becoming one of the world's very best teaching and research universities.

At the centre is our continuing commitment to building on the First Nations knowledge of these lands – we have work to do, and that work must be in culturally responsive ways.

1.6 University Campuses

The University has a network of teaching campuses spread throughout the Sydney area and further afield in rural NSW and interstate. The main Camperdown/Darlington campus is well known as the home of our historic sandstone buildings, gargoyles and cloisters, lawns and courtyards. But this is just one part of the picture.

Across our campuses are lecture theatres, teaching spaces and studios with state-of-the-art facilities, laboratories with the latest technology, clinical schools to support professional development and experimental farms and research stations to put theory into practice.

Maps of the various campuses can be found here: Campus Maps

Summary information about various campuses can be found here: Campus locations

1.7 Disclaimer

UI/COS have prepared this Handbook in order to assist Contractors and their workers to work safely on the University grounds and abide by work health and safety, and environment (WHSE) legislation and the University policies relating to people, property and WHSE. All Contractors must comply with the requirements set out in this Handbook, as it applies to the activities they undertake for the University.

The University Policies and Procedures identified in this Handbook are subject to change and as such the Contractor is responsible for ensuring adherence to current protocols which are available online. Every effort has been made to explain the local site rules and obligations of Contractors and their workers working at the University. However, responsibility to understand and observe relevant legislation and other legal obligations remains with the Contractor at all times.

The latest version of this Handbook will always be available on the University website here: Contractors public page

1.8 Code of Conduct/Policy

Where organisations and business operators carry out work on behalf of the University it is expected that they and their staff will act ethically, with integrity and respect, and will observe the standards established in the University's Code of Conduct - Staff and Affiliates. The University Code of Conduct applies to all University staff and affiliates, including contractors. The Code of Conduct is located here: Policy Register

The University expects that contractors and their staff:

- Operate within the law and comply with applicable policies, including those relating to the prevention of sexual harm, gender-based violence, bullying, harassment and discrimination, codes of practice and procurement policies and procedures.
- Act respectfully, safely, inclusively and lawfully in all dealings with the University and its staff, affiliates and students.
- Act ethically at all times and conduct yourself in a professional, fair and constructive manner in all your dealings with the University, its staff, affiliates and students.
- Report unethical practice, misconduct, fraud or corruption as soon you become aware of it.
- Disclose any actual or perceived conflicts of interest and report any unethical behaviour immediately.
- Provide accurate, reliable and timely information and advice.
- Do not offer financial inducements, gifts or benefits to University employees, contractors and consultants which might directly or indirectly compromise, influence or appear to influence them in their official University capacity.
- Provide ethically sourced goods and services which have been manufactured, sourced or acquired ethically and free from corruption, fraud, bribery or conflict of interest.
- Demonstrate your commitment to identifying, assessing and addressing modern slavery risks in your operations and supply chains in the jurisdictions in which you operate.
- Promote and champion a culture where sexual harm and gender-based violence is not tolerated and people are encouraged to report unlawful workplace conduct.
- Retain appropriate and accurate records of business you have conducted with the University and explain the basis of any accounts or charges submitted by you to the University.

Refer to the information below for further information on specific elements of the Code of Conduct

and various policy requirements.

1.8.1 One Sydney, Many People

Through our shared responsibilities to the Aboriginal Lands upon which the University stands, we create a genuine sense of belonging among all students and staff. As one of Australia's most eminent universities, we demonstrate visible leadership by fulfilling our social contract with Australia's First Peoples.

One Sydney, Many People is guided by respect for Aboriginal and Torres Strait Islander peoples and acknowledges the many cultures, knowledges and traditions of this place we call Australia.

Contractors are encouraged to participate or actively promote opportunities for Indigenous Employment and report it to the University.

1.8.2 Smoking and E-cigarette use

The University has a Smoke-free Environment Policy. **Smoking, including vaping of e-cigarettes is banned on all campuses**, except for within designated smoking areas. Smoking in these areas is only allowed in the immediate vicinity of the "Smoking Area" sign and ash trays are provided for cigarette butts. E-cigarette cartridges must not be disposed of in University waste bins.

This prohibition applies to all University staff, Contractors, visitors, clients, students and any other people entering or using University work areas, vehicles or facilities.

It should be noted that smoking zones have been established on all University campuses however smoking is prohibited by law in certain places, for example, where there is a risk of fire or explosion, in enclosed areas or in food preparation, handling and serving areas.

Further information can be found here Campus Maps and search for 'Smoking'.

Should a Contractor be found to be smoking on campus more than twice, then the contract may be subject to review or termination.

1.8.3 Alcohol, Drugs and Fitness for Work

No Contractor is to commence work, attempt to work, or return to the workplace whilst under the influence of, (or in possession of) alcohol or illegal drugs (or prescription drugs where side effect may affect their abilities).

Contractors found to be under the influence, or in possession of alcohol or illegal drugs will be subject to disciplinary action. This action may include cancellation of Contractor contracts and a ban from the University.

1.8.4 Language and Printed Material

Contractors should not engage in offensive or inappropriate language including swearing, wolf whistles and inappropriate comments whilst working on any University Campuses. Contractors are not permitted to display printed material that may be offensive to others including pornographic, religious or racist images or unsavoury corporate signage/slogans.

Determination of whether any printed materials are suitable for use within the University is at the sole discretion of the RUS.

1.8.5 External Communication

Contractors should:

- Notify their Responsible University Supervisor (RUS) immediately if a member of the press has requested a response. Note that where 'Responsible University Supervisor' is stated, it refers to 'University Facilities/Project Manager and includes Contract Managers, Supervisors, ICT Project Managers/contacts and anyone at the university managing contractors.
- Direct customer or stakeholder feedback to their RUS so that it can be passed on to the UI/COS Communications Manager.
- Communicate problems or suggestions to their RUS.

1.8.6 Behaviour

Contractors must not be involved in:

- Theft, fraud, possession or removal of the University property or the property of others (actual or attempted)
- Destroying, damaging, defacing or misusing the University premises or property
- The possession of firearms or dangerous weapons on the University premises, including farms

1.8.7 Equal Opportunity and Anti-Discrimination

The Contractor must ensure that the conduct of their workers and/or subcontractors during the contracted works does not compromise or infringe the rights of University staff and students in accordance with the *Equal Opportunity Act 1984*, Industrial Relations Act 1996 and its amendments to the University Sexual Harassment Policy and Grievances Procedure.

1.8.8 Ethical Standards

Contractors are required to note that it is the expectation of the University that its relationship with the Contractor is based on, among other things, ethical standards that are above reproach.

It is expected that any Contractor conducting business with the University would also share and promote similar standards for mutual benefit. A copy of the University Code of Conduct is available here: Policy Register

In the event of any evidence being presented that ethical standards have been compromised, the University reserves the right to take all necessary action, including legal, to sever existing arrangements with the Contractor concerned.

1.8.9 Human Remains

Body donors and their remains must be treated with dignity and respect. Taking photographs or video or interfering with human remains is not permitted under any circumstances. Areas containing human remains must be secured at all times. Any contractor found to be in breach of these requirements may be immediately removed from site.

Contractors must work in accordance with the *Anatomy Act 1977*, Public Health policy directive PD2023_044 and any applicable University, faculty, school or local area requirements for spaces where human remains, anatomical specimens or related teaching and research materials are stored, handled or used.

1.8.10 Dress Code

Singlets as well as any clothing depicting potentially offensive material are unacceptable. Footwear must be sturdy and suitable to the work activities and may not include flip-flops or sandals.

1.8.11 Children and Visitors

Under no circumstances are Contractors allowed to bring children onto a University work site. All visitors must be approved by the UI/COS Project/Contract Manager and Site Supervisor prior to arrival.

1.8.12 Animals

Dogs, pets, or other animals are not permitted to accompany Contractors on Campus at any time, unless for companion animal purposes etc. Farm animals (horses, stock dogs) must only be brought onto farms with prior approval.

1.8.13 Privacy

Contractors must respect the privacy of all University staff, students, visitors and body donors with respect to any information seen, heard, printed or electronic.

The University privacy policy information can be found here: Policy Register

2 Getting Started

2.1 Contractor Safety Management System (CSMS) Software Platform

UI and COS have implemented the Contractor Safety Management System (CSMS). The goal of the CSMS is to streamline and enhance contractor safety management. This new system will integrate key aspects such as:

- Pre-qualification during supplier sourcing
- Contractor onboarding and induction processes
- Ongoing safety management, including training, licenses, and other necessary documentation
- Subcontractor oversight
- Permit-to-work processes
- Corrective actions reporting system

2.2 Qualification and Approval

The University is committed to providing and maintaining the highest possible standard of health, safety and welfare for its workers (including, students, visitors, contractors and labour hire staff) entering any of the Campuses.

The University aims to meet or exceed all relevant health and safety legislation. The University has adopted a risk management approach by identifying, assessing, eliminating or controlling and monitoring all health, safety and environmental issues in the workplace. The University is committed to the implementation of preventative strategies that are integrated into day-to-day operational management. To achieve this goal, UI/COS have set minimum health and safety standards and requires all Contractors to demonstrate their capacity to meet these standards as part of the qualification process to undertake work at the university.

This includes a specific University WHS Policy and Procedure that encompasses formal evaluation of all Contractors used by the University and subsequent site observations, consultation, audits, inspections and reviews to track WHS performance of Contractors working on site.

University personnel are accountable for workplace health, safety and environmental sustainability. This responsibility includes the evaluation of health, safety and environmental risks within tenders, engagement of suitably qualified Contractors, provision of information to new Contractors and monitoring the safety and environmental performance of the Contractors.

The intent is to minimise risks to health and safety of Contractors, the University community and the environment from any activities undertaken by Contractors engaged to perform works on behalf of the University. This is achieved through the systematic approach to Contractor management by controlling risks associated with Contractor's works through:

- The design and implementation of systems of work that are safe for people and the environment
- Undertaking hazard identification and risk control activities
- Providing proper and safe equipment and substances
- Providing adequate instruction, training and supervision

As part of the qualification and approval process the Contractor is also required to:

- Produce a copy of their WHS and Environment Policy/Plan/System including all safe systems of work statements, as required

- Provide copies of relevant experience, insurance coverage (Workers Compensation, Public Liability, Professional Indemnity insurance etc.), SafeWork NSW registrations and license information
- Participate in audits, inspections and quality reviews, as required.

2.3 WHSE Project Startup Meetings

UI and COS contractors are required to participate in a project-specific pre-commencement WHSE meeting with the relevant RUS and a WHS representative. This requirement applies to all UI projects and COS Asset Renewal Program, including user-funded projects. The meeting must be held at least two weeks before the contractor commences work on site.

The purpose of these meetings is to review the key WHSE requirements of the project with the nominated site supervisor, discuss identified hazards and controls, and confirm that WHSE planning and preparation have been satisfactorily completed before the project begins.

Typically, these meetings generate actions and items for follow-up, which must be closed out before commencement of the project. The RUS is responsible for planning and chairing the meeting.

2.4 Induction and Location-Specific Inductions

All Contractors are required to pass the following inductions prior to commencing work within the University campuses:

- Contractor Online Induction (organised through UI/COS)
- **Contractor location-specific inductions** such as animal housings, farms, telescopes, Laboratory Induction – Trades and Services etc. (organised through RUS and carried out by University department/faculty staff) as required
- The Contractors own induction and training program

2.4.1 Contractor Online Induction

The UI/COS Contractor Online Induction is mandatory for all contractors and is organised by the RUS.

Induction is available online via CSMS.

2.4.2 Collecting your University of Sydney Contractor ID Card

After completing the **Contractor Online Induction**, you may be eligible for a University of Sydney **Contractor ID card** (photo ID required at collection).

COS contractors

- ID card required.
- CSMS automatically provides building access once mandatory requirements and UniKey are active.
- You will receive an email once your UniKey has been added to your CSMS profile. Please ensure you've completed all mandatory requirements before picking up your ID card.

UI contractors

- ID cards are only required if building access is needed.
- Steps:

1. Submit **Access Request permit** via CSMS.
2. Once approved, collect ID card from **G12 Front Desk** – bring photo ID, CSMS permit parent/child numbers.

Collection point: G12 Services Building, Level 1, 22 Codrington St. Open Mon–Fri, 8:00am–4:00pm.

When working on any campus the Contractor must, on demand, provide proof of induction by showing the University of Sydney Contractor ID card or CSMS induction records or by presenting a downloaded or printed copy of certificate of completion. If the Contractor cannot produce evidence of induction completion, they will be instructed to stop work until such time as their induction status can be confirmed (at the cost of the Contractor). If no induction status can be easily and readily determined the Contractor may be requested to leave the campus.

2.4.3 Contractor Location-Specific Induction

In certain areas, location-specific inductions are required in addition to the Contractor Online Induction. Example: Laboratory Induction – Trades and Services.

The Contractor must coordinate with the RUS to determine whether a location-specific induction is necessary. For that, the local point of contact (i.e. often a building manager) must be consulted 48 hours prior to any scheduled works. The local point of contact will be able to advise and coordinate for a nominated responsible person from the location to deliver the induction to the contractor. The induction may include information on access requirements or vaccinations. The RUS will provide details of who to contact.

Records of these inductions will be kept by the department/faculty responsible. The following areas and Faculties are identified as having additional inductions. The local point of contact for these areas and Faculties must be consulted 48 hours prior access:

- The Charles Perkins Centre, including laboratories.
- Life, Earth and Environmental Sciences Building (LEES)
- Centrally managed Laboratory Facilities
- The Brain and Mind Centre.
- Sydney College of Arts.
- Faculty of Engineering and IT, including laboratories, research and development locations, the Australian Centre for Field Robotics and the School of Aerospace, Mechanical & Mechatronic Engineering.
- Faculty of Dentistry.
- Sydney Nursing School.
- Faculty of Agriculture and Environment.
- School of Physics.
- Faculty of Science.
- School of Molecular Bioscience.
- Sydney Nanoscience Hub.
- Sydney Medical School (Anderson Stewart Building)
- F09 Madsen Building.
- F11 Chemistry Building
- Molonglo Observatory Synthesis Telescope (MOST).
- Narrabri Observatory which hosts the University Stellar Interferometer (SUSI).

This is not an all-inclusive list of areas requiring induction. The contractor and RUS must check with the local point of contact prior to commencing any work.

2.5 Gaining Site Access, Protective Services and Emergency Management

Contractors that require a University of Sydney Contractor ID must collect their University of Sydney Contractor ID card as indicated above. The card must always be with the contractor whilst on campus and produced on request from any University staff member.

Lost University of Sydney Contractor ID cards, access swipes or keys will result in the requirement to pay a replacement fee, which can be between $15 and $575,000 dependent upon the item lost and potential security risk.

Prior to any work being carried out on campus the RUS must ensure that the Contractor is provided information relevant to known risks and hazards of the worksite and associated tasks.

This information is provided as part of the site-specific induction organised by the RUS and local point of contact, the project documentation and project start-up meeting where appropriate.

2.5.1 Sign In / Sign Out

Certain areas require the Contractor to sign in/out on arrival/departure. This information is provided as part of the site-specific induction organised by the RUS and local point of contact.

2.5.2 Protective Services & Emergency Management Contact Details

Protective Services and Emergency Management team are available 24 hours a day to assist with handling an emergency or safety threat. They regularly patrol our grounds and can be reached on:

- Protective Services & Emergency Management (general enquiries) – (02) 9351 3487
- Protective Services & Emergency Management (24-hour emergency response) – (02) 9351 3333

2.5.3 Restricted Access Areas and Other Specific Hazard Locations

2.5.3.1 Authorisation to access restricted areas

Contractors who require access to restricted or controlled/secured areas will be required to obtain formal authorisation for access. In certain cases, a Permit to Work may be required e.g. for roof access or working at heights.

Restricted and controlled/secured areas may include but are not limited to:

- Laboratories (PC2 and PC3 biohazard labs, research and experimental labs, etc.)
- Anatomy laboratories, museums and mortuaries
- Plant rooms
- Roofs and roof spaces
- Remote areas
- Chemical stores
- Radiation stores
- Biohazard rooms
- Rooms containing asphyxiant gases
- Microwave dishes – non-ionising radiation risk
- High Voltage substations
- Farms

- Telescopes
- Animal Houses

Approval to access these restricted areas must be sought at least five (5) working days prior to works commencing with the RUS AND the restricted area supervisor.

AT NO TIME CAN UI/COS WORKERS, CONTRACTORS AND THEIR WORKERS ENTER A RESTRICTED AREA WITHOUT PERMISSION FROM THE RESTRICTED AREA CONTROLLER.

Contractors are not to enter a restricted area unless such authorisation has been obtained, even if another University worker or student provides them with access.

2.5.3.2 Identification of restricted areas

To assist with identification of restricted areas, the RUS in cooperation with the Contractor, must liaise with the local point of contact, who will be able to provide a list of restricted access areas similar to that shown below.

Image 1 – Example of Restricted Access Areas List

Restricted access areas in School of Aerospace, Mechanical & Mechatronic Engineering

Area name	Room number	Contact person	Contact person phone number
Main Workshops FSAE Car Workshop Student Workshop	S112, J07 S116, J07 S120, J07	Mr. Duncan Stenger	9351 2459
Halliday Laboratory	S173	Mr Greg Elder	9351 7163
Combustion Laboratory	S147, J07	Dr. Matthew Dunn	9351 7150
Biomaterials Laboratory	S197, J07	Dr. Philip Boughton	9351 5018
Tissue Engineering Lab	S183, J07	Prof. Hala Zreiqat	9351 2392
Server Room	S223, J07	Dr. Doug Auld	9351 2336
Wind Tunnel	N107, J11	Dr. Doug Auld	9351 2336
Server Room	N210, J11	Dr. Doug Auld	9351 2336
Flight Simulator Bennett Laboratory	N209, J11	A.Prof. Peter Gibbens	9351 7350
Jabiru (Bird Lab)	N121, J11	Mr John Toddhunter	9351 7137
Flight Simulator Bennett Laboratory	N209, J11	A.Prof. Peter Gibbens	9351 7350
Field Robotics	EIE Bldg	Mr. Ritesh Lai	9036 6392
Fluid Mechanics	126, J13	Prof. Steven Armfield	9351 2927

SAMPLE ONLY

Each restricted area has a nominated area supervisor, sometimes called “Room Custodian”, “Contact Person” or “Lab Manager”.

2.5.3.3 Specific requirements for entry and work procedures

Before work proceeds in a restricted area, the relevant area supervisor will provide specialist advice on requirements for entry and work procedures. This may include working under constant supervision of University personnel.

2.5.3.4 Signage of restricted areas

Some restricted areas are identified with signage located on doorways and access points to these locations. Contractors are required to follow the requirements of signage which will identify hazards within the space, precautions that must be observed and emergency contact persons.

Image 2 - Authorised Entry Placard



The University's standard 'authorised entry only' signage provides basic information about:

- the hazards in the areas
- the safety precautions required when entering or working in the area
- contact details for the area supervisor
- emergency contact details for the building

Image 3 – Example of Plant Room Sign



2.5.4 Keys/Swipe Cards

The RUS will advise the Contractor where keys or swipe cards are to be collected and returned. Contractors must comply with the KeyWatcher requirements covered in the CSMS contractor induction, including what can and cannot be done when borrowing keys.

Keys and swipe cards must be returned at the end of each day, or where agreed with the RUS, at the completion of the project or contract.

Where a KeyWatcher cabinet is used, keys may only be borrowed by authorised persons. Keys issued through KeyWatcher are allocated to the individual's access card and remain that person's responsibility until returned. Keys must not be shared, transferred or used by another person.

Typically, keys are only able to be held for up to 10 hours and must be returned before the expiry period, unless alternative arrangements have been approved by the RUS. When returning a key, the user must ensure it is securely placed back in the cabinet and can no longer be removed.

2.5.5 Access related to Permit to Work

For certain activities and for working in certain areas, a Permit to Work must have been requested from the RUS and approved (e.g. roof access, working at heights, asbestos removal, lead paint removal, excavation, hot works etc.). A minimum notice will be required depending on the type of permit required, unless it is an emergency situation/call out. For any hazardous material removal, where applicable, ensure that the **Asbestos Management Plan (AMP)** and **Hazardous Infrastructure Materials Management Plan (HIMMP)** are read, understood and complied with.

Refer to the **Permit to Work** section of this handbook for further information.

2.5.6 Hours of Work

Business Hours

Hours of operation vary across the University and the Campus. It is important to clarify with the area to be accessed but as a general rule, the standard hours of operation are 8.30am-5pm.

Contractors may refer to this web site for various operating hours of libraries, campuses and Faculties.

Library opening hours

Work After Hours

All buildings are alarmed after hours. If a Contractor requires access outside of normal business hours, they must receive prior approval in writing from the RUS (will be required to show the approval to Protective Services and Emergency Management for building alarms) and access must have also been arranged by the local Point of Contact prior to entry. Additional costs may be incurred if security is called out after hours.

2.6 Vehicles

Contractors and their workers must observe all parking, road markings, directional and control signage within University grounds. Pedestrians always have right of way and specified speed limits on University grounds must be strictly obeyed at all times.

All vehicles entering the campus must park in accordance with the restricted parking area conditions and posted directions. Restricted and parking area conditions apply 7 days a week 24 hour a day. The parking station operates on a 24-hour basis. Infringement notices will be issued upon any vehicles parked illegally. Fines will not be waived in such circumstances.

Vehicles delivering materials and tools to work site, and displaying a current parking permit, may park in allocated loading zones. These are not intended for all-day parking, with a general provision of 30 minutes maximum stay. Vehicles failing to display a current parking permit, or parked in an incorrect area, will receive a parking infringement notice.

Additional information on parking locations and parking permits available here:

Getting to campus

Parking or driving across footpaths and grassed or landscaped areas is prohibited. In instances where the nature of work makes essential to locate a vehicle on landscaped areas the following steps must apply:

- The Contractor must notify the RUS of specified works within five (5) working days
- The Campus Grounds Manager or nominated representative must advise the RUS and

Contractor of approved pathway and location for parking

Contractors are reminded that while on the University campuses they are still required to wear seatbelts whenever travelling in a vehicle. Should a contractor be found not wearing a seat belt on campus, then the contract may be subject to review.

Mobile phones should not be used when driving, except with a hands-free device when required for the work and only to answer or make calls and only if the phone is secured in a fixed mounting and does not require you to touch or manipulate the phone in any way.

All loads must be appropriately covered, restrained or protected in a manner to prevent the potential for a loss of load.

Contractors must not drive through floodwater. Where access routes, work areas or parking areas are affected by flooding or there is a risk of flooding, the Contractor must stop, reassess the work and use an alternative safe route or wait until the area has been confirmed safe.

University traffic and parking policy and procedure can be found here: Policy Register

2.7 Faculty & School Information

Faculty and School Information is located here: Faculties & Schools page

3 Work Health, Safety & Environment General Requirements

The University Work Health and Safety Policy and Environmental Sustainability Policy apply to all University staff and affiliates, including contractors. The policy is located here: Policy Register

3.1 Responsibilities

3.1.1 Workers

While at work, any worker must:

- Take reasonable care for their own health and safety
- Take reasonable care that their acts or omissions do not adversely affect the health and safety of other persons
- Take reasonable care to protect the environment, prevent pollution and minimise environmental impacts.
- Comply, so far as the worker is reasonably able, with any reasonable instruction that is given by the University to allow the person to comply with the WHS Act and Regulations
- Comply with all applicable environmental legislation, regulations, standards and other EMS requirements and instructions.
- Co-operate with any reasonable policy or procedure of the University relating to health or safety at the workplace that has been notified to workers
- Ensure that other workers are performing their work in a safe manner, so far as is reasonably practicable
- Be mindful of students and other campus users at all times

All persons entering University grounds have a responsibility in the course of performing their duties to:

- Comply at all times with all University contract conditions and requirements
- Use safety, emergency and protective equipment correctly and not render them inoperative
- Report directly to their immediate supervisor any situation which they have reason to believe could present a hazard and which they cannot themselves correct (e.g. unsafe practices, unsafe equipment, etc.)
- Report any incident or injury to health that arises in the course of or in connection with their work

3.1.2 Responsible University Supervisors (RUSs)

RUS(s) are responsible for:

- Having knowledge of WHSE requirements that apply to the work being undertaken and have appropriate training for this Handbook
- The implementation of these requirements in their area of responsibility and accountability
- UI – undertaking WHSE pre-commencement meetings with contractors.
- Ensuring the induction of the Contractor, informing Contractors of site-specific hazards, or other pertinent WHSE information about the location, and ensuring the Contractor implements measures to minimise risk to University staff and students

- Liaising with the relevant local point of contact to obtain up-to-date information on any site-specific induction and other WHSE requirements, and communicating requirements to the Contractor
- Ensuring a process of WHSE audits and inspections is appropriately implemented for Contractors under their remit to appropriately determine contractor awareness and understanding of their compliance responsibilities in relation to health, safety and the environment.
- Consulting, coordinating, and cooperating with any relevant stakeholders when the work may impact the health and safety of any other workers, staff, students and contractors
- Reviewing the risk assessments and health, safety and environmental plan developed by the Contractor prior to work commencing
- Working with the Contractor to ensure that specified safety systems and risk control measures are implemented for the duration of the contract works
- Report Contractor incidents and hazards according to the UI/COS procedure and in RiskWare.
- Collecting Contractor WHS statistics within the first week of the month for the previous month

3.1.3 Contractors

Contractors are responsible for:

- Ensuring compliance to WHS and environmental legislative requirements at all times
- Not placing themselves or others at risk of injury
- Working in accordance with relevant University Policy and Codes
- Complying with all requirements (as appropriate) contained within this Handbook
- Ensuring all Contractor workers and subcontractors who will be directly involved in the contract works have completed the University Contractor Online Induction, any other required site-specific induction(s) and received additional information as part of the project documentation or start-up workshop prior to the commencement of any work
- Obtaining formal authorisation from the RUS and the relevant area supervisor prior to enter a restricted area
- Providing WHSE statistics for activities and projects undertaken for the University to the relevant RUS within the first week of the month for the previous month using the online form.
- Report any WHSE incidents to the RUS immediately

Contractors have a responsibility to ensure the health and safety of their staff and University personnel, students and visitors that may be impacted by their operations. Contractors are also required to observe the following responsibilities, and the information contained in this induction Handbook, in addition to any other requirements which may be identified in the localised induction process. Further, contractors also have a duty of care to the environment and must take steps to prevent pollution and minimise environmental impacts.

The Contractor must also, so far as is reasonably practicable, provide and maintain a work environment in which people are not exposed to hazards. Contractors must:

- Ensure their own safety and the safety of others
- Provide a workplace and safe system of work so that, as far as practicable, workers, staff or students are not exposed to hazards
- Provide workers with information, instruction, training and supervision to enable them to work in a safe manner

- Ensure that all workers and subcontractors workers comply with these instructions and procedures
- Ensure that all statutory law, regulations, standards and Building Codes which are enforceable in NSW are always complied with
- Ensure that all Permits to Work have been completed and approved prior to the work commencement
- Communicate, consult and cooperate with their health and safety representatives and adjacent work groups in matters related to safety and health in the workplace
- Provide appropriate protective clothing and equipment as required by particular types of work and/or work carried out in particular locations or conditions
- Practice good site housekeeping to eliminate or minimise the risk of accidents, harm or pollution i.e. ensure work areas are left clean, tidy and vacuumed and that all rubbish and redundant materials are removed from site
- Tools and materials must not be left unattended
- Ensure work areas have appropriate barriers and signage when working on or near a thoroughfare (pedestrian or vehicle) or as required to prevent exposure to the hazard
- Promptly correct any hazard or risk that they are aware of, or if unable to do so, contact the relevant RUS during normal working hours, or Security Services after hours and advise of the hazard or risk
- Report WHSE incidents or hazards accordingly to the UI/COS procedure to the RUS and provide relevant documentation to identify details and actions of incident
- Immediately report any serious and or life-threatening incidents to the appropriate authorities,
- i.e. SafeWork NSW and advise Security Services and the nominated RUS of details

Contractors must instruct their workers regarding WHSE matters and ensure appropriate measures are undertaken to induct staff, i.e. information, education and training. The Contractor must also ensure workers are familiar with their own WHSE plans and procedures as well as those of the University as relevant to their scope of work.

The RUS may at any time request copies of any records to ensure compliance with WHSE legislation, safety management system requirements or the requirements of this Handbook. Copies of Site Meeting Minutes must also be forwarded to the RUS providing evidence of WHSE related matters.

3.2 Instruction and Direction from University Staff

Contractor work will at times necessitate communication with University staff. **Contractors are advised that they should not take on additional jobs or tasks out of the scope of their engagement** without prior authorisation from their RUS.

Instruction and direction from Faculty staff should be limited to the information required to understand and safely carry out the assigned task.

3.3 Communications to University Staff

Under no circumstances are reports, test results, consultant or engineering findings, to be communicated to University staff (who are not part of the UI/COS contract). All such communications are to be reviewed, approved and provided to University staff by the relevant RUS.

3.4 Regulators on Site

The expectation of contractors is that whenever a regulator (such as SafeWork NSW, Comcare, iCare, NSW Environment Protection Authority (EPA), Local Council etc.) arrive on site, UI/COS are immediately contacted (within 20 minutes) so a determination can be made if a UI/COS and/or other University representative needs to be there. Contact with UI/COS should be direct to the RUS and notification to the UI and COS – Health & Safety Partners, immediately.

The reason for this requirement is:

- Ensure UI/COS are appropriately informed of the nature of the visit
- Enable UI/COS to respond to questions that might be out of scope of the project or beyond the knowledge of the contractor, e.g. safety or compliance programs that the contractor may not necessarily be aware of
- Ensure the appropriate information is provided to the Regulator about the matter
- Ensure the Regulator is not overstepping any powers and that any Notices issued (either to the contractor or University) are issued in accordance with the legislation

Decisions by Regulators can have an impact on an organisation like the University, potentially affecting costs, altering elements of process and strategy, and of course affecting reputation.

Copies of any reports, notices or directions provided to the Contractor by a Regulator must be provided to the relevant PSU:

- UI – Compliance and Assurance Manager darren.mendonca@sydney.edu.au (0409 428 295)
- COS - Senior Manager, Operational Risk, Resilience & Compliance rebecca.gonzalez@sydney.edu.au (0403 721 328)

3.5 Supervision, inspection, auditing and performance monitoring

3.5.1 Supervision

The Contractors must provide adequate supervision to workers to the satisfaction of legislative requirements and University desires. **A Contractor Supervisor must be nominated, present on site and supervise and control the works at all times.**

Directions and explanations given by the University to the Contractor must be deemed to have been given to sub-Contractors and their workers.

3.5.1.1 Supervision of apprentices or trainees

Supervisors of apprentices and trainees must be appropriately qualified and have relevant experience for the vocation being undertaken.

An apprentice supervisor must be trade qualified in the relevant apprenticeship vocation. This means they must hold a Certificate of Proficiency for that trade or have equivalent qualifications and experience that would entitle them to such a certificate.

Where the apprenticeship relates to a regulated trade, such as electrical, plumbing, air-conditioning or refrigeration work, **the supervisor must also hold a valid supervisor licence or Qualified Supervisor Certificate.** A qualified supervisor must be an employee of the licence holder, a member of the partnership, or a director of the company holding the contractor licence.

A trainee supervisor must be suitably qualified or experienced at the same level as, or higher than, the traineeship vocation.

3.5.2 Inspections & Breaches

The University treats all instances of WHSE negligence very seriously. Failure to wear protective clothing or safety equipment when it is necessary is an example of WHSE negligence. Another example is the incorrect use or handling of hazardous materials.

The Contractor, as a Person Conducting a Business or Undertaking (PCBU) has a duty of care to provide and maintain a safe workplace for their workers, University staff, students and others and consequently has a responsibility to conduct workplace inspections on a regular basis. **The Contractor must make available copies of WHSE inspection and audit reports when requested by the RUS.**

Contractors are advised that the RUS(s), nominated representatives or UI and COS – Health & Safety Partner may carry out periodic and spot/unannounced WHSE inspections on any University premises.

These inspections form part of the University WHS Policy (http://sydney.edu.au/policies/). The Contractor's WHSE representative may also accompany the inspection during this process.

RUS(s) or their nominated representative must conduct random WHSE observations of Contractor conformance to WHSE plans or permit to work conditions. Non-conformances relating to WHSE will be recorded and conveyed to the Contractor for rectification and used as part of the review process for Contractor performance.

University staff identifying that a Contractor is undertaking activities in an unsafe manner, are responsible for reporting the unsafe practice to the relevant RUS, UI and COS Health & Safety Partner or nominated representative immediately advising them of the unsafe practice being undertaken.

Contractors must take immediate remedial action on any safety hazard, defect or any other issue associated with WHSE matters identified during such inspections. Contractors must comply with any reasonable written instructions issued by the RUS relating to WHSE.

If repeat incidents are observed, the Contractor may be instructed to cease work until the situation has been rectified, and the work site and/or operational procedures are deemed safe.

3.5.3 Audits and Reviews

The University may periodically request information relating to the Contractor's WHSE management systems of work. UI/COS may also determine a need for ongoing WHSE audits and inspections for a specific contract or project and may engage external experts for WHSE assurance activity. Where this occurs, contractors must comply with all reasonable audit requests and requirements.

Information requested may include, but not be limited to, the following:

- Site WHSE Plan and system components
- Safe Work Procedures and Method Statements
- Certificates for Plant
- Certificate of Operations and Training Records
- Licences, i.e. for high-risk works and trades
- Risk Management Procedures
- Incident investigation reports, either internal or notifiable
- Evidence of compliance with Development Consent and any other relevant environmental requirements, as applicable
- WHSE audits, inspections, task observations and schedules

3.5.4 WHSE Performance Monitoring

Contractor WHSE performance is monitored throughout the progress of the contracted work, and should

a Contractor not be performing their WHSE duties as per the contract, the responsible RUS will take steps to remedy the situation.

Contractors are required to provide WHS statistics monthly, including lead and lag indicators, for activities and projects performed for the University. The relevant RUS is responsible for gathering these statistics and the Contractor is responsible for providing them within the first week of the month for the previous month using the online form.

The Principal contractor is responsible for providing HSE performance and compliance status to relevant RUS monthly.

3.5.5 Non-Conformance and Corrective Action

The objective of the corrective action process is to prevent issues from occurring and to stop issues from recurring where they have already occurred. This is achieved by identifying non-conformances and opportunities for improvement, determining their root causes, and implementing corrective actions.

Non-conformance with this Handbook, the University WHS Policy and Procedures, environmental requirements, the Contractor's Safe Work Method Statements, or other known project conditions and requirements may be recorded in CSMS as a Corrective Action Report or Opportunity for Improvement.

Contractors must investigate non-conformances and opportunities for improvement to determine the actual root cause and implement appropriate corrective actions. Investigations should identify not only the immediate cause, but also any underlying causes that may result in repeated issues or indicate a broader systemic problem. Suitable root cause analysis methods may include, but are not limited to, 5 Whys, ICAM, Ishikawa Fishbone Diagram, Failure Mode and Effects Analysis, Fault Tree Analysis, TapRooT or Barrier Analysis.

The University, UI and COS representatives will review the effectiveness of corrective actions. Corrective actions will be monitored through to completion.

Contractors are expected to communicate relevant corrective action information across their work groups and projects, regardless of location or duration, where the lessons may help prevent similar issues. This process supports continual improvement and aligns with ISO-based management system principles.

3.5.6 Disciplinary Action

UI/COS reserves the right to immediately suspend and/or remove worker and/or terminate contracts regardless of any previous non-conformances or noted issues the contractor may have recorded, for any serious breaches of the provision of this handbook or failure to adequately respond to reasonable requests by UI/COS.

All compliance issues, non-conformances and disciplinary issues are taken into consideration when reviewing the performance of a contractor with respect to future contract opportunities.

3.6 Managing Risks to Health and Safety

All Contractors are required to identify reasonably foreseeable hazards associated with their work and work environment that could give rise to risks to health and safety and then manage the associated risks.

All Contractors must work through the hierarchy of control when managing risk as per the Act and Regulations. In controlling risks, the priority is always to eliminate risks to health and safety so far as is reasonably practicable. Where it is not reasonably practicable to eliminate, it is a requirement to minimise those risks as far as is reasonably practicable. All risk management should be in consultation with the workers undertaking the tasks or working in the environment.

Where the risk cannot be eliminated, the risks must be minimised by doing one or more of the followings:

- substituting (wholly or partly) the hazard giving rise to the risk with something that gives rise to

a lesser risk

- isolating the hazard from any person exposed to it
- implementing engineering controls

If a risk then remains, the remaining risk must be minimised, so far as is reasonably practicable, by implementing **administrative** controls.

If a risk remains after the above has been implemented, the duty holder must minimise the remaining risk, so far as is reasonably practicable, by ensuring the provision and use of suitable **personal protective equipment**.

Note: A combination of the controls may be used to minimise risks, so far as is reasonably practicable, if a single control is not sufficient for the purpose.

Refer to Figure 1 for information on hierarchy of control reproduced from Code of Practice How to Manage Work Health and Safety Risks.

Figure 1 - Hierarchy of Controls



3.6.1 Maintenance of control measures

Once a Contractor has implemented a control measure to eliminate or minimise risks, they must ensure that the control measure is, and is maintained so that it remains, effective, including by ensuring that the control measure is and remains:

- fit for purpose
- suitable for the nature and duration of the work
- installed, set up and used correctly

Contractors must implement an effective process for monitoring controls. This process must enable the identification of one-off and systemic issues, support trend analysis, and ensure lessons learned are captured and applied.

3.6.2 SWMS and Documented Risk Assessments

Hazards identified, evidence of a risk assessment and the controls recommended must be documented and provided to the RUS (or where appointed Principal Contractor). Often this will be in the form of a safe work method statement (SWMS).

It is also mandatory to provide a SWMS to the RUS, or to the designated Principal Contractor, prior to the commencement of work for high-risk construction works (refer to definition in Section 8). SWMS must comply with the requirements of the *WHS Regulation 2025 (NSW)*.

Contractors must review subcontractor SWMS against the relevant requirements of this Handbook, the contractor's own site safety requirements, and applicable legal and contractual obligations. The review must confirm that the SWMS is suitable for the task and location, and that it is supported by relevant task-specific information, such as safety data sheets, hazardous substances and chemicals information, permits to work, and emergency or rescue plans where applicable.

All SWMS used by contractors and subcontractors must be specific to the task being undertaken and the location where the work will occur.

3.6.3 Minimum Risk Management Practices

Contractors are required to adhere to the following minimum risk management practices and coordinate with the RUS where required.

Before the works, the following aspects must be addressed e.g. in a Safety Management Plan:

- Brief description of the scope of work including summary of major activities, identification of high-risk works and specialist tasks.
- A specific risk assessment incorporating controls and subcontractor documentation (if applicable) and supervision arrangements
- Identify person(s) with WHSE accountabilities for the works
- Specific inductions required, local points of contact, Permits to Work required, licenses to perform works, SWMS and safe work procedures relevant to the work, consultation process
- Required site inspections, frequency and timing and specific areas targeted for inspection
- Plan for managing work area, segregation of work area, delivery of materials, rubbish out etc.
- Site specific emergency / evacuation plan (and impact / coordination with building occupants if the site affects them)
- Arrangements for incident and hazard reporting

During the works:

- Pre-start risk assessments e.g. job safety analysis
- Monitoring and management of change.

3.6.4 WHS Management Plan

The *Work Health and Safety Regulation 2025 (NSW)* requires the Principal Contractor for a construction project valued at more than $250,000 to prepare a written WHS Management Plan for the workplace before work on the project commences.

Although a WHS Management Plan is not legally required for construction projects valued at $250,000 or less, the University may still require a project-specific WHS Management Plan or equivalent documented safety arrangements where the work involves high-risk construction work, complex interfaces, occupied buildings, critical services, public interface, or other significant risks.

The WHS Management Plan must describe how work health and safety will be managed for the project. The plan must be specific to the project, site, scope of work and risk profile, and must not be a generic corporate WHS document.

The size and complexity of the WHS Management Plan should be proportionate to the size and complexity of the project, including the nature and extent of any high-risk construction work being undertaken. At a minimum, the WHS Management Plan must include:

- the names, positions and health and safety responsibilities of all persons whose roles involve specific health and safety responsibilities
- the arrangements for consultation, cooperation and coordination between persons working at the site in relation to compliance with their duties under the WHS Act and Regulation
- the arrangements for managing health and safety incidents, including reporting and incident notification
- any site-specific health and safety rules and the arrangements for ensuring that all persons are informed of those rules
- the arrangements to collect, assess, monitor and review Safe Work Method Statements.

In addition to the above, the WHS Management Plan must:

- be site and project-specific, including relevant site layout diagrams
- outline traffic and pedestrian management controls, including relevant diagrams
- describe how waste removal and deliveries will be managed, including paths of travel through buildings where applicable
- include details of relevant inductions, including CSMS induction requirements and permit requirements
- identify any hoarding, fencing, barricades, exclusion zones or site separation arrangements that will be established
- describe how subcontractor WHS documentation will be reviewed, accepted and monitored
- describe how critical controls and other risk controls will be monitored throughout the works
- describe how corrective actions, non-conformances and opportunities for improvement will be managed, tracked and closed out
- avoid generic wording such as “where required”, “as necessary” or “as applicable” unless the plan clearly defines when and how the requirement applies to the project or task.

WHS Management Plans should be supported by relevant project and task risk assessments, site layout plans, traffic and pedestrian management plans, emergency and rescue arrangements, and other documents necessary to demonstrate how the work will be safely planned and controlled.

The Principal Contractor must provide the WHS Management Plan to the RUS before project commencement. Where updates are required following the WHSE Project Startup Meeting, or after any review or revision of the plan, the updated WHS Management Plan must also be provided to the RUS.

The RUS, UI or COS Health and Safety Partner, or other nominated University representatives may carry out periodic, targeted or unannounced audits of the WHS Management Plan and its implementation on site.

3.7 Consultation, Coordination and Cooperation

A safe workplace is more easily achieved when everyone involved in the work communicates with each other to identify hazards and risks, talks about any health and safety concerns and works together to find solutions. All Contractors must consult, so far as is reasonably practicable, with workers who carry out work for them and persons who are (or are likely to be) directly affected by a WHS matter related to the work.

It is critical that contractors have identified other stakeholders (your RUS can assist with this) and establish appropriate communication to consult, coordinate and cooperate with each other to the

completion of the works. On campus this may include representatives from faculty, administration or student groups, retail outlets managers and other contractor groups (construction, maintenance, IT etc.). Specific stakeholders, such as building managers and emergency wardens, must be consulted with where they are established in or adjacent to work areas.

The campus is a dynamic environment with many changing scenarios, situations and events, and at times the work a contractor must do may need to be deferred or rescheduled to accommodate exams, experiments, events or security related concerns. In such times the expectation is that contractors will work with stakeholders and cooperate in implementing arrangements suitable for all parties and where shared duties exist, these are managed and communicated in a coordinated and cooperative manner.

Where workplace safety matters or issues remain unresolved after consultation with relevant stakeholders and duty holders, support can be provided through the RUS to assist with resolution and to avoid further dispute or recurrence of the issue.

Consultation and resolution efforts should address all relevant matters, including:

- the degree and immediacy of risk to workers or other persons involved in the issue
- the number and location of workers and other persons affected by the issue
- the temporary and permanent measures required to resolve the issue
- who will be responsible for implementing the resolution measures.

Evidence of stakeholder communication must be provided where required for CSMS permit applications.

If a WHS issue remains unresolved after reasonable efforts have been made to achieve an effective resolution, the relevant duty holders should notify the University through the RUS before escalating the matter to an external regulator or authority, where it is reasonably practicable to do so. This allows the University to understand the issue, support further consultation and resolution, and prepare for any regulatory engagement.

Nothing in this section prevents any person or duty holder from exercising their rights or obligations under WHS legislation, including requesting SafeWork NSW to appoint an inspector to attend the workplace to assist in resolving a WHS issue.

As part of the 2025 legislative updates to NSW workplace protections, certain unresolved WHS disputes may also be dealt with by the NSW Industrial Relations Commission, including disputes relating to the cessation of unsafe work.

3.7.1 Works Notifications

The weekly *Works Notifications* email lists the buildings and areas affected by planned works and urgent work notifications may be issued by email at any time. Current works can also be checked by contacting your RUS.

3.7.2 Scheduled Events

When undertaking works within the University of Sydney, the Contractor shall be mindful that they are working within an Operational Environment, which includes, but is not limited to, several Scheduled Events that take place.

The Contractor shall make themselves aware of these Events by communicating with the RUS.

The Contractor shall schedule works accordingly to ensure the safety of those attending the Event and assist with the coordination of the Event where necessary.

3.8 Design Standards and Signage Manuals

The University publishes design standards, forms, sustainability standard submissions templates, guidelines and signage manuals for consultants and contractors undertaking design, documentation

and construction of University-owned, occupied or managed buildings, facilities, services and infrastructure.

The current University design standards, forms, guidelines and signage manuals are available from the University's Contractors public page.

These documents set out the University's minimum requirements for design, construction and maintenance, and apply to project managers, consultants, contractors, subcontractors, tenants, managing agents and University staff involved in University buildings and facilities.

Contractors must ensure the relevant standards, forms, guidelines and manuals are incorporated into the works, including contract documentation where applicable. Design standards must be referenced by revision number and issue date. Contractors must use the current versions available on the University's Contractors public page, as printed or locally saved copies may be uncontrolled.

The documents cover areas including building and architecture, services, communications, fire safety, hydraulics, roofing, façades, excavation, landscape, sustainability, accessibility, learning spaces, asset identification, operations and maintenance, and internal, external and interpretive signage.

Applicable WHS, disability discrimination, planning, environmental and other Commonwealth and State legislative requirements, the National Construction Code, Building Code of Australia, and relevant Australian and New Zealand Standards are minimum mandatory requirements. Where there is ambiguity between University standards and mandatory requirements, the higher performance requirement applies, unless otherwise approved by the University.

Requests for technical clarification must be made in writing to the issuer of the relevant standard, as identified on the standard's cover page.

3.9 Personal Protective Equipment (PPE)

Contractors are responsible for determining, through risk assessment or as otherwise stated in applicable Regulations, Standards, Safety Data Sheets and Codes, the required PPE for the work to be carried out. Contractors must provide their workers with PPE and have a process to manage the correct selection, supply, use, replacement, maintenance, training, instruction and storage of the PPE. All **PPE must be appropriate for the task and the work environment.**

The following PPE matrix is provided outlining the recommended minimum PPE requirements for contractors when undertaking specific work activities or in specific locations. Notwithstanding any specific PPE requirements determined by the responsible University supervisor for the area/location as necessary to work within their areas, it is mandatory for all outdoor workers to wear long sleeves and long pants, further, when working within laboratory spaces PPE must comply with the requirements as specified on the authorised entry placard and/or as required by the laboratory manager, without exception.

Location of Work	Eyewear	Hand Protection	Safety Shoes	Safety Clothing	Head wear	Hearing	Respiratory	UV Protection
Office	B	B	B	B	B	B	B	N/A
Construction Sites	B	B	M	M	M	B	B	B
Internal Fit outs	B	B	M	M^	M	B	B	B
Repairs & Maintenance	M	B	M	M	B	B	B	B
Outdoor Work	M	M	M	M	B	B	B	M
Farms	M	M	M	M	B	B	B	M
Kitchens / Food servery	B	B	M	M	B	B	B	N/A

Laboratory	M	M	M	M	B	B	B	B
Plant Rooms	M	M	M	M	M	M	B	
Restricted Spaces	M	M	M	M	M	B	B	B

M - Must / B - Based on Risk Activity / M^ - Long sleeve and long pants safety clothing is not mandatory, unless determined by risk assessment for the task.
Where a contractor adopts a PPE standard lower than that shown above, they must be able to support the decision through risk assessment, including evidence-based determinations of what alternative control measures will be implemented to ensure the risks will be eliminated or minimised as far as reasonably practicable. This is to ensure that appropriate work consultation and risk assessment has been undertaken and the hierarchy of control has been applied.

3.10 Sanitary Provisions/Use of Amenities

The Contractor may at times have shared access to toilets on the campus on which the works are being undertaken. As these toilets will continue to be used by the wider University community, the Contractor is responsible for using and maintaining these toilets in an appropriate and clean manner.

Most large infrastructure projects will out of necessity have their own ablutions setup and serviced. Contractors with such ablutions must ensure that controls are in place to prevent accidental discharge (e.g. overflow) and that the servicing of them does not impact on University staff, students and visitors.

Where ablutions are unable to be shared or setup within the project perimeter's alternative locations must be discussed and organised through the RUS.

3.11 Housekeeping, Storage of Equipment and Leaving the Work Area

Contractors must maintain a high standard of housekeeping while at the University. This means ensuring that the layout of the workplace allows, and the workplace is maintained to allow for persons to enter and exit and to move about without risk to health and safety, both under normal working conditions and in an emergency.

It is the responsibility of the Contractor to maintain their materials, tools and other equipment in an orderly manner on-site to reduce risks and to ensure these are secure and tidy prior to leaving each day.

Equipment and plant that is not in use must be left in a state that does not create a risk to the health or safety of any person.

All debris and waste resulting from Contractor activity is to be removed by the responsible Contractor in a timely manner. Working areas, stairways, passages and safety exits must be always kept clear of obstructions.

If required, working areas must be barricaded off and appropriate warning notices erected. All materials and debris must be lowered and not dropped from elevated locations and platforms.

Contractors must avoid tracking dust and debris through operational areas, corridors and lifts etc. to help maintain a clean working environment. Where this is not feasible it is expected that the Contractor will provide floor protection or coverings that are appropriate for the work.

4 Work Health and Safety (WHS) Special Requirements / High Risk Work

Contractors performing any work that is considered 'high risk' must ensure that they comply with the requirements of WHS legislation for high-risk work. Any Contractor performing work of this nature will be required to provide proof of training, competency level and/or valid licence, safe work method statements and where required a completed permit for the work.

Refer to Section 8 Definitions within this Handbook for a list of all activities defined as **high-risk work**.

4.1 Permit to Work

Permits to work are required for the following tasks and a Permit to Work must be obtained prior to the commencement of work:

- Access request
- Asbestos removal
- Confined space work (A Confined Space Entry Permit is to be provided, managed and authorised by the Contractor, however, will be required to be notified to the RUS prior to commencement of the work and upon completion. Copies of the permit must be displayed at the work site.)
- Dust works (creating excessive dust)
- Electrical power shutdown
- Excavation and ground penetration (all deeper than 150mm)
- Fire systems interruption
- Hot works (including welding)
- Lead Paint removal
- Lifting (cranes and hoists)
- Natural gas isolation and shutdown
- Roof access (and roof spaces)
- Traffic and pedestrian management
- Working at heights (including scaffolding, use of EWP, use of ladders with risk of fall > 2m etc.)

These permits, except Confined space entry permit, must be submitted through the CSMS unless otherwise directed by the UI and COS - Health & Safety Partner or nominated representative. In certain circumstances the contractor will be able to use their own permit systems, or those of a principal contractor, and this will be through consultation and agreement with the UI and COS Health & Safety Partner or nominated representative. Potential circumstances where a CSMS permit may not be required include works where the Principal Contractor has control of the entire site and there is no interface with University infrastructure, services, operations or building occupants. Examples may include works in a dedicated hot works area or workshop, or minor works with no potential impact on building infrastructure, such as no fire system isolation or interruption. Each case must be assessed individually and agreed with the UI or COS Health and Safety Partner or nominated local safety representative.

No work can be commenced until the appropriate permits or approvals have been obtained and approved by UI/COS.

It is the responsibility of the Contractor to liaise with the RUS to obtain approval of the Permit to Work. If there are any changes to the scope of work, methodology, or personnel, the Contractor must

inform the RUS and obtain approval before commencing work on site.

On completion or suspension of works where a permit has been issued, these permits, along with documentation supporting the implementation of the permit (such as risk assessments, copies of licences, waste dockets, clearance certificates or results of gas monitoring), must be returned to the RUS (or where appointed the Principal Contractor).

When dealing with permits, queries relating to permits for 'emergency work' are frequently raised. Emergency works, in the context of permits, means works undertaken in response to an unforeseen and immediate risk to health and safety, critical infrastructure, the environment, or significant property damage, and where delay would materially increase the likelihood or severity of harm. Urgency, operational pressure, cost, program impacts, or reputational risk do not, of themselves constitute emergency works. Not all urgent situations constitute emergencies, and urgency alone does not justify bypassing controls of permit processes.

Support resources for the Contractor Safety Management System (CSMS), including Frequently Asked Questions and Quick Reference Guides, are available here: Contractors public page

4.2 Start and close of workday inspections

Contractors are required to check the site boundary, barricades and fencing at the commencement of each workday to ensure the site remains secure and that site controls remain in place. Checks should also identify any changed circumstances or damage that may have occurred (e.g. fallen trees, hoarding etc.).

Contractors must also undertake documented inspections with photographic evidence at the end of each workday, and prior to a long weekend, public holidays or other instances (e.g. adverse weather conditions, protests etc.) where the site will be unattended.

Copies of the documented close of workday inspections must be sent to the RUS.

4.3 Preventing Unauthorised Access, Use of Barricades, Fencing, Hoarding and Signs

4.3.1 Preventing Unauthorised Access and Establishing Exclusion Zones

Principal Contractors and workers who have management or control of a workplace have several obligations regarding the control of access to workplaces, such to:

- Ensure signs are installed that:
    - Show the Principal Contractor's name and telephone contact numbers (including an out of hours telephone number) show the location of the site office for the project, if there is one, (UI/COS have Project Sign templates to use, see examples on following pages)
    - Are clearly visible from outside the workplace, or the work area of the workplace, where the construction project is being undertaken
- Ensure, so far as is reasonably practicable, that the workplace is secured from unauthorised access, having regard to all relevant matters, including risks to health and safety arising from unauthorised access to the workplace, the likelihood of unauthorised access occurring and, to the extent to which it cannot be prevented, how to isolate hazards within the workplace.

On the University sites, **it is a requirement that work zones are clearly demarcated**. For construction works (minor and major) this may include controlling workspaces on multiple levels of a building, having signage (e.g. danger: no authorised entry; warning: construction zone, etc.), barricades, fencing and hoarding in place and ensuring that locations where University workers, students and visitors would otherwise come into contact with workplaces are secured from unauthorised access.

Additionally, putting in place exclusion zones within the work site can prevent workers from being

exposed to a hazard. Exclusion zones, or 'No go' areas, must be implemented to highlight the risks of entry to an area where there is an unguarded hazard, or to areas where work is being undertaken overhead and there is a risk of falling objects. They require clear signs warning people not to access the hazardous area and highly visible barriers securely fixed to prevent displacement. Relevant information and instruction must be provided about exclusion zones with adequate supervision to ensure that no unauthorised worker enters the exclusion zone.

Exclusion zones must also be established where minor works are undertaken within an occupied workplace to ensure that those people are not at risk of injury or harm from the work being undertaken.

4.3.2 Use of Barricades, Fencing, Hoarding and Signs

All construction and maintenance works are to be isolated from other activities, students, guests and staff of the University. Where this cannot be controlled by closing off the area of the building or using signage to temporarily prevent access to an area, then barricades or more substantial hoardings are required to be used.

Isolation of all works helps ensure the safety of all persons on the worksite or passing by on campus. The Principal Contractor must supply, erect and maintain any necessary barricades, fencing and handrails appropriate to the work they are doing, including signage to suit specified works, and or as directed by the Contract Manager. Unless directed otherwise, use of 1800mm high metal mesh proprietary barricade is required. The use of crowd control/pedestrian control barriers must be approved by the RUS(s) prior to use. The planned use of such barriers can be included in work methodologies or SWMS that have been reviewed and approved by the RUS.

University branded signs are free-issue and can be organised through the RUS.

4.3.2.1 Standard for Barricades and Fencing

All temporary fencing and hoarding must be manufactured and installed to Australian Standard 4686. Once installed, the temporary fencing or hoarding must be **certified by a qualified person as conforming to the requirements of Australian Standard *AS 4687:2022 Temporary fencing and hoarding*.**

The certificate must include:

(a) Photos of the installation;

(b) Any additional control measures deemed necessary such as additional bracing, heavier base plates, removing accessories (e.g. shade cloth, signs etc.); and

(c) confirmation from the qualified person of the pathway to achieve compliance, and that the structure is compliant, and has factored the following:

- design analysis, physical testing or a combination of both
- design wind speed with consideration of the local site conditions
- the stability class and importance level
- terrain category
- shielding class
- topography and proximity

A copy of the fencing or hoarding inspection certificate must be provided to the RUS, along with confirmation that the additional control measures have been addressed.

Where possible, temporary fencing should be braced to a stronger structure, e.g. hoarding or building, to assist in strength of installation. Temporary fencing should be inspected on a regular basis e.g. daily or weekly, to identify and rectify any potential hazards. At the end of workday, the site is to be secured by means of physical barriers to prevent public access.

Care must be taken to check and secure the barricades and fences whenever contracted workers leave the work area. This may include providing temporary lighting on the site, if deemed necessary by the Principal Contractor or directed by the RUS.

Temporary fencing, scaffolding and hoarding may require University mesh and other signage to be added. This will be determined in consultation with the RUS. Such mesh may be like that shown below.



Image 4 – Examples of University mesh on temporary fencing

4.3.2.2 Standard for Signs

Safety signs are placed throughout University campus to protect your health and safety. The Principal Contractor is required to supply and display appropriate safety and warning signage at the construction workplace for the duration of the project.

Safety signs of different colours and shapes should be used to indicate different safety hazards.

Restricted sites need to be signed in accordance with Australian Standard *AS 1319 Safety Signs in the occupational environment*.



Image 5 – Example of Safety Signs

4.4 Scaffolds

All scaffolds must conform to the requirements of WHS Regulations, AS/NZS 4576 Guidelines for scaffolding, AS/NZS 1576 Scaffolding (set), associated Standards for decking components, ladders, tube and coupler scaffolding, erection methodologies given in SafeWork NSW guide *Erecting, altering & dismantling scaffold Part 1*, and *SafeWork NSW Scaffolding Industry Safety Standard (March 2022)*.

4.4.1 Anticipating and planning for changes during scaffold lifecycle

Contractors, scaffolders and designers should consult and coordinate on the construction sequence and purpose of the scaffold, anticipating and planning for the required changes to a scaffold structure relative to the sequence of construction. Such consultation typically includes (but is not limited to) the use of scaffold ties and tie anchorage types, repositioning ties, topping up, moving hop-ups and decking components, accesses and openings, duty ratings, partial disassembly or removing components and the requirement for staged handovers.

4.4.2 Emergency planning

In addition to the consultation process noted above, contractors must consult with trades and workers to anticipate and plan for the changing work conditions and potential emergency scenarios during the building/construction sequence that will be impacted by the scaffold at various stages of construction and make appropriate plans to ensure effective emergency response may be achieved.

Emergency planning may consider such matters as changes to access and egress paths, alternative options for when stretcher stairs are not available, position and movement of rescue equipment and personnel through the scaffold, and access for emergency services (police, ambulance, fire etc.).

4.4.3 Preventing unauthorised access to scaffolds

Contractors and scaffolders must ensure that access to scaffolds is prevented while the scaffold is:

- Incomplete, closed or being altered or modified
- Without a valid handover certificate, or has not been inspected
- Required to be repaired or rectified following an incident or unauthorized modifications have been made

In addition to the above requirements, all scaffolds on university projects over 4m are required to have 2.8m hoarding surrounding the base level of the scaffold and have a lockable access/egress point, where there is the potential for the scaffold to be accessed by the public, staff and students. This may be internal and external to the project site.

4.4.4 Independent design and install verifications

The contractor is responsible for ensuring that all higher complexity scaffolds have independent design assessment and verification to identify any potential structural and stability issues, along with constructability of the design. Output of the assessment and verification must be documented, and any identified issues should be addressed prior to work commencing on the erection of the scaffold. This assessment and verification must be by a third party not engaged in the design process.

After erection and a handover certificate has been obtained, the contractor must organise a competent person who is independent of the scaffold contractor to inspect and verify:

- the erected scaffold conforms to the detailed design
- scaffolding work has been competently performed
- the scaffold is appropriate for intended use

Output of the inspection and verification must be documented, and any identified issues should be addressed prior to releasing the scaffold for use by other workers on site.

4.4.5 Handover Certificates

As per SafeWork NSW *Scaffolding Industry Safety Standard (March 2022)*: a handover certificate must be provided before first use of the scaffold after scaffolders have completed their scaffolding work i.e. after a new scaffold has been erected, or an existing scaffold has been repaired or altered.

Examples of alterations requiring an inspection and new handover certificate include:

- Adding/removing additional bays or lifts
- Changing ties or tie locations
- Changing platforms, hop-ups and decking component locations
- Changing edge protection or containment
- Partial disassembly or removing components (e.g. create an access opening)

Copies of handover certificates must be able to be provided upon request.

4.5 Prevention of falls, working at heights and accessing roofs

Contractor must comply with the requirements of WHS Act and Regulations, Code of Practice for Managing the risk of falls. Permits are required for working at heights and roof access activity, details for which can be found in this Handbook in the Permit to Work section.

A Working at Heights Permit must be obtained if using a step ladder, extension ladder or fixed ladder which involves a risk of a person falling more than 2 metres.

Before accessing rooftops, contractors should review the available information relating to roof safety reports and relevant heights safety equipment installed on rooftops. This information is accessible on CSMS.

Contractors must consider any special hazards specific to building activity (such as chemical flutes which may vent on roof tops), and common heights related hazards such fragile roof, skylights, power lines, asbestos and hazardous materials, radio frequency radiation, cooling towers and so on. All work at heights must consider the potential for dropped objects and for the works, including materials and equipment, to impact people or property outside the work zone.

A Roof Access Permit can only be authorised if the risk of fall from heights, with control measures agreed within the permit, is eliminated or minimised so far as is reasonably practicable AND IF the works do not include erection, alteration or dismantling of a scaffold or use of an EWP, workbox, BMU, temporary guardrails, safety mesh, work positioning system (restraint system), or a fall arrest system. Otherwise, a Working at Heights Permit must be used in place of a Roof Access Permit.

Any worker carrying out works at heights must be competent to carry out the task and trained in Working Safely at Heights.

Where penetrations are identified or created in the work area, they must be securely covered and fixed into position and clearly labelled as a penetration.

4.6 Plant, Tools and Equipment

Contractors must provide all necessary tools, equipment, PPE and access equipment that may be required to undertake the work. Only with the specific approval of the RUS are Contractors to use the facilities, plant or equipment owned by the University. Contractors must also ensure they, and their workers, are appropriately trained in the use and maintenance of plant and equipment used.

All Contractors are to manage the use of plant and equipment as directed in the following sections of this Handbook, and as per the *WHS Regulations 2025*, Chapter 5 Plant and Structure. Specific reference is made to *Subdivision 2 Additional control measures for general plant* and *Subdivision 3 Additional control measures for certain plant*.

The Contractor must ensure that all plant and equipment:

- Is fit for purpose
- Is suitable for the nature and duration of the work
- Has manufacturer operating instructions, including required pre- and post-start operational checks, and
- Is installed, set up and used correctly

Contractors must ensure that all plant and equipment have manufacturer operating instructions and/or operational pre- and post-start checks information available with the equipment and workers complete the required checks. Generic logbooks are discouraged in favour of manufacturer-specific requirements.

Powered and non-powered items, such as glass/duct/material lifts, must also have accompanying manufacturers operational pre-start checklists completed.

4.6.1 Standards

The following standards apply to all Contractors with regards to plant, tools and equipment:

- Only used by qualified or suitably trained personnel
- Use plant, tools and equipment for the purpose it was designed for and within its specified capacity limits
- Operators using plant requiring certificates of competency or licence must always carry them on their person while on site
- Ensure any safety features or warning devices are maintained, tested and used as intended
- Always seek instruction before using an unfamiliar piece of plant, tool or equipment
- Report any damaged plant, tools or equipment and do not use it until it has been repaired
- Where guards are provided, they must be kept in place
- Never distract the attention of another worker when operating plant or equipment
- Always use appropriate personal protective equipment
- Never use compressed air for cleaning clothing, plant or equipment
- Quantities of fuel, oil, solvents, cleaning fluids should be stored in approved containers in a cool, ventilated and where necessary, bunded, areas
- Report ALL hazards, unsafe conditions and work practices

4.6.2 Hand Tools

Picks, shovels, axes, crowbars, hammers, wrenches, files, screwdrivers etc. must be checked regularly. Use of an approved wrist-stop or lanyard to secure the tool is mandatory where there is a risk of it falling and injuring people below.

4.6.3 Explosive Power Tools

All explosive chargers for explosive powered tools must be kept in an approved, locked box. All operators of explosive powered tools must be trained and competent in using the tool. A warning sign must be displayed at each location the tools are used. Suitable protection must be worn when using the tools.

All work with any explosive tools or high vibration equipment must be approved by the RUS prior to commencement of work.

4.6.4 Lasers

Lasers may only be used by licensed persons. Lasers must be used with the following precautions:

- Up to Class 3A only to be used on the construction site
- Positioned so as not to be at eye level of workers in the area
- Warning signs must be erected

4.6.5 Compressed Air Equipment

Always use care when working with compressed air. If compressed air enters the blood stream through the skin, it can be fatal.

Wear suitable eye protections to guard against airborne substances, ear protection where excessive noise is likely to occur and/or respiratory protection where dust is present. Never, under any circumstances, should compressed air be directed towards the body of a person.

Where compressed air equipment will be used for prolonged periods suitable signage must be displayed.

4.6.6 Drones (remotely piloted aircraft (RPA))

Flying drones/remotely piloted aircraft/unmanned aerial systems is not authorised over any University property unless formal authorisation is obtained from UI and COS, Airservices Australia and the Civil Aviation Safety Authority where relevant.

4.6.7 Mobile Plant

Contractors must assess the use of mobile plant with regards to the surrounding environment and the potential for impact on the health and safety of others. Contractors should consider risks such as:

- the plant overturning or rolling-away
- things falling on the operator of the plant
- the operator being ejected from the plant
- the plant colliding with any person or thing
- mechanical failure of pressurised elements of plant that may release fluids that pose a risk to health and safety

Contractors must ensure mobile plant does not collide with pedestrians or other powered mobile plant. Without limiting this requirement, if there is a possibility of the plant colliding with pedestrians or other powered mobile plant, the Contractor must ensure the plant has a warning device (e.g. flashing lights, audible reversing alarms, horn, etc.) alerting anyone nearby who may be at risk from its movement and that appropriate traffic management procedures are implemented.

In shared and public areas, a spotter must be organised for each mobile plant movement: this person should be in visual contact with the driver at all times and wear high visibility clothing.

All guards, operator controls, emergency stops, and warning devices (where fitted) must be maintained in a clean state so they are easily recognisable and will work to best effect.

All mobile equipment such as front-end loader, dozers, backhoes, forklifts, drill rigs etc. must have keys removed; blades, tines and buckets lowered onto the ground and must be chocked or blocked when not in use.

This includes trucks and delivery vehicles while on campus and for which the contractor must ensure wherever possible they are parked on a firm, level surface with the handbrake applied, the motor switched off and rendered inoperable and the risk of plant moving of its own accord, including

rolling away, is eliminated.

4.6.8 Plant Access and Security

The Principal Contractor is responsible for the safe delivery, storage, security and retrieval of all plant under their management or control while it is located on University premises. For the purposes of this requirement, University premises refers to areas owned, leased, occupied or managed by the University in connection with the works.

This responsibility applies regardless of whether the plant is owned, hired, supplied or accessed by the Principal Contractor, their subcontractors or any other third party, to the extent that the plant is under the Principal Contractor's management or control.

Plant that is not in use must be secured to prevent unauthorised access, operation or movement. This includes the removal and control of keys or control devices and the implementation of appropriate physical or engineering controls.

Plant must not be delivered, accessed, operated or removed from University premises without the Principal Contractor's knowledge and coordination, including where plant is owned or retrieved by a hire company or other third party.

Plant stored, parked or staged on University premises, including outside the immediate work area or awaiting collection, is taken to be under the Principal Contractor's management or control and remains their responsibility until it is removed from those premises.

Any unauthorised or uncoordinated access to, or movement of, plant must be treated as a safety incident and managed in accordance with the requirements of this Handbook.

4.7 Traffic Management

Construction contractors using vehicles, powered mobile plant or other load shifting equipment for their activities on the University campuses must carry out risk assessments and consider the following:

- Separating pedestrians and vehicles
- Vehicle routes
- Safe crossings
- Parking areas
- Loading and unloading of vehicles
- Forklifts and other powered mobile plant
- Reversing vehicles
- Signs and road markings
- Lighting

In shared areas (e.g. Eastern Avenue), a spotter must be organised for each vehicle movement: this person should be in visual contact with the driver at all times and wear high visibility clothing.

Construction contractors must develop and implement an appropriate traffic management plan, traffic guidance scheme and/or traffic control plan suitable for the works. The traffic management plan should include details of:

- the output of traffic risk assessments
- emergency procedures
- the desired flow of pedestrian and vehicle movements
- the expected frequency of interaction of vehicles and pedestrians

- management of delivery and waste removal service
- control measures for each expected interaction including illustrations of the layout of barriers, walkways, signs and general arrangements to warn and guide traffic around, past, or through a work site or temporary hazard
- how short term, mobile work and complex traffic situations will be managed
- responsibilities and competencies required of people managing traffic in the workplace
- responsibilities of people expected to interact with traffic in the workplace
- instructions or procedures for controlling traffic including in an emergency

A traffic management plan should be monitored and reviewed at regular intervals or following an incident to ensure it is effective and considers changes at the workplace.

All traffic management plans that impact roads and pedestrian access paths or that will alter established traffic flow patterns throughout the University must be submitted through the **Traffic and Pedestrian Management permit** in CSMS.

All trade contractors must follow campus parking and traffic signs and where these trades are working with construction contractors must work in accordance with the traffic arrangements for the project.

4.7.1 Traffic Controllers and Spotters

The University recognises that traffic controllers and spotters perform different roles and require different competencies and levels of authority.

Traffic controllers are responsible for controlling and directing traffic and pedestrian flows on or adjacent to roads, including during road closures, partial road closures, construction access, maintenance works or roadside work events. Traffic controllers must hold the required SafeWork NSW Traffic Control Work Training Card for the traffic control work being performed and must be trained by a SafeWork NSW approved training provider.

Spotters operate within controlled work areas and assist with the safe movement of vehicles, mobile plant, heavy equipment or loads where visibility, clearance, reversing, exclusion zones or interaction with pedestrians may create a risk. Spotters do not control public traffic unless they also hold the required traffic control competency.

Spotters must be competent for the task, understand the site traffic management arrangements, maintain effective communication with the operator or driver, remain in a safe position with clear visibility, and wear high-visibility clothing that makes them clearly distinguishable from other workers where required.

4.7.2 Road Closures

Road closure requests must be submitted through the **Traffic and Pedestrian Management permit** in CSMS.

Requests will be assessed on the following criteria:

- safety concerns
- importance and need for closure
- impact
- available alternatives to closure

If it is necessary to close a road, adequate signs and barriers must be erected as directed by the Protective Services and Emergency Management Unit. The Contractor is responsible for the erection and maintenance of required signage and barriers, at their cost.

Unauthorised road closures may result in the road being re-opened without further notice.

Contractors are responsible for obtaining and complying with council permits, RMS permits, and

approved road closures and diversions.

4.8 Essential Services

Essential services include the supply of gas, water, sewerage, telecommunications, electricity, chemicals, fuel and refrigerant in pipes or lines. The Contractor must manage the risks to health and safety associated with essential services at the workplace.

All construction work that is carried out on or near:

- Pressurised gas distribution mains or piping
- Pressurised water mains or piping
- Chemical, fuel or refrigerant lines
- Energised electrical installations

is considered as **high-risk construction work** and a SWMS must be prepared before this work commences.

Refer to Isolation and shutdown of services.

Before work commences, Contractors must confirm the services are at or near the location where the work is to be done that could create a risk if contacted or damaged. Services may be underground or hidden in floor slabs, behind walls, in wall cavities or even within wall render.

Services locating and slab scanning is essential to aid in the minimisation of potential service strikes. The University has buildings and infrastructure which is very old, and many previously unidentified services have been discovered in slabs and walls and subfloor areas chased into structural elements and created risks to workers.

Contractors must locate and identify shut-off valves for essential services when cutting into slab, ground or wall. This must be communicated to workers and incorporated in the Work Health and Safety Management Plan and Emergency Procedures.

The RUS will make available all known information of the area. Contractors must apply for a **Permit to Dig** for all excavation and ground penetration works through CSMS.

4.8.1 Core Holes

At the University, coring activities through floors, slabs, ceilings and walls carry significant risks. These include potential damage to structural elements, hazards from electrical, gas and plumbing services, and complications with ICT infrastructure. Such risks can result in costly repairs, legal issues and serious safety incidents. It is therefore essential that thorough site assessments are carried out and appropriate technology is used to identify and mitigate risks before any cutting begins.

Prior to commencing coring activities, contractors must:

- Identify the location of all services in the area (e.g. through scanning).
- Check whether any services are controlled by timers (such as electrical systems), as these may not be detected during scanning if inactive, but could be live during coring.
- Determine the safest method of core extraction (e.g. drawing the core back toward the worker, rather than coring through into another space).
- Drill pilot holes as part of the investigation process.
- Assess where spotters are required (e.g. on the opposite side of the structure being cored, where live services may be present but not visible).
- Isolate services where required.

4.9 Electrical Safety

Prior to the commencement of any work involving electrical lines and/or equipment, Contractors must contact the RUS (or where appointed the Principal Contractor) who will define the scope and limits of the work.

Contractors must ensure that all electrical items are tested and tagged according to the *WHS Regulation 2025 (NSW)* and associated codes of practice and standards, specifically:

- Electrical practices for construction work
- Low voltage electrical work
- AS/NZ 3760 In-service safety inspection and testing of electrical equipment and RCDs

Suitably qualified, licensed and trained personnel must carry out all electrical isolations. Work on any isolated equipment must not commence without tagging and locking the equipment out.

All works to electrical systems must be documented and the Contractor will send a Certificate of Compliance of Electrical Works (CCEW) to the responsible UI/COS Project/Contract Manager.

The Contractor must refer to the *Code of Practice Managing Electrical Risks in the Workplace* when electrical risks are identified in their scope.

All construction wiring must be supplied and installed as per AS/NZS 3012 and its referenced standards and codes.

Live electrical work must not be undertaken unless it is not reasonably practicable to isolate the relevant energy source. Where live electrical work is required, the Contractor must provide, manage and authorise a live work permit and associated procedure before the work commences. The Contractor must notify the RUS before any live electrical work is undertaken.

4.9.1 Electrical Leads (cord extension sets)

All electrical leads must be the heavy-duty sheathed type:

- Tested and tagged by a qualified person
- Supported clear of the ground or floor using insulated or other suitable materials wherever practical
- Only connected to the nearest power outlet
- Removed from the power outlet when not in use
- Protected if passing under doors, through doorways or across open areas (e.g. tapped down to prevent trip hazards)
- Must be kept as short as practicable and in good order
- Joints must be made with approved plugs and sockets or junction boxes

A cord extension set must not be joined so that the total length of any combination exceeds relevant maximum values as per AS/NZS 3012. Generally, this will be:

- 10A, 1.0 and 1.5 conductor size will be 25m and 35m respectively
- 16/16A, 1.5 and 2.5 conductor size will be 25m and 40m respectively
- 20A, 2.5 and 4.0 conductor size will be 30m and 50m respectively

Quoted lengths are taken from AS/NZS 3199 and based on voltage drop of 5% of 230V at rated current for the conductor size.

4.9.2 Residual Current Devices (RCD)

An RCD is an electrical safety device designed to immediately switch off the supply of electricity when electricity 'leaking' to earth is detected at harmful levels. RCDs offer high levels of personal protection from electric shock.

Contractors are required to manage any electrical risk associated with the supply of electricity to 'plug in' electrical equipment using an appropriate RCD in certain higher-risk workplaces.

Contractors must comply with *AS/NZS 3012 Electrical installations - Construction and demolition sites* in relation to RCD requirements for construction and demolition sites.

Common examples of electrical equipment requiring an RCD include:

- Hand-held electrical equipment, for example drills and saws
- Electrical equipment that is moved while in operation, including jackhammers, electric lawn mowers, floor polishers and extension cords
- Electrical equipment that is moved between jobs in ways that could result in damage to the equipment, for example electric welders, electric cement mixers, portable bench saws and extension cords

Additional RCD requirements may be included in *AS/NZS 3000 Electrical installations, Wiring Rules*, local building and electrical safety laws.

4.9.3 High Voltage Works

Requirements for electrical work on high voltage equipment after switching, isolation, short circuiting and earthing are specialised requirements. Only competent electrical workers who have received appropriate training in high voltage electrical work are permitted to work on high-voltage electrical equipment.

High voltage works have specific requirements that will be detailed in Contractor scope of works and may require assistance of supply authorities.

4.9.4 Working in the vicinity of overhead and underground electric lines

Contractors required to work in the vicinity of overhead and/or underground electric lines must follow legislative and code of practice requirements for such associated matters as:

- Risk management processes.
- Approach distances.
- Operating cranes and mobile plant
- Tree and vegetation management
- Scaffolding work
- Agricultural work
- Low voltage overhead electric lines near structures
- Transporting high loads

4.9.5 High voltage substations

A Contractor needing access to a high voltage Substation area must abide by all applicable Acts and Regulations. Access must be arranged through University Facilities Officer, who will arrange access permits.

The Contractor must obtain written permission prior to accessing any high voltage sub-station and must abide by the following criteria:

- Obtain a Contactors permit to work from the RUS
- Regulation under the Electricity Act 1995
- AS/NZS 3000 Electrical Installations (Australian/New Zealand Wiring Rules)
- WHS Regulations 2025 (NSW), Part 4.7

All electrical work completed by a Contractor must have an 'Certificate of Compliance for electrical work' (CCEW) completed and forwarded to the RUS. Also refer to the Facilities Management Unit for Electrical Compliance Protocol which provides guidance on compliance with relevant State legislation concerning Certificate of Compliance for electrical work (CCEW).

4.9.6 Use of ladders for electrical work

Where electrical works requires the use of portable ladders, only fiberglass ladders must be used. This includes works to gain access to electrical installations such as cutting gyprock, removing roof panels. Metal ladders, including step and trestle ladders, must not be used where electrical hazard exists. When handling metal ladder for non-electrical work, care must be taken to ensure that the ladder does not make contact with power lines and conductors.

Contractor must comply with the requirements of Code of Practice for Managing the risk of falls for selection and use of ladders.

4.9.7 Ultra-violet (UV) lamps in Heating, ventilation, and air conditioning (HVAC) system

Contractors planning to access HVAC systems for works, must take into consideration presence of UV lamps (emitting ultraviolet type C radiations) installed for air sterilization in certain equipment and implement appropriate control measures as per the hierarchy of controls to prevent accidental exposure.

Such lamps are in particular present in D17 Charles Perkins Centre and F13 Anderson Stuart Building. Contractors must always consider isolating such lamps before starting work to eliminate the risk of exposure.

4.10 Lock-Out, Tag-Out and Test

4.10.1 Lock-Out, Tag-Out and Test Requirements

The Lock-Out, Tag-Out and Test process is required if a contractor is required to conduct work on any plant, equipment or service that has one or more energy sources that crate a potential hazard for the contractor when working on the equipment.

4.10.1.1 One person one lock

University sites require each person working under a Lock-Out, Tag-Out and Test procedure to have, and attach, their own lock to prevent the isolator being opened while their task is in process.

If two or more people are working on machinery, plant and equipment that is isolated through several lock out points, each person must attach a lock and tag to each lock out point.

To avoid the need for multiple locks on each lock out point, a lock box may be used. Under this system, each lock out point is locked by only one lock, and the keys to the locks of the machinery's lock out points are placed inside a box that is locked by all the individual locks of people working on the same plant.

Image 6 – Example of a group lockout box



4.10.1.2 One lock one key

Each person working on the machinery, plant and equipment must have their own lock, key and tag. There should be no duplicate key available for any lock, except a master key for use in an emergency that is secured and only available to the appropriate supervisor with the authority to use the master key.

During inspection, repair, maintenance, cleaning or adjustment of the machinery, plant and equipment, the one key to each person's lock should be held only by that person, who is responsible for both locking and unlocking the lock out device.

4.10.1.3 Multiple energy sources

If more than one energy source or hazard must be locked out to enable safe shut-down of the machinery and equipment, the single key to each lockout device should be held by the same person.

4.10.1.4 Isolation by Incumbents for Project Work

Isolations for infrastructure and construction projects are often performed by incumbent facilities services contractors. Where an incumbent maintenance contractor completes an isolation for a Principal Contractor, the Principal Contractor must ensure that the isolation is verified and that the site manager or site supervisor applies their own lock and tag to the isolation.

Where workers or subcontractors are working under the isolation, the isolation must be managed through a lock box arrangement, as outlined in section 4.10.1.1 One person one lock. The site manager or site supervisor must secure the isolation keys in the lock box, and each worker or subcontractor working under the isolation must apply their own personal lock to the lock box before commencing work.

4.10.1.5 Removal of Tags and Locks

Removal of Danger tags, security locks or other devices must only be carried out by the originator. Contractors are not permitted to remove other contractor's tags and locks.

Unauthorised breach or removal of a tag or lock will result in disciplinary action.

If a tags or lock cannot be traced or requires removal but the person responsible for the items cannot remove the lock, **permission can only be obtained from:**

- UI – Chief of University Infrastructure
- COS – Director Asset Management & Operations.

4.10.2 Danger Tags

Danger – Do Not Operate Tag is used with a lock-out device to identify that a lock-out is in progress; the person working on the plant/equipment; and date applied.

Image 7 - Example of Danger Tags



The tag is not used on its own to isolate plant or circuits, as this is not an effective isolation device. A tag only provides information to others; a lock must be used as an isolation device and will be accompanied by a tag.

Under no conditions will activating operational stop buttons, emergency stop devices or interlock devices be considered the equivalent to the isolation of power sources or the release of stored energy.

Attach own Danger Tags or Lock-Out Device to isolation switches, valves or other isolators in all instances where Lock-Out, Tag-Out and Test is required. Contractors must use industry standard locks, hasps and tags, for example, Master Lock types.

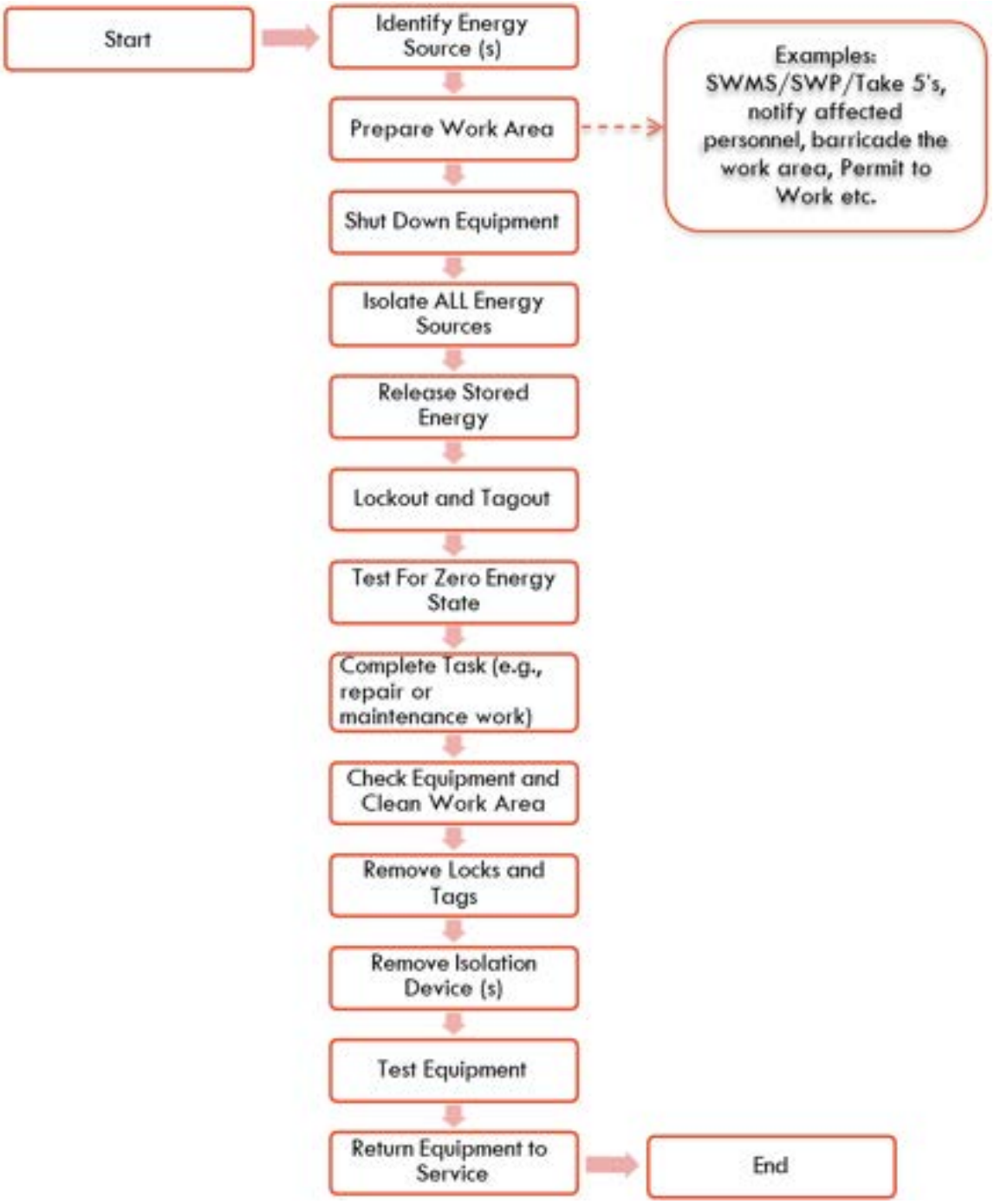
Image 8 – Example of Lock and Hasp



All locks must be traceable to the user. Where locks are identified only by numbers, a Register of Personal Locks is to be maintained and readily available.

4.10.3 Energy Isolation Flowchart

Energy Isolation procedures involve the isolation of all forms of potentially hazardous energy so that the plant does not move or start up accidentally. Isolation of plant also ensures that entry to a restricted area is controlled while the specific task is being carried out. Isolation activities must address the basic steps outlined below:



4.10.4 Procedure for the Removal of Lockout/Tagout Devices by Persons Other Than Those Who Fitted Them

Warning

- This procedure must only be used when there are reasonable grounds to believe that the person who fitted the lock and/or tag has inadvertently forgotten to remove the lock and/or tag, or when that person is incapacitated and cannot remove the lock and/or tag.
- It is possible the worker may have temporarily left the facility to obtain spare parts or required equipment to complete the repair, so absence from the facility is not reason enough to initiate this procedure.
- Prior to using this procedure, a thorough effort must be made to locate the person who fitted the lock and/or tag and get him or her to return to the facility to remove the item.

- In all cases where the person can be located, he or she must be requested to return and remove the lock and/or tag instead of using this procedure.

When a worker who applied a lock or tag is not available to remove it, the lock or tag may be removed only by the RUS by following these procedures:

Step	Action
1.	Make a reasonable and thorough attempt to locate the worker, such as making contact on his work telephone and/or mobile phone and request that the contracting company contact the worker.
2.	Inform all relevant personnel that the removal of the lock is being undertaken and specify what equipment the lock was isolating and who fitted the lock.
3.	Evaluate if it is safe to reenergize the equipment by performing all of the following: • Check the area thoroughly to ensure all equipment has been reassembled correctly. • Ensure all connections to the equipment have been remade. • Remove any tools or equipment from the area. NOTE: This may require the assistance of a competent person.
4.	Report the evaluation and obtain permission from the **Chief of University Infrastructure** / **Director of Asset Management & Operations (AMO), COS** as applicable to remove the lock and/or tag.
5.	Clear the area of all personnel and tools.
6.	Remove the lock and/or tag. NOTE: This may require the assistance of a competent person.
7.	Re-start the equipment if necessary. NOTE: This may require the assistance of a competent person.
8.	Inform the Contracting Company that the lock and/or tag have been removed.
9.	Inform the **Chief of University Infrastructure** / **Director of AMO (COS)** as applicable that the lock and/or tag have been removed

4.10.5 Testing Isolation Procedure

After plant has been shut down, locked out and tagged, all isolated power sources should be tested first with appropriate instruments and then by trying to activate the plant, before any person attempts to start work on the plant. This should be done by a person who understands the complexity of the plant (or parts of the plant, including control stations and computers remote from the plant).

It is not safe to assume an isolator has locked out an electricity source simply because it is in an open position. While normally this should open an air gap between contact points, it is possible for contact points to become welded together by the passage of electricity and remain so even when the isolator appears to be open.

Work on the plant should not begin until tests have confirmed it is safe to do so. The calibration of any instruments required to test isolation procedure should be checked before use.

4.10.6 Out of Service Tags

Out of Service Tags are used to identify plant or equipment taken out of service due to a fault, damage, or non-requirement.

Tags are not removed until the item is safe for return to service.

Image 8 – Example of Out of Service Tag



An 'Out of Service' Tag can be used by anyone who considers the item to be unsafe or unserviceable. Details of the date, person tagging, and reasons will be entered onto the tag.

Tags are securely fixed to the plant/equipment controls (e.g. steering wheel on a forklift) and isolator where applicable. Any starting device (e.g. key) is removed to prevent activation.

The person tagging should immediately advise Campus Assist of the fault by telephone or on- line, who will ensure that matter is appropriately logged.

4.11 Isolation and shutdown of services

To ensure minimal impact on stakeholder groups, the RUS are required to confirm that service isolations for services such as electricity, water, gas, telephone or data have been arranged and that individuals or areas affected have been advised ten (10) working days prior to the date of the shutdown.

Information regarding the service isolation should be provided to the RUS describing the nature of the work to be done, the time and the expected duration of the shutdown. All interruptions must be kept at an absolute minimum and only at such times as has been agreed by the RUS. Should services be shut down accidentally, the Contractor must advise the RUS and Protective Services and Emergency Management immediately.

Contractors are to ensure that the isolation/tag out system is applied to the setting up, servicing and repair of all machinery capable of being activated by energy sources including electrical, pneumatic, hydraulic, chemical and mechanical (refer to section Lock-out, tag-out and test).

4.11.1 Isolation of Fire & Security Alarms

When undertaking works that may generate heat, dust, smoke, or involve alterations to the Building Fire Protection Systems, the following procedures must be adhered to:

Fire System Interruption Permit: A fire system interruption form must be submitted through CSMS at least three (3) working days prior to the start of the isolation.

Engagement of University Fire Services Maintenance Provider: Isolations must be executed exclusively by a current University Fire Services Maintenance Provider.

Risk Assessment for Fire Protection: A risk assessment identifying the risks and measures undertaken to ensure adequate fire protection must be provided with the fire system interruption application. This assessment is crucial in maintaining fire safety in the general location of the works.

Daily Restoration of Fire Isolations: All fire isolations must be reinstated at the end of each working day, except under rare, pre-approved circumstances. For overnight isolation approvals, contact fire.services@sydney.edu.au to ensure that necessary physical fire protection measures are in place such as the deployment of fire watchers. Depending on the extent of these isolations, the University's Insurer may also be required to be notified.

Mandatory Approval Prior to Work Commencement: WORKS CANNOT COMMENCE BEFORE FORMAL APPROVAL IS RECEIVED FROM UI/COS.

Regulations for Hot Work: No welding or other heat or dust producing work is to be carried out in any internal area before the fire alarm detectors are isolated. A Permit to Work must be completed, indicating any/all Hot Work activities. Non-compliance may result in a false alarm, calling out the Fire & Rescue NSW Services and the relevant Service Provider, at the cost of the Contractor.

Notification of Modifications to Hydrant or Sprinkler System: COS Protective Services and Emergency Management and the relevant RUS must be notified of any modifications to the hydrant system requiring interruption to the fire water supply at least five (5) working days prior to the modification work. Depending on the extent of these isolations, the University's Insurer may also be required to be notified.

4.11.2 Natural Gas Isolation and Shutdown

Contractors must notify the RUS in writing at least 10 working days prior to any natural gas isolations using the **Natural Gas Isolation and Shutdown permit in CSMS**. The notice will clearly specify which gas system will require isolation and shutdown as this will form a part of the UI/COS Communication that is required to be circulated to affected buildings prior to the event.

This notice must be approved by the RUS prior to commencement of works.

4.11.3 Electrical Shutdowns

Contractors must notify the RUS in writing at least 10 working days prior to any power shutdown required. The notice will clearly specify which parts of the electrical system will require shutdown as this will form a part of the UI/COS Communication that is required to be circulated to affected buildings prior to the event.

This notice must be approved by the RUS prior to commencement of works. Where a complete shutdown is required on a switchboard or multiple switchboards under a project, the **Electrical Power Shutdown permit in CSMS** must be submitted and authorised prior to commencement of works.

4.11.4 Isolation of Fume Cupboards

Fume cupboard or chemical store ventilation can only be isolated by arrangement with the RUS and the local area manager. Fume extraction fans must not be isolated before 'tagging out' all affected laboratory fume hoods to prevent their use (refer to section on 'Danger' and 'Out of Service' tags). Contractors must personally confirm with the laboratory manager that all laboratory staff are aware that they are about to start work on a fume hood system.

4.12 Trenching & Excavation

Any excavation work on the University grounds must be carried out in accordance with the provision of WHS Regulations and *Code of Practice Excavation Work*. **All excavation and ground penetration works require a Permit to Dig** available on CSMS.

All excavation work is considered high risk work and therefore requires the Contractor to prepare and submit a SWMS.

Prior to intrusive works, the Contractor must check the applicable Hazardous Infrastructure Materials Registers and contaminated land environmental management plan (if relevant) for the building and the University's Asbestos Management Plan (AMP) and Hazardous Infrastructure Materials Management Plan (HIMMP) and determine whether works will disturb hazardous infrastructure materials and/or contamination requiring specific management (refer to Section 4.16 and 5.9).

Contractors must manage the risks to health and safety associated with excavation work before the work commences including but not limited to the risk of:

- a person falling into an excavation
- a person being trapped by the collapse of an excavation
- a person working in an excavation being struck by a falling object
- a person working in an excavation being exposed to an airborne contaminant
- vehicle or mobile plant encroachment on the excavation and zone of influence

To manage the risks, all relevant matters must be considered including:

- the nature of the excavation
- the nature of the excavation work including the range of possible methods of carrying out the work
- the means of entry into and exit from the excavation (if applicable)
- the potential presence of hazardous infrastructure materials and/or other contamination in the excavation area
- The requirements of *Essential Services* of this Handbook must be followed as part of the excavation process.

Any excavations within 1.5 meters of known service are to be carried out by manual excavation (i.e. shovel) or hydro-vac/non-destructive measures until the service is exposed.

All open excavations must be always surrounded by suitable barricades or barriers.

Any underground obstacle, unexpected service, unidentified materials, suspected archaeological items or artefacts identified requires an immediate stop of work and the Contractor must inform the RUS to assess the necessary course of action. Refer to Unexpected Finds section (4.16.1).

All trenches over 1.5 metres in depth must be protected against collapse by approved methodologies (e.g. bench, batter, shore etc.) and barricades must be erected around the trench and always kept in place.

Where contractors are engaged for events on university grounds, they are advised that all structures are to be weighed down and not pegged. Any proposal to erect a structure on the lawns needs to be clearly documented in the booking request, and if in doubt, discuss with University Venues or Grounds.

4.13 Respirable Silica and Engineered Stone

Contractors are required to identify and manage risks associated with crystalline silica substances (CCS) and silicosis through worker exposure to silica dust during tunnelling, demolition and excavation work, or uncontrolled cutting, grinding, polishing and drilling of common building materials including brick, concrete, sandstone and tiles and use/handling of engineered stone.

Typical crystalline silica levels in different materials are:

- sand and sandstone: 70-100%
- manufactured stone: 93% or higher
- granite: 20-45% (typically 30%)
- concrete and mortar: 25-70%
- calcium-silicate bricks: 50-55%
- slate: 20-40%

- brick: up to 30%
- fibre cement sheets: 10-30%
- demolition dust: 3-4%
- marble: 2%
- limestone: 2%

Contractors must comply with the requirements of the Code of Practice: Managing Risks of Respirable Crystalline Silica in the Workplace, which commenced in NSW on 20 February 2026.

A key requirement is for PCBUs to assess the risks associated with the processing of crystalline silica substances and determine whether the processing is high risk. Where it is not possible to determine whether the processing is high risk, the work must be treated as high risk until demonstrated otherwise through further assessment or monitoring.

As part of planning works that may involve crystalline silica substances, particularly demolition, strip-out, excavation, drilling, cutting, grinding or other intrusive works, contractors must undertake the risk determination during the planning stage. The University expects this determination to be undertaken by a certified occupational hygienist, or where this is not available, by a person with relevant qualifications and experience in occupational hygiene, or a person working under the supervision of a certified occupational hygienist.

The WHS Regulation requires a silica risk control plan to be implemented for all high-risk processing of crystalline silica substances before the processing commences. The plan must be developed in consultation with the workers involved in the processing and must address the required content, controls, air monitoring, review and training requirements. The plan must clearly state whether air monitoring is required for the specific task.

Where air monitoring results show that the airborne concentration of respirable crystalline silica has exceeded the workplace exposure standard, the contractor must notify SafeWork NSW within 14 days of receiving the air monitoring report. **The RUS must also be notified as soon as the contractor becomes aware of the exceedance.**

Contractors must use controls that eliminate or minimise the generation of silica dust, such as water suppression, dust extraction systems on portable tools, isolation, local exhaust ventilation, or other suitable higher-order controls. The Code of Practice must be referred to when selecting controls, based on the hierarchy of controls.

All workers involved in high-risk silica processing must be provided with information about the Silica Worker Register. Employers must register relevant workers undertaking high-risk silica processing within 28 days of the worker commencing that work. Contractors are also reminded that they must provide health monitoring to workers where there is a significant risk to their health from exposure to respirable crystalline silica.

Where respiratory protective equipment is required to reduce respirable crystalline silica exposure, its effectiveness may be considered for workplace exposure standard compliance only where all reasonably practicable higher-order controls are in place and the RPE is correctly selected, fit tested, used and maintained.

Clearly visible warning signs must be placed at silica exclusion zones. A competent person must determine the size and location of the exclusion zone, having regard to the task, site conditions, wind direction, other work activities and potential exposure pathways. Signs must indicate that:

- a silica dust hazard is present
- access is restricted to authorised persons
- RPE is required within the exclusion zone.

Where an exclusion zone affects workplace activities, only authorised workers wearing the required RPE may enter the exclusion zone.

4.14 Fire Prevention

Contractors are required to identify and assess fire risks associated with their work, including risks arising from tools, equipment, materials and substances, and the storage of these items. This assessment must include the use, charging, storage and fire risk of lithium-ion batteries.

Lithium-ion batteries are a leading fire hazard and can pose serious risks to infrastructure and persons in the vicinity due to fire, explosion, toxic fume, electrical energy and chemical exposure hazards. Contractors must include in their emergency response procedures how they will manage a lithium-ion battery fire, including evacuation of the affected area, calling 000 immediately, and following relevant emergency instructions. Contractors must consider where and how battery chargers and lithium-ion batteries will be used, charged and stored as part of their site setup and safety planning.

Fires must not be lit on campus at any time. Fires must not be lit on farms unless approval has been granted and appropriate fire control measures are in place.

In the event of the fire alarm sounding, the Contractor and their workers must evacuate the site, following exit signage and the directions of the University Fire Wardens to the assembly point nominated. Contractors must make themselves aware of campus and building and/or evacuation plans.

The Contractor's representatives must not re-enter the building until advised by the Fire Wardens that it is safe to do so.

This does not discharge the responsibility of the Contractor to ensure workers are provided with adequate information in relation to emergency evacuation procedures. Where possible, the Contractor must nominate a Chief Warden. In the instance where the Contractor has not nominated a Chief Warden, Security Services personnel must act in this capacity.

The RUS must be advised prior to the first site meeting of the name and contact details of the Chief Warden. It must be the Chief Warden's responsibility to check the site area(s) in the event of a fire alarm to ensure that the Contractor's representatives have evacuated the area in accordance with the University Emergency Evacuation Procedures.

4.14.1 Fire Extinguishers

Contractors are required to provide fire extinguishers which comply with AS/NZS 1841 Portable fire extinguishers. Supply and installation must meet AS 2444 Portable fire extinguishers and fire blankets - Selection and location.

Fire extinguishers need to be regularly inspected and maintained in accordance with AS 1851 Routine service of fire protection systems and equipment. Located in university buildings, fire extinguishers and associated hose reels are identifiable by relevant signage in the corridors.

Fire extinguisher types must be used to suit intended purpose. To allow for instant recognition of the most suitable fire extinguisher, identification discs are to be displayed on the can to indicate the particular types of fire it can be used on.

4.14.2 Hot Works

A hot works permit is required for any work involving open flames, hot surfaces, sparks, molten material, or sufficient energy to ignite combustible, ignitable or flammable materials.

Hot works, including welding, grinding and cutting, must be approved through a CSMS Hot Works Permit before work commences. A CSMS Hot Works Permit may not be required where the Contractor has a designated hot works area or workshop, or where there is no potential fire risk to University buildings, infrastructure or services, such as no requirement for a fire system isolation. This must be agreed with the RUS and RUS safety representative and applies only to the specific project or task approved.

A hot works permit applies only to a single shift or day. Where hot works will be conducted over multiple shifts or days, separate permit requests must be submitted and approved before each period of hot works commences. Planned hot works must not be conducted within 6 metres of a building with aluminium composite cladding.

Where a fire system isolation is required, the Contractor must liaise with the RUS to submit the fire system interruption request at least three working days before the proposed isolation, in accordance with the relevant section of this Handbook.

Adequate fire protection must be present, with suitable fire extinguishers attached to, or near work area. Welders must use screens to protect all personnel from welding flashes and any hot waste produced during the welding process. Workers undertaking the hot works should wear the correct personal protective equipment.

Contractors must supply their own fire extinguishers and not rely upon the University fire extinguishers.

After the hot work activities have ceased, a fire watch for the duration required by the matrix available in the hot works permit must be completed and the time included for when the fire watch commenced and finished, along with the name and signature of the person completing the fire watch.

The requirements of any NSW Fire Brigade (rural or otherwise) fire bans must be always adhered to.

4.14.3 Gas Works

Gas Work is defined as work on consumer piping, fittings, components, appliances, flues, sub- meters, apparatus and other devices an associated requirement.

Refer to **Isolation and shutdown of services** for service isolation and shutdowns.

Prior to commencement of any works on gas infrastructure the following procedures must be adhered to:

- The gas system must be isolated.
- Smoking, open-flamed, hot work and other ignition sources in the hazardous area will be identified and isolated.
- Consumer gas piping (i.e. piping after the metre) must be purged prior to work commencing. Where purging is not practicable, the Contractor will notify the relevant Utility Authority prior to commencing work on any unpurged piping.
- All open pipe ends must be sealed while the work is in progress.
- All gas piping must be tested by the Contractor after works have been complete.
- Testing for gas leads must be conducted using either the soap and water method
- (external) or a gas 'sniffer'.

4.15 Welding

All welding, whether with gas flame, electric arc, electric resistance, lasers, electron beams, friction, molten metal baths or ultrasound, use energy sources and joining methods which are potentially hazardous.

Risk assessments should be completed for the type of welding work and risk assessments will be required to support permit processes such as hot work permits, and for welding in specific locations, such as confined spaces.

Risk assessments should consider such hazards as:

• Airborne contaminants • Radiation • Electrical risks • Fire and explosion • Burns and exposure to heat	• Lead • Confined spaces • Falls • Manual tasks • Ventilation and local exhaust

• Compressed and liquefied gases • Noise	• PPE

The use of welding screens to mitigate risks to workers, others in the area (through welding flash etc.) and property damage is required.

4.16 Asbestos, Lead and other Hazardous Infrastructure Materials

As detailed in the **Asbestos Management Plan (AMP)** and **Hazardous Infrastructure Materials Management Plan (HIMMP)**, prior to any works, the Contractor must check the applicable Hazardous Infrastructure Materials Registers for the building and determine whether works will disturb hazardous materials and therefore considered as hazardous infrastructure materials-related works. Where applicable also check for available land environmental management plans.

These Site Registers and associated reports/documentation are available on the **Alpha Tracker web site** which can be accessed through CSMS. Refer to the Quick Reference Guides available in the CSMS Quick Reference Guides section of the web page - Contractors public page :

- CSMS_Alpha Tracker via Document Control Module_QRG
- CSMS_Alpha Tracker via PTW Module_QRG

For access to Alpha Tracker outside of using the CSMS, email cos.hse@sydney.edu.au and access details will be arranged and forwarded to the person making the request.

Hazardous Infrastructure Materials surveys organised by UI/COS to develop the registers are nonintrusive surveys that do not inspect inaccessible areas and do not take samples where this could damage the facilities. These registers often do not provide sufficient information for demolition or refurbishment works where materials not assessed in the surveys will be disturbed.

If works will disturb materials and if presence of hazardous infrastructure materials is unknown, works must not start until a competent person (a licensed asbestos assessor) determines whether hazardous infrastructure materials are present.

Any works that may disturb hazardous infrastructure materials must be considered as hazardous infrastructure materials-related works and managed as such.

Therefore, certain legislative requirements may apply such as health monitoring for workers conducting hazardous infrastructure materials-related works, notification to the regulator, licenses, etc. Also, air monitoring must be conducted in the work area if there is uncertainty as to whether the exposure standards are likely to be exceeded. All hazardous infrastructure materials inspections, whether organised for Compliance purposes or via a contractor, must be provided to the RUS for updating of University hazardous materials records. Additional information on the management of hazardous infrastructure materials, reports and permits is available on CSMS.

4.16.1 Unexpected finds

As detailed in the AMP and HIMMP, If the Contractor finds suspected "new" asbestos-containing materials (ACM) or other hazardous materials during the works, they must stop work immediately and contact the RUS to discuss further action. Contractors are expected to comply with the requirements of their own 'unexpected finds procedure', or equivalent, to ensure the safety and wellbeing of persons potentially impacted by the find.

Such materials include:

- Asbestos
- Polychlorinated Biphenyls (PCBs)

- Lead dust and lead paint
- Heavy metals
- Flammable or explosive liquids or gases
- Toxic, infective or contaminated materials
- Radiation from radioactive materials
- Noxious or explosive chemicals
- Tanks or other containers which are not labelled and/or have an unknown history
- Discoloured and/or odorous materials
- Phase-separated hydrocarbons, oily substances and/or sheen on soil/water

4.16.2 Asbestos

Contractors shall consult the Site Register(s) and Hazardous Infrastructure Materials Reports for asbestos information on buildings. These reports are currently available on the Alpha Tracker web site which can be accessed through CSMS (See 4.16).

The AMP and HIMMP are also housed within Alpha Tracker.

Note that several hazardous infrastructure materials reports and Alpha Tracker also contain information on lead paint, lead dust, PCB's, SMF and heavy metals that may have been identified during inspections.

All asbestos work must be carried out in accordance with the AMP and HIMMP and the SafeWork NSW requirements and as set out in Code of Practice How to Safely Remove Asbestos and Code of Practice How to manage and control asbestos in the workplace.

The CSMS Asbestos Removal Work Permit application must be completed for all asbestos removal works, including the excavation of asbestos-contaminated soil.

Asbestos-containing materials can only be removed and disposed of by an appropriately licensed asbestos Contractor, and must be tracked, if applicable.

4.16.3 Settled dust

It should be presumed that, for any building on campus constructed before 1993, roof spaces will contain dust contaminated with a variety of minerals including lead. Especially for buildings near busy roads, industrial areas and dense city areas.

This is primarily due to the use of lead in automotive petrol for which the phase-out began in 1993.

Dust contaminated with lead presents a WHSE risk to be managed, by any persons accessing a roof or ceiling space, as part of their risk management process. This may include control measures such as:

Not entering the roof space if not required, not disturbing settled dust, preventive dust cleaning for relevant areas prior to conducting works that could disturb dust, wearing PPE such as masks, etc.

Roof spaces are restricted spaces to authorised personnel only: an approved Roof Access permit (accessed through CSMS) is required, and contractors must address this risk as part of the permit application.

4.17 Prevention of needle stick/sharps injuries

Sharps are defined as objects or devices capable of cutting or penetrating the skin, e.g. hypodermic needles, broken glass and scalpel blades. Various hard plastic items, such as broken plastic pipettes, are also classified as sharps.

All sharps have the potential to cause injury through cuts or puncture wounds. In addition, many sharps are contaminated with blood or body fluids, microbiological materials, toxic chemicals or radioactive substances, posing a risk of infection or illness if they penetrate the skin.

There is a risk of sharps injury for workers handling sharps but also for cleaning workers and grounds workers. Needles and sharps can be found especially in laboratories, bins, toilets, parks and gardens.

Where there is a risk of needle stick or sharp injury, appropriate personal protective equipment must be worn such as puncture resistant gloves, safety boots, long pants and long sleeve shirts. Contractors must undergo all inductions deemed necessary by the local manager/contact. Contractors are to strictly adhere to all information provided by the local manager/contact.

Contractors are not to handle any needles or sharps and must immediately contact their manager and the area supervisor if needles or sharps are identified in the workplace.

Any incident involving needles or sharps must be treated as a notifiable incident to SafeWork NSW as it potentially exposes the person to a substance likely to create a serious risk to health or safety in the future. Refer to section "Notifiable Incident" for more details on notification requirements.

4.18 Confined Spaces

A confined space means an enclosed or partially enclosed space that:

- is not designed or intended primarily to be occupied by a person
- is, or is designed or intended to be, at normal atmospheric pressure while any person is in the space
- is or is likely to be a risk to health and safety from:
    - an atmosphere that does not have a safe oxygen level, or
    - contaminants, including airborne gases, vapours and dusts, that may cause injury from fire or explosion, or
    - harmful concentrations of any airborne contaminants, or
    - engulfment

Confined spaces may include but are not limited to:

- Storage tanks, process vessels, boilers, pressure vessels, silos and other
- Tank-like compartments
- Open-topped spaces such as pits or degreasers
- Pipes, sewers, shafts, ducts and similar structures

When working in confined spaces, Contractors and their workers must comply with WHS Regulations and *Code of Practice Confined Spaces* and ensure risk assessment, control of risks, entry permits, rescue arrangements and training and competency is carried out accordingly.

A Confined Space Entry Permit is to be provided, managed and authorised by the Contractor, however, will be required to be notified to the RUS prior to commencement of the work and upon completion. Copies of the permit must be displayed at the work site.

COS/UI has made available a confined space register with each identified space having a corresponding risk assessment. This information must be taken into consideration when completing a permit.

The Contractor must ensure that all staff working in or on confined spaces are trained in confined space entry safety standards and will be required by the University to provide proof of training.

4.19 Demolition

Demolition work on university campuses must comply with all WHS legislative requirements, including the requirements specified for demolition licensing.

Demolition work must be:

- planned, risk assessed and carried out by those with appropriate demolition licenses:
    - **Restricted**: For structures 6–15m or involving load shifting machinery.
    - **Unrestricted:** For structures >15m, chemical installations, pre/post-tensioned components, tower/mobile cranes, floor propping, explosives.
- Undertaken only when a named supervisor (nominated during the licence application process) is present and actively supervising licensed demolition work
- Carried out by appropriately trained workers:
    - Supervisors Must complete **10 units** from Certificate III/IV in Demolition
    - Workers must complete:
        - **CPCCDE3016** - Identify, remove, and handle hazardous materials.
        - **CPCCWHS2001** - Work safely in the construction industry (prerequisite).
    - **Exemptions**: Truck drivers (in cabin), traffic controllers outside site, and non-site personnel.

To carry out demolition (or partial demolition) of any building, structure, major plant, or installation that **contains or may contain hazardous chemicals**, an **Unrestricted Demolition Licence** is required. This requirement is waived only if a **competent person**, as defined under the WHS Regulation, has provided a **written declaration** confirming the site is free of hazardous chemicals. The declaration must include an **expiry date** indicating how long the assessment remains valid.

4.20 Lifting, Cranes and Hoists

Lifting, crane and hoist activities can create significant risks, including roll-over or tipping, people being struck by the load or plant, dropped loads, impact with structures or services, and uncontrolled movement of loads.

Contractors must ensure lifting, crane and hoist activities are planned, risk assessed, supervised and carried out by competent persons using suitable plant, equipment and lifting gear.

All lifting, crane and hoist activities must be classified by the Contractor as either Simple and Routine or Complex before work commences. The classification must consider the load, lifting method, equipment, ground conditions, weather conditions, surrounding environment, interface with people or services, and the complexity of the lift.

Table 1 – Type of Lifts and Minimum Controls

Simple and Routine Lift	**Minimum control**
This includes simple and routine lifts which are not defined as complex. Simple and routine lifts are lifting activities carried out under controlled conditions, using suitable lifting plant or equipment well within their rated capacity, where no **Complex Lift** characteristics are present. Examples include: • forklift lifts • telehandler lifts • hoisting • truck-mounted Hiab-style delivery or unloading lifts. Where one or more characteristics of a **Complex Lift** are identified, the lift is to be treated as a **Complex Lift**, regardless of the plant or equipment used.	The Contractor must determine that the lift does not meet any of the characteristics of a Complex Lift. A risk assessment must be completed and consider, where relevant: • load weight and integrity • lifting operation and method • communication methods • emergency arrangements • centre of gravity • competent personnel • capacity of lifting equipment • overhead, underground and adjacent services • nearby airfield or helipad assets • slew radius • lifting gear, including shackles and rigging configuration • capability of the site and ground stability • lift area, lift path, movement and route • wind and weather conditions • exclusion zones • proximity of outriggers or tracks to underground services • consequence of critical failure • pre-lift readiness checks The lifting methodology and relevant controls may be documented within the task-specific Safe Work Method Statement, provided the SWMS clearly addresses the lifting activity and the relevant risk assessment considerations listed above. Where the lifting activity is not adequately addressed in the SWMS, a separate Lift Plan must be prepared. Additional controls, such as traffic management plans, may be required.
Complex Lift	**Minimum control**
A lift must be classified as a **Complex Lift** where any one or more of the following apply: 1. the load is 50 tonnes or more 2. the load weight is greater than 75% of the rated capacity of the crane, hoist, forklift, telehandler or lifting equipment in the proposed configuration 3. the suspension point is not directly above the load's centre of gravity, or the load may become unstable during lifting, slewing, travelling, lowering or placement 4. the load is eccentric, unevenly distributed, irregular in shape, difficult to secure, fragile, flexible, unusually long, or has the potential to shift, rotate, swing or become unstable 5. the lift involves personnel hoisting, lifting	As per the Simple and Routine Lift minimum controls, and: **CSMS Lifting Permit.**

persons, or the use of a workbox 6. the lift involves multiple cranes, tandem lifting, or coordinated lifting using more than one item of lifting plant 7. the lift requires a crane, tower crane or heavy lifting plant to be assembled, erected, climbed, altered, commissioned or dismantled on site 8. the lift requires travel with a suspended load, including pick-and-carry crane operations, unless the activity is a routine forklift or telehandler movement carried out on verified suitable ground, within rated capacity, with the load secured and kept low during travel 9. the approach route, travel path, lift path, slew path, landing area or removal route is obstructed, restricted, congested, sloped, uneven, poorly defined, or otherwise difficult to control 10. boom, jib, load, counterweight, outrigger, stabiliser, mast, attachment or plant clearance is restricted, including where clearance from a structure, obstruction, service or exclusion boundary is less than 1 metre 11. the lift is carried out over, adjacent to, or within an area where a dropped load, plant failure, instability or loss of control could affect live roads, pedestrians, cyclists, occupied buildings, public areas, operational University areas, rail corridors, water, excavations, trenches, voids, fragile surfaces or areas not controlled by the Contractor 12. the lifting activity may strike, overload, undermine, encroach on, damage or otherwise adversely interact with overhead services, underground services, structures, basements, suspended slabs, pits, culverts, retaining walls, tunnels, ground anchors or other University assets 13. outriggers, stabilisers, tracks, wheels, crane mats or other concentrated plant loads may impose loads on ground, pavements, suspended slabs, basements, underground services or structures that have not been verified as suitable for the proposed load 14. the lift involves tilt-up panels, precast elements, façade elements, structural steel, large mechanical plant, large pressure vessels, tanks, long structural members, modular units, prefabricated assemblies or other loads where failure could have a significant consequence 15. the lift has the potential to impact areas outside the construction site, work area, loading zone or established exclusion zone 16. environmental conditions, including wind, weather, visibility, lighting, ground conditions or surface conditions, may affect the stability	

or control of the lift 17. the lift, crane, boom, jib, load, lifting attachment or any part of the lifting plant may penetrate, approach or affect an aviation height control plane, protected airspace, crane approval envelope or other aviation-related restriction, including where it extends above the surrounding building fabric, roofline, structure or approved work envelope and requires approval from Sydney Airport, the relevant airport authority or another aviation authority 18. the lifting activity cannot be adequately controlled through a task-specific SWMS alone and requires a dedicated lift plan, lift study, engineered lifting methodology, temporary works design, geotechnical verification, structural verification or other specialist review 19. the lift is non-routine for the Contractor, the work crew, the plant being used, the location, the load type, or the surrounding operating environment 20. due to the nature, location, complexity or consequence of the activity - University determines that the activity requires a CSMS lifting permit	

A **CSMS Lifting Permit** is required for any lifting, crane or hoist activity classified as a **Complex Lift**.

The permit must be submitted and approved before the lift commences.

The permit submission must include, where applicable:

- type and details of the lifting equipment
- current inspection, maintenance, and test records for the lifting equipment
- competency and qualifications of workers involved, including relevant high-risk work licences where required for crane operators, doggers and riggers.
- approvals for cranes by Sydney Airport or the relevant airport authority, where applicable
- geotechnical or structural engineering reports confirming maximum soil or ground-bearing capacity.
- confirmation of any running rails, basements, embedded utilities, or assets that may be adversely affected by the crane operation.
- confirmation of overhead and underground services
- weather data and applicable wind limitations
- lift study or lift plan, including lift panels, steel erection or other relevant lift-specific documentation.
- task-specific SWMS, risk assessment and step-by-step lifting methodology
- exclusion zone, barricading and signage plan, including how the exclusion zone will be established, maintained and protected from access by persons not involved in the lift
- details of how the Contractor will manage the slew path.

- emergency and rescue arrangements.

All cranes must be registered with the relevant regulator where registration is required. Tower crane installation, commissioning, operation, inspection, maintenance, climbing, alteration and dismantling must comply with the **Tower Cranes Code of Practice 2025**, where applicable. Crane operations must comply with relevant SafeWork NSW guidance, manufacturer's instructions, applicable Australian Standards and inspection and maintenance requirements.

Contractors must follow manufacturer specifications for operation and use, including rated capacity, operational limits, inspection requirements and maintenance requirements. Lifting equipment, including chains, slings, hooks, shackles, lifting beams, spreader bars and other lifting components, must be inspected, tested where required, and verified as suitable before use.

4.21 Vaccinations

Vaccinations may be required for working in certain areas. For example, Q fever vaccination may be required as a control measure against Q fever infection, for certain workers on the University farms.

The Contractor may coordinate with the UI/COS Project/Contract Manager to determine whether vaccinations are required for the works to be undertaken, however the contractor is responsible for identifying any vaccinations that are required for their workers and ensuring they are properly vaccinated prior to commencement of works, or if not vaccinated, having appropriate and effective exposure controls in place.

4.22 Working Outdoors

Outdoor workers are exposed to many types of hazards that depend on their type of work, geographic region, season, and duration of time they are outside. Outdoor workers include farmers, foresters, landscapers, groundskeepers, gardeners, painters, roofers, pavers, construction workers, mechanics, and any other worker who spends time outside.

Contractors should train outdoor workers about their workplace hazards, including hazard identification and recommendations for preventing and controlling their exposures.

Outdoor hazards that should be considered as part of the works by Contractors are detailed below:

4.22.1 Working in extreme conditions (hot/cold)

Working in extreme conditions, both hot and cold, can expose workers to a range of risks that need to be identified and managed. Contractors need to consider such factors as air temperature, ground temperature, air movement, humidity, potential exposure periods and hot/cold locations and sources (e.g. wet/muddy ground, sun, hot plant or equipment) and the type of activity to be carried out.

Heat stress and cold stress harms range from UV exposure, dehydration, fainting, cramps, exhaustion, fatigue, hypothermia frostbite/trench foot, to having slower reaction times and poor judgment.

Contractors need to provide information and instruction for working in these conditions, along with training and supervision. Workers should be provided rest areas and breaks and encouraged to maintain appropriate hydration.

SafeWork NSW has many resources for working in hot and cold conditions and contractors are encouraged to utilise these resources in their planning and management of the work.

4.22.2 Snakes and other biological hazards

Outdoor workers without appropriate personal protective equipment (PPE) in snake-prone areas during summer can be at serious risk of being bitten by venomous snakes.

Although bite incidents are rare, gardeners and workers in agriculture and construction remain vulnerable to injury.

As with any other workplace hazard, it is essential Contractors take appropriate steps to protect workers from exposure to risks. Outdoors workers near creeks or rivers or open grassy areas need to be aware of potential danger and provided with PPE – ideally, puncture-proof gaiters, and thick gloves. First-aid trained staff and equipment, and an emergency plan are also crucial.

Workers should proceed with caution if near or picking up objects where snakes might be resting during daytime – things like large rocks, piles of timber and corrugated iron sheeting.

Before carrying out work in or around tall grass, piles of leaves or bushes, make some noise and use long-handled tools to disturb vegetation to move snakes on.

If encountering a snake, the best option is to freeze as the slightest movement can signal predator or prey reaction and trigger a strike.

In addition to puncture-proof gaiters, wear loose pants, thick socks and sturdy footwear and gloves to protect against bites. If bitten, don't panic and keep calm to help prevent venom spreading through the lymph gland system. Apply a firm bandage over the bitten limb area, immobilise it and call emergency services.

Never try to kill the snake or apply a tourniquet to the wound area or attempt to suck out venom or cut or wash the bite. Do not apply any chemicals or antiseptics to the wound or take medication or alcohol.

Ensure the bitten person stays as still as possible and does not try to dislodge the compression bandage, which must be removed by hospital or medical staff.

Always treat a snake bite, no matter how seemingly superficial, as a medical emergency.

In addition to snakes, workers should be wary of spider, bees and other biological hazards that may present a bite or sting risk for which medical assistance may be required. Any worker with allergies, such as to bees, must carry appropriate medical response equipment while working in these environments.

5 Environmental and Sustainability Requirements

5.1 Sustainability Commitments/Policy

The University's commitment to sustainability is set out in its Environmental Sustainability Policy.

5.1.1 Environmental Sustainability Policy

The Senate of the University of Sydney has communicated its environmental principles through the Environmental Sustainability Policy 2015. The Policy assigns responsibility to all occupants of University properties for:

(a) managing and reducing energy and water consumption demand in buildings and spaces they occupy.

(b) maintaining temperature ranges in buildings consistent with requirements to improve energy efficiency.

(c) avoiding use of non-renewable packaging and materials.

(d) maximising resource recovery and recycling.

(e) minimising waste disposal.

(f) managing their activities and products to safeguard the environment and prevent pollution.

(g) complying with relevant environmental legislation and regulations.

(h) complying with green lease clauses where applicable.

(i) promptly reporting incidents and impacts that may harm the environment, including near misses; and

(j) co-operating with environmental inspections, audits and investigations and supporting emergency response measures.

The full text of the Policy can be found on the University website here: http://sydney.edu.au/about-us/vision-and-values/sustainability.html

5.2 Environmental Management Requirements

The University has developed a range of strategies to improve the University's environmental footprint, including energy and water efficiency, waste management and resource recovery, sustainable procurement / supply chain and protecting ecological systems. The University is in the process of developing and implementing an Environmental Management System (EMS) to improve its environmental performance, control environmental risks and ensure compliance with its legal obligations. The EMS is based on AS/NZS ISO 14001, the Australian/New Zealand and international standard for EMS and its scope will cover all the operations managed by the University.

All consultants and contractors involved in projects and programs are required to follow the University Design Standards and Construction Guidelines which set minimum requirements for sustainability requirements.

Each individual has a duty of care to protect the environment and must exercise due diligence. Due diligence means that PCBUs and workers need to:

- Take all reasonable steps to prevent pollution and protect the environment
- Show that everything that could have been done to prevent a pollution incident, has been done
- Ensure that all necessary pollution control measures are in place and are regularly checked and maintained to minimise the risk of an environmental incident

- Turn off non-essential equipment that is not being used where possible

Individuals and corporations may be fined or imprisoned for seriously polluting the environment. Smaller incidents of environmental pollution can incur fines and/or penalties by littering or accidentally polluting the environment. In these instances, ignorance is not considered an excuse. Contractors working on University grounds must comply with all legislative environmental requirements.

5.2.1 Environmental Risk Assessment

A contractor must undertake and document an environmental risk assessment of their works to identify significant environmental aspects and impacts and measures and procedures to control them.

All Contractors must work through the hierarchy of control when managing environmental risk. In controlling risks, the priority is always to **eliminate** risks to the environment so far as is reasonably practicable.

Where environmental risks cannot be eliminated, they must be minimised by implementing, substitution, isolation and then engineering controls. If a residual risk remains, then it must be minimised by implementing documented operational (i.e. administrative) control procedures.

5.2.2 Environmental Management Plan

Where specifically required by contract or legislative requirement, contractors must develop a project-specific Environmental Management Plan (EMP), such as a construction environmental management plan (CEMP), a form of administrative control, based on the environmental aspects and impacts identified. The EMP should set objectives and targets to prevent or minimise and control the environmental impacts of the project.

5.2.3 Site Management

The Contractor must maintain a clean site throughout the contract period and ensure that the site is cleared of all rubbish, refuse and excess construction materials at the end of each day.

Progressively throughout the works and on completion of the contracted works, the Contractor is required to clean and clear away from the site all debris, rubbish, surplus building materials etc. to the satisfaction of the RUS and to leave the site in a condition that is safe for occupation. Should the University need to arrange additional cleaning to satisfy the requirements of the clause, the Contractor will be invoiced.

5.2.4 Stormwater Management and Soil Conservation

The release of contaminants or contaminated stormwater off site is considered a breach of the

Protection of the Environment Operations Act 1997 (POEO Act). Remember, 'The Drain is Just for Rain' and nothing else. Refer to the EPA Fact Sheet for more information – EPA 'The Drain is Just for Rain'.

Erosion and sediment controls must be installed for sediment runoff from disturbed areas to prevent the release of contaminated stormwater offsite or into stormwater drains or waterways. Erosion and sediment controls must be installed in accordance with the "Blue Book" – *Managing Urban Stormwater, Soils & Construction, Volume 1 Ed. 4 (Landcom 2004)*. Erosion and sediment controls need to be installed before commencing work and regularly checked and maintained to ensure they remain effective.

Where heavy rain is forecast, the Contractor must implement a wet weather procedure to prepare the site and reduce the risk of sediment runoff or contaminated stormwater leaving the site. This should include checking and securing erosion and sediment controls, protecting exposed or disturbed areas, managing stockpiles, clearing drains and flow paths, and confirming responsibilities for inspection and response before, during and after wet weather.

Roads, pathways and surrounding areas must be kept free of mud, sediment and debris.

5.2.5 Air Quality and Airborne Contaminants

Contractors must take all practicable precautions to minimise changes to the air quality of their work area and surrounding areas. Air quality can be affected by dust, odours, fires, hazardous chemicals, or exhaust fumes and work that may potentially produce these elements must be controlled or where applicable limited to after-hours operations with approval from the RUS.

Dust on and around a work site can cause health problems for workers and others on the campus as well as potentially impacting the surrounding community including nearby residents. Contractors must consider the generation of respirable crystalline silica and meet the requirements of the Code of Practice (refer Section 4.13). If a work site is generating dust, Contractors must ensure that:

- Materials and stockpiles that are generating dust are kept covered and wet down
- Sweepings are placed into bags or boxes and sealed before disposing of them into a skip to prevent dust from becoming airborne when the skip is emptied
- Appropriate personal protective equipment is worn by workers, such as face masks or respirators

The use of hazardous chemicals around the University can cause health problems for workers and others on campus. Potential activities include spray painting, powder coating, and abrasive blasting. If hazardous chemicals are being used, in addition to work procedures managing workers exposure to chemicals, Contractors must ensure that:

- Appropriate ventilation measures are in place
- Air quality monitoring including odour monitoring is conducted to manage odours and potential exposure levels for workers and the community
- Site protection measures including the erection of signs and physical barriers are in place to restrict access to others on campus

Exhaust fumes – if a vehicle or a piece of machinery emits visible exhaust fumes continuously for 10 seconds, the owner is liable to incur an infringement notice from the EPA. Vehicles and machinery should be regularly serviced so that air pollution emissions are kept to a minimum.

If a situation arises where work-related odours, dust and/or other emissions disturb normal activities, particularly if a complaint is made; this work must be stopped immediately and the RUS consulted at no cost to the University.

5.2.6 Hazardous Chemicals and Dangerous Goods

Contractors are responsible for:

- The safe keeping of all hazardous chemicals and materials used
- Correct storage when not in use in approved storage facilities (i.e. reliable, tightly sealed and labelled containers, indoors on an impervious floor with sufficient secondary containment / bunding to contain any spill, away from stormwater drains / waterways and appropriately ventilated)
- All hazardous chemicals/materials must be appropriately labelled and Safety Data Sheets (SDS's) held on site. Under no circumstance are any hazardous chemicals to be brought onto the site without an SDS.
- All hazardous chemicals must be handled safely and according to detailed instructions as outlined on the product labels at all times
- ensuring decanted hazardous chemicals are labelled within 24 hours
- A written risk assessment of the hazardous chemicals relating to its use
- Training details of those required to use the substance
- Spill containment must be provided for the chemicals being used on site.

To minimise risk, keep volume of dangerous goods held on site to a practical minimum. Clean-up materials must be provided in case of spillage. Liquid spills may be mopped up with rags, sawdust or commercially available absorbent products. Spill containment and clean-up material are to be disposed of appropriately as per Section 5.4. DO NOT wash chemicals or other hazardous substances down the drain or pour chemicals onto the ground.

The Contractor must ensure that the clean-up materials are appropriate for the chemicals used and that at least one person on the site at any time is trained to clean up a spill. This includes ensuring an adequate supply of clean-up materials is always available and easily accessible.

If a project requires the use of a portable tank for fuel or other hazardous chemical, the tank must be a self-bunded or double-skinned tank with a leak detection process. A procedure for dispensing from the tank is also required to prevent soil contamination during dispensing. The procedure is to be included in the EMP.

5.3 Energy and Resource Efficiency

The contractor should consider how their works can conserve and efficiently use energy, water and other natural resources, reduce climate change impacts and minimise waste. The hierarchy for considering efficient use of resources should follow these steps:

1. reducing or eliminating the resources consumed
2. internal reuse of resources
3. external reuse of resources
4. recycling, as described in Section 5.3
5. disposal, as described in Section 5.3

5.4 Waste Management

The University is committed to waste avoidance and has set a target to improve resource recovery to at least 60% with an aspirational target of 80% for all strip out, demolition and construction projects. Resource recovery is defined as any material that is diverted from landfill disposal and uses the Resource Recovery hierarchy as illustrated in the *UI/COS Resource Recovery & Waste Management Standard* (this standard is currently in draft format but available on request).

Contractors are to prepare a project-specific site Waste Management Plan (WMP) that is a sub-plan to the EMP. The WMP is required to document and demonstrate how strip out, demolition and construction waste will be diverted from landfill, recovered and reused, as applicable. The WMP must document:

- the waste streams and approximate weight or volumes anticipated to be generated for all stages of the project.
    - Note, containers and drums that are contaminated with residues of substances that are referred to in Part 1, Schedule 1 POEO Waste Regulation are trackable waste and must not be disposed of as General Solid Waste, unless the container has been triple rinsed, is clean of any residue and the label removed or otherwise defaced appropriately.
- how waste minimisation will be applied to the project including identify which waste stream(s) will be re-used, and/or recycled.
- how waste and recycling streams will be segregated and managed on site.
- for any equipment required to be disposed of, document:
    - the procedure to verify that it is not radiation apparatus or other specialised equipment subject to special disposal requirements. The RUS should consult the H&S Specialists team, as required.
    - the University requirements to complete asset disposal forms and update the UI/COS

plant and equipment asset register (to be coordinated with the University's FMS team and the RUS)

- if any of the waste streams identified are trackable under the Protection of the Environment Operations (Waste) Regulation 2014.
    - Waste streams (including liquid waste) containing substances listed in Schedule 1 of POEO Waste Regulations and trackable under Part 4 of the POEO Waste Regulation.
    - Waste tyres exceeding the thresholds and trackable under Part 6 of the POEO Waste Regulation.
    - Asbestos waste exceeding the thresholds and trackable under Part 7 of the POEO Waste.
- How trackable waste streams will be consigned in accordance with Part 4 of the POEO Waste Regulation, as applicable, in consultation with the University Project/Contract Manager.
- How asbestos waste will be managed and transported in accordance with Part 7 of the POEO Waste Regulation, as applicable, in consultation with the University Project/Contract Manager.
- How all waste streams will be classified in accordance with the Schedule 1, Part 3 of the POEO Act and the NSW EPA's Waste Classification Guidelines, Part 1: Classifying waste
- Record keeping requirements for all waste streams, including the use of the EPA's Integrated Waste Transport Solution (IWTS) for trackable waste and asbestos waste, as applicable. This includes obtaining and retaining records of Consignment Authorisation and Transport Certificates prior to the transportation of the waste from the site, as applicable.
- Any other legal waste management requirements for the project, such as Development Consent condition requirements
- Any other applicable requirements for the disposal or recycling of waste in accordance with the University's design standards and HSW – Hazardous Waste Disposal.
- The process/procedure to monitor and measure the types of waste materials generated and recycled during the project.
- The proforma waste register to be used during the project to record and manage information regarding the generation, handling transportation and disposal of waste materials.

The waste register must at a minimum include:

- The origin of the material
- The waste classification of the material in accordance with the NSW EPA's Waste Classification Guidelines, Part 1: Classifying waste (EPA, 2014)
- The estimated volume and/or weight of the material
- The waste transporter and in the case of trackable waste, their authorisation (i.e. Environment Protection Licence (EPL) Number) to transport the waste,
- The destination of the waste including the facility's authorisation (i.e. EPL Number) to receive that waste.

The disposal of waste on the University grounds is expressively forbidden. University rubbish bins must not be used for the disposal of construction and demolition waste.

The University has a strong commitment to environmental sustainability and encourages all Contractors and workers to identify waste minimisation options at the start of each job by:

- Working out costs and savings involved in minimising waste
- Avoiding over-ordering of materials
- Ensuring that Sub-contractors are aware of their responsibilities with regard to waste disposal
- Recycling materials where possible

- Purchasing materials with the minimum packaging, or ask suppliers to accept their packaging back
- Monitoring that waste is being managed in accordance with WMP.

There are many opportunities for waste reduction and Contractors should encourage their workers to adopt a team approach to this and to raise awareness as much as possible.

5.4.1 Bins and Skips

The type, quantity and location of waste bins/skips required for a project must be coordinated with the RUS at the relevant campus. Bins must not block any public ways or restrict traffic or access/egress to work areas and buildings. Project-related waste material must not be disposed of in University bins.

Debris and litter must not be stored within stairs, passageways or exits. All debris and litter must be removed from the site and placed in skips. The Contractor must ensure the site is kept clean and tidy, recyclables are separated from general or contaminated waste materials in dedicated bins/skips and bins/skips are not overfilled and are emptied on a regular basis.

An industrial rubbish skip is required on most work sites. Skips must have a lid in place when not being used, to prevent the rubbish from being blown away and to minimise any rainwater ingress.

Contractors must maintain an auditable log or Waste Tracking Register of the quantities of waste recycled and waste materials disposed of off-site.

5.4.2 Chemical Waste

Any chemical wastes must be stored in their original packaging (packaging must be maintained in good condition) and care must be taken to ensure that the containers are properly sealed. Chemical wastes must be classified in accordance to the NSW EPA Waste Classification Guidelines, disposed of to an appropriately licensed facility and tracked, as applicable.

It is expressively forbidden for chemical wastes to be tipped into sinks, onto the ground, or into sewers or stormwater drains e.g. paint, thinners, chemicals, solvents, detergents, oils etc.

Containers and drums that are contaminated with residues of substances that are referred to in Part 1, Schedule 1 POEO Waste Regulation are trackable waste and must not be disposed of as General Solid Waste, unless the container has been triple rinsed, is clean of any residue and the label removed or otherwise defaced appropriately.

5.4.3 Electrical Waste (E-Waste)

Electrical cables, fuses, devices such as switches and similar material, as well as all electrical equipment including computers and monitors, etc, must be disposed of as E-waste by a licensed Contractor. Contractors must report on the recycling and disposal of electrical waste.

5.4.4 Batteries

Batteries can be a fire hazard and contain hazardous chemicals. It is forbidden to dispose of batteries in General Solid Waste bins. Note that there are explicit legislative emergency planning provisions for the bulk storage of lithium ion/metal polymer batteries (more than 25,000kgs).

5.4.5 Building and Demolition Waste

Bricks, concrete, timber, plaster, glass, plastic and metal resulting from the demolition, refurbishment or construction works should be segregated when practical to allow for the reuse and/or recycling of materials.
When not practical, building and demolition must be disposed of at appropriately licensed facilities. Contractors must report on the recycling and disposal of building and demolition waste. Building and demolition waste must not contain soil, asbestos or other hazardous substances.

5.4.6 Asbestos Waste

Asbestos and asbestos-containing materials must be removed and disposed of by appropriately licensed asbestos Contractor and must be tracked, if applicable. Refer to Section 4.16 and the AMP.

5.4.7 Fluorescent Light Bulbs

Fluorescent light bulbs contain mercury and must not be disposed of as general waste. Transport and disposal must be undertaken by appropriately licensed contractors and requires tracking.

5.4.8 Contaminated Waste

Any pathological, biological and clinical wastes and sharps must be stored in purpose-built, specifically labelled, bright yellow contaminated waste bins. These bins must be serviced only by Contractors licensed to transport trackable waste and processed (for treatment, destruction or disposal) at appropriately licensed facilities. Clinical waste must be tracked.

Waste fuel, oils, lubricants or hazardous substance containers arising from construction/demolition activities must be stored in impervious bins/containers and stored in bunded areas and may require tracking.

The RUS or Protective Services should be contacted to assist with the most suitable location to place project-related contaminated waste bins.

5.4.9 Metals

Materials such as iron, steel, copper and lead must be disposed of only by suitable competent disposal Contractors. Advice should be sought from the Contractors with regard to correct labelling, packaging and storing of lead. Contractors need to report on the recycling and disposal of metal waste.

5.4.10 Electrical/Transformer Oils

These oils are trackable waste and must be stored in special containers provided by the licensed waste disposal companies. The containers must be collected only by such disposal companies. These containers must not be left on the University grounds by a contractor.

It is expressively forbidden to dispose of oils by pouring down sinks, onto the ground, or into stormwater drains.

Contractors must report on the recycling and disposal of liquid waste.

5.4.11 Recycling

The University requires recycling of appropriate materials, such as aluminium cans, glass and plastic, as well as paper and cardboard. The University also encourages recycling of other waste streams (e.g. demolition waste, metals, etc). Recyclable materials should be segregated where possible.

Contractors are to report on recycled waste materials.

5.5 Refrigerant Gases

Refrigerant gases can deplete the ozone layer and contribute to the greenhouse gas effect if allowed to escape. It is therefore the Contractor's responsibility to ensure that refrigerant gases are treated with appropriate caution to avoid contaminating the environment.

Refrigerant gases must not be released into the atmosphere; they should be collected in specially sealed cylinders by a licensed disposal operator. Contractors must report on the disposal of refrigerant gases.

Refer to the following Australian Standard and Code of Practice for further information:

- AS 4211.3 Gas recovery or combined recovery and recycling equipment - Fluorocarbon refrigerants from commercial/domestic refrigeration and air conditioning systems
- HB40.1 The Australian Refrigeration and Air-Conditioning Code of Good Practice – Reduction of emissions of fluorocarbon refrigerants in commercial and industrial refrigeration and air-conditioning applications

5.6 Vibration and Noise Management

The Contractor must liaise with building occupants in the vicinity and coordinate their activities to minimise disruption to normal operations of the building's occupants. If the work is outside, consider the potential impact on the surrounding community, whether it be other University occupants or the external community that may include local residents.

If a situation arises where work of a disruptive or noisy nature disturbs normal activities, particularly if a complaint is made, this work must be stopped immediately and the RUS consulted at no cost to the University. High noise level activities should be planned in advance as part of the risk assessment and planning process so that appropriate control measures can be identified and implemented, which may include notifying the community of the work. Compliance may result in (but not be restricted to) noisy or disruptive activities being postponed to a more suitable time and taking step to minimise the effects of future noisy and/or disruptive activities.

5.6.1 Vibration Management

Where Contractors are scheduled to carry out vibration activities, (for example piling, jackhammering) they must notify persons impacted by vibration in advance of the work commencing. High vibration and noise level activities should be planned in advance as part of the risk assessment and planning process, in consultation with the UI/COS Contract/Project Manager so that appropriate control measures can be identified and implemented, which may include notifying the community of the work.

5.6.2 Radios and Amplified Music

Contractors should be aware that as the Campus is an educational facility, noise must be kept to a minimum near buildings. Radios and other loud outdoor music are not permitted.

5.6.3 Noise Control

Contractors must take all practicable precautions to minimise noise. Any works (e.g. drilling) that will cause disruption to the University activities and guests must not commence without the prior permission of the RUS.

5.6.4 Noise Levels

Noise from equipment being used must not exceed prescribed levels for hearing conservation or recommended levels for areas of occupancy. Where high noise levels are expected to be produced by certain operations, consideration must be given to carrying out the process during a time outside of normal operating hours, although that may not be appropriate if the work is in close proximity to residences. Hearing protection should also be worn by Contractors working above the prescribed recommended noise level of 85 dB(A), as appropriate.

Safe Work Australia Code of Practice Managing Noise and Preventing Hearing Loss at Work advised the following common noise sources and their typical sounds levels.

Table 2 - Indicative dB Levels

Typical Sound level in dB	Sound Source
140	Jet engine at 30m
130	Rivet hammer (pain can be felt at this threshold)
120	Rock drill
110	Chain saw
100	Sheet-metal workshop
90	Lawn mower
85	Front-end loader
80	Kerbside heavy traffic, lathe
70	Loud conversation
60	Normal conversation
40	Quiet radio music
30	Whispering
0	Hearing threshold

5.7 Flora and Fauna

Native flora and fauna are protected in NSW under State legislation (Biodiversity Conservation Act 2016 and Local Land Services Act 2013) and in some instances Commonwealth legislation (Environment Protection and Biodiversity Conservation Act 1999). The Contractor must take appropriate actions to prevent the damage or destruction of native flora and fauna on University properties.

Specifically, Contractors must not:

- take, move, injure or kill a listed threatened species or community or a listed migratory species or listed marine species unless under a permit issued under the EPBC Act.
- damage areas of outstanding biodiversity value or habitat of threatened species or ecological communities unless under a Biodiversity Conservation licence.

Notify the RUS if any native fauna are encountered on the work site, particularly if, for example, a nest is encountered. Native fauna and their habitat (including nests, hollows, food sources) must not be harmed, damaged or disturbed.

For fauna that may be a hazard to workers in the area (e.g. snakes), they should be allowed to move along of their own accord or relocated by a professional holding the relevant biodiversity conservation licence. If injured, an appropriately licenced wildlife handler should be called.

Pets and other animals must not be brought onto campus, with the exception of animals for University farms with prior approval.

5.7.1 Tree Protection

The University has a Tree Management Plan, which provides strategic guidance for the protection and enhancement of trees on campus.

Tree Protection on construction and development sites is high priority. Australian Standard 4970 (Protection of trees on development sites 2009) sets out a framework for the assessment, integration

and management of trees within the development context.

Prior to any works within the Tree Protection Zone including the structural root system, the Contractor or Project Manager shall advise the Head of COS Open Spaces Manager or nominated representative to obtain instruction including the engagement of a consulting arborist.

Appendix 4 of the Tree Management Plan provides a checklist of the Protection procedures that must be adhered to.

Work sites must be established to avoid interaction with vegetation and potentially impacted vegetation should be protected with barricading. All trees in the vicinity of construction areas should be protected with fencing, ideally around the root zone and not just the trunk. Native vegetation clearance (cutting down, thinning, uprooting, killing or burning) must not be undertaken unless in accordance with the requirements of the Local Land Services Act and Land Management (Native Vegetation) Code 2018.

5.7.2 Pesticide Use

All contractors and staff must follow the University's Pesticide Use Notification Plan. Under the Pesticides Regulation 2017, the University must provide the public with notice of pesticide use in its public places such as gardens, ovals and walkways. The University's Pesticide Use Notification Plan explains the requirements for notifying the public, which may be as simple as displaying a mobile sign as pesticides are applied. There are extra requirements for pesticide use close to sensitive places such as schools, childcares and hospitals in the University's neighbourhood.

The Pesticide Use Notification Plan is available from the University website under the sustainability page.

Depending on the work activity, a licence may be required (e.g. Ground Applicator Licence to provide services that use pesticides (other than fumigants) to control weeds or pests affecting plants or soil). All contractors applying pesticides or preparing a Pesticide Use Notice must have at least an AQF3 Chemical Accreditation training and a ChemCert Card Urban Pesticide Safety certificate.

5.8 Heritage and Cultural Areas

The Contractor must take appropriate actions to prevent the damage or destruction of heritage items and structures. Heritage items and places are protected in NSW under State legislation (*Heritage Act 1977, National Parks and Wildlife Act 1974*) and Commonwealth legislation (*Environment Protection and Biodiversity Conservation Act 1999, Native Title Act 1993, Aboriginal and Torres Strait Islander Heritage Protection Act 1981*).

There are a number of registered heritage structures and items on the University campuses which require specific protection and management measures. Contractors working in and around heritage structures must adhere to any site-specific heritage protection measures.

Aboriginal heritage items and places identified must not be disturbed, damaged or removed. Where an Aboriginal heritage item is disturbed, or an Aboriginal heritage item is discovered during construction works, all works in the area must immediately cease and the RUS must be contacted, to notify the authorities, as may be appropriate.

5.8.1 Managing unexpected heritage finds

While many heritage items are known and registered within the University campuses, contractors must anticipate and be prepared to respond to unexpected heritage finds. Finds are typically categorised as either:

- Aboriginal objects
- Historic (non-Aboriginal) heritage items, and
- Human skeletal remains.

If a potential heritage artefact/item/object/site is encountered during construction the following steps

shall be taken.

- STOP ALL WORK in the vicinity of the find and immediately notify the relevant Site Supervisor. The Supervisor will then notify the Environment Manager and/or the Project Manager and demark the area to protect the artefact/item/object/site.
- The Environment Manager is to record the details, take photos of the find and ensure that the area is adequately protected from additional disturbance.
- The Environment Manager is to contact the University of Sydney and (if engaged) the Heritage consultant that approved the Permit to Dig, to notify them of the location of the find.
- If the University of Sydney or Heritage consultant advises that the find is not a potential Aboriginal object or significant historical relic, work will recommence in consultation with the Project Manager and/or Environmental Manager.

If the University of Sydney advises that the find is a potential Aboriginal object or significant historical relic, the Project Manager and Environmental Manager will then follow the notification requirements as regulated by the Heritage Act 1977 as follows:

- Under Section 146 of the Heritage Act 1977 the University must notify Heritage NSW if the University uncovers a "relic":
    - that was not identified or considered in the supporting documents for a section 140 or section 60 approval
    - that is unexpectedly uncovered when there is no section 140 excavation permit or section 60 approval in place
    - when a section 139(4) exception is being used.

Contractors may need to do additional assessment and be granted approval before the work or activity can continue in the affected area, depending on the nature of the discovery.

Contractors may also need to allow time to:

- liaise with the Permit approver to determine the significance of the potential Aboriginal object or significant historical relic. Note this may require liaison with Relevant Aboriginal Parties; and
- Implement the appropriate heritage mitigations dependent on the significance of the site as outline in the relevant Aboriginal and Cultural Heritage Management Plan (ACHMP).

All bones must be treated as potential human skeletal remains and work around them must stop so they can be protected and investigated. Investigation must identify them as either human or non-human and should be done by a qualified forensic or physical anthropologist. The RUS and University Environmental Manager must be notified immediately.

All human skeletal remains are subject to statutory controls and protections. All human skeletal remains will require notification to police and police may wish to take control of the site. Where the bones are identified as human a specialist must determine the likely ancestry and burial context to determine whether the find is archaeological or forensic.

This assessment is necessary to ensure the appropriate regulator is identified and urgent notification may take place, that is:

- Human bones less than 100 years old are notifiable under Coroners Act 2009 (NSW).
- Human bones more than 100 years old and likely to Aboriginal in nature are notifiable under the OEH (Planning and Aboriginal Heritage Section)
- Human bones more than 100 years old and unlikely to be Aboriginal must be notified through the OEH (Heritage Division)

5.9 Water Quality

It is against the law to place any material (other than rainwater) in a position where it is likely to leak, fall or be blown into any drain or gutter that is used to collect rainwater. Water pollution is an offence under the POEO Act.

Allowing this to occur may result in fines or legal proceedings against businesses or individuals, by the whether the pollution was accidental or not.

To prevent this from happening, the footpath and gutter around the work site should be kept free of litter, soil and sand, particularly at the close of each working day. Litter, leaves, or other debris must never be swept into drains or gutters and rubbish bins must be covered. No chemicals or wash water should be stored near drains, gutters or waterways. Control measures should be in place and regularly checked and maintained to contain any spills or wash water and prevent any material, whether solid or liquid, from entering a stormwater drain or waterway.

Notify the RUS if any substance enters stormwater, the sewer or surface water so that authorities can be contacted, as appropriate.

5.10 Contaminated Land

Soil, surface water and/or groundwater may become contaminated with oils, fuel, asbestos, cyanide, heavy metals or other hazardous chemicals. In the event of such contamination occurring or being discovered, the Contractor must inform the RUS, so that the contamination may be assessed by an environmental practitioner to determine how the contamination will be cleaned up, managed or remediated. Contamination unexpected finds are to be managed as other hazardous unexpected finds as per Section 4.16.1.

Contaminated soil must be classified in accordance with Section 5.3 Waste Management requirements including waste classification. Contaminated soil must not be removed from University grounds without the prior approval of the RUS.

Prior to intrusive works, the Contractor must check the applicable Hazardous Infrastructure Materials Registers and contaminated land environmental management plan (EMP) for the building and the University's AMP and HIMMP and determine whether works will disturb hazardous materials and/or contamination requiring specific management.

These Site Registers and associated reports/documentation are available on the Alpha Tracker website which can be accessed through CSMS.

Contamination management requirements specified in the EMP for the works area must be implemented and may include but are not limited to:

- Development of task-specific unexpected finds protocol
- Supervision of works by an appropriately qualified environmental consultant.
- Implementation of an air monitoring program for the duration of the works;
- Sampling and analysis of soil, water and/or vapour.

5.11 University Farms

Prior to commencing work on farms, contractors must meet with the designated site contact to cover any induction or relevant safety and environmental information and protocols relevant to the farm, such as for example, biosecurity or quarantine hazards. For works including pesticide use, refer to Section 5.7.2.

Contractors working on university farms must avoid interaction with stock/animals. This includes not feeding, patting or scaring animals and maintaining site fencing arrangements (keeping gates as originally found).

Contractors must be aware of the location of electric fences and take appropriate precautions when

working around electric fences.

Vehicles, plant and equipment must meet the farm biosecurity requirements before being introduced to or removed from site. This may include the wash-down of wheels / tracks / dirty equipment to remove all dirt and vegetative material. The biosecurity requirements will be provided by the designated site contact.

In the broader context of working on farms it is important to remind all staff and contractors about managing any risks to keep safe. Common hazards on farms to be aware of include:

- biosecurity hazards
- zoonosis (animal diseases that are transmissible to humans)
- hazardous chemicals including pesticides, herbicides and fuels, animals and insects, both herd and wild animals (e.g. snakes, spiders, bees)
- vehicles and road hazards (4WD, unsealed roads, kangaroos, wombats and deer)
- farming equipment (tractors and machinery)
- wet/dry wells
- unseen holes in the ground and uneven surfaces

Depending on the scope and location of work contractors may require inoculations as precaution against zoonotic diseases.

6 Emergency Preparedness and Response

6.1 University Emergency Procedures

The University emergency procedures are available on this page: Emergencies and Personal Safety.

University emergency procedures are displayed in all buildings describing the alarms, emergency exits, firefighting equipment, assembly areas and so on. Contractors must make themselves familiar with the local emergency procedures before starting works.

The University is a high-profile site which often accommodates large crowds. Contractors should remain alert to all security issues on the campus (including protests and armed or terrorist attacks) and contact Protective Services if they notice anything suspicious. Protective Services can be contacted in emergency situations when urgent support is required in managing pedestrian or vehicular traffic.

6.1.1 Emergency Evacuation

In some situations, contractors may be required to evacuate. All University staff, students, visitors and contractors are required to respond to emergency alarms and follow instructions.

1. Check for any sign of immediate danger
2. Shut down equipment/processes that cannot be left unattended
3. Locate your closest exit
4. Follow exit signs to find your way out of the building (do not use lifts)
5. Go to the assembly area

6.1.2 Medical Emergency

If a person is seriously ill or injured don't hesitate to call triple zero (000) and ask for an ambulance.

1. Call triple zero (000) and ask for an ambulance
2. Contact the closest first aider
3. If the person is unconscious, send for the closest Automatic External Defibrillator (AED)
4. Call Protective Services and Emergency Management (9351-3333)
5. Send people to flag and direct the ambulance on arrival

6.1.3 Sydney Uni App

UI/COS encourage all contractor workers to download on their mobile device the University of Sydney Mobile Application for emergency contact details and for access to maps, locations and amenities.

You can download the app now on Android or IOS.

6.2 First Aid

Contractors are responsible for providing first aid equipment and access to first aid facilities for their workers. They must also provide access to trained personnel to administer first aid.

First aid kits and access information may be kept in Contractor's or worker's vehicles. However, the Contractor must assess the storage location with consideration to the actual work location and/or distance of the vehicle.

6.3 Contractor Emergency Procedures

Contractors are required to prepare maintain and implement emergency procedures and plans for each of their various workplaces. Contractor emergency plans must provide the following:

- emergency procedures, including:
    - an effective response to an emergency, including lithium-ion battery fires
    - evacuation procedures
    - notifying emergency service organisations at the earliest opportunity
    - medical treatment and assistance
    - spills management where fuel or hazardous chemicals are stored on university grounds.
    - effective communication between the Contractor and the University to coordinate the emergency response and all persons at the workplace, including consultation with relevant building wardens
- testing of the emergency procedures, including the frequency of testing
- information, training and instruction to relevant workers in relation to implementing the emergency procedures

The Contractor emergency plans and procedures must consider all relevant matters, including the following:

- the nature of the work being carried out at the workplace
- the nature of the hazards at the workplace
- construction changes that may result in changes to emergency processes, including paths of travel, being reviewed and updated
- the size and location of the workplace
- the number and composition of the workers and other persons at the workplace
- the impact of the work area and emergency procedures on adjacent buildings and work areas (contractors are expected to liaise with wardens from adjacent work areas when there is a potential to impact emergency procedures of that work area)

When setting up workplaces Contractors are to ensure the following:

- the layout of the workplace allows, and the workplace is maintained to allow, for persons to enter and exit and to move about without risk to health and safety, both under normal working conditions and in an emergency
- lighting levels are maintained in a manner which enables safe evacuation in an emergency

For longer running projects, contractors are expected to periodically test their emergency procedures to ensure they remain effective. A schedule of dates and drill scenarios must be included in the emergency response plan.

6.4 Building Specific Evacuation Plans

Contractors must obtain building specific evacuation plans from their RUS.

6.5 Emergency Contact List

The emergency contact details in the table below must be included in all contractor emergency plans.

Table 3 - Emergency Contact List

Contact	Contact Number
Protective Services and Emergency Management (24 hours)	02 9351 3333 (from University landline 13333)
Protective Services and Emergency Management (general enquiries)	02 9351 3487
Emergency Services Ambulance / Fire / Police	000
Crime Stoppers (24 hours)	1800 333 000
Campus Assist	1300 226 787

6.6 Work on Isolated or Remote Locations

There will be times when a Contractor may be required to perform works in a remote or isolated situation (working alone on a University campus). The definition of remote/isolated work according to the WHS Regulation 2025 is 'work that is isolated from the assistance of other persons because of location, time or the nature of the work'.

Contractors are required to consult, co-ordinate and communicate with the workers and RUS when it is anticipated that remote and/or isolated works are required to be performed by the Contractor. The RUS will consult with the contracting company to ensure that a suitable risk management framework has been established to mitigate significant health and safety risks associated with the isolated and remote work.

The Contractor in consultation with the worker and RUS must establish an effective communication plan to ensure that communication lines between the contracting company, RUS and the Contractor performing the work are readily available to verify the Contractor has not sustained any injury during their works.

The communication plan, at minimum, must include a process to notify the RUS when works has commenced, and work has been completed. Depending on the scope of works, regular phone calls to an agreed stakeholder may be required to verify the worker has not sustained harm.

When a Contractor has not communicated to the RUS their whereabouts while working, The RUS is to contact security who can undertake a search for the Contractor.

Security will facilitate any first aid and/or medical requirements and inform the RUS and any other relevant stakeholders.

Where reasonably practicable, UI/COS will engage local project managers with experience of the area to assist implementing and verifying safe systems of work are established to minimise health and safety risks for workers.

7 Hazard and Incident Reporting

7.1 Hazard and Incident Reporting

The reporting of incidents and near misses and the identification of hazards is critical in achieving a safe workplace and protecting the environment, as it prompts action to prevent future incidents.

All incidents and/or near misses arising from the activities undertaken by Contractors must be reported to the responsible RUS in writing within 24 hours. Verbally communication of the incident is expected as soon as possible.

- **All contractor notifiable incidents are to be recorded in RiskWare,** the University incident and hazard reporting system, by the RUS, within 24 hours of occurrence.
- All contractor notifiable incidents must also be notified to the Regulator (i.e. SafeWork NSW or other relevant authorities in the case of a 'pollution incident'). Refer to section "Notifiable Incident" for more details on notification requirements.

Separate to notifiable incidents, all incidents, near misses and hazards that **affect the university community** are required to be entered in RiskWare, this means:

- Where a contractor has management and control of a workplace and events occur within the perimeter of the workplace, it is only required to be entered into RiskWare where it has a potential to affect the university community, i.e. infrastructure/essential services related, fire, event causing evacuation etc.
- Where a hazard or incident occurs (1) outside a designated contractor work perimeter, and (2) within the campus, and (3) has the potential to impact the university community, it must be entered into RiskWare, e.g. equipment and materials falling outside of the project site; lost load from a contractor vehicle potentially striking staff/students/visitor etc.

All hazards that do not satisfy one of these conditions should be reported and managed using the Contractor own hazard reporting system.

If in doubt about whether an identified hazard requires reporting:

- RUS or UI Health & Safety Partner or nominated representative will provide direction for UI Contractors.
- RUS or COS Health & Safety Partner or nominated representative will provide direction for COS Contractors.

7.2 Access to RiskWare

Only University employees can access RiskWare. All others, including external project managers, contractors and other affiliates don't have access to RiskWare.

Therefore, it is the responsibility of the relevant RUS to arrange for reporting of hazards and incidents into RiskWare on the Contractor behalf, after being informed on the hazard/incident.

7.3 Notifiable Incidents

Any notifiable incident (fatality, serious injury/illness and dangerous incident – potentially resulting in injury, or a pollution incident with potential to materially harm the environment) is to be reported immediately:

- To the Emergency Services on 000 and then to Protective Services and Emergency Management on 02 9351 3333 for incident response, first aid and preservation of the scene if required.
- In the instance of a notifiable incident as described below, SafeWork NSW must be contacted immediately on 13 10 50 as an urgent investigation may be needed. Where there are multiple duty holders involved, they should consult and coordinate to nominate the duty holder responsible

for notification. However, all duty holders are responsible for ensuring a notification is made to SafeWork NSW.

- UI Contractors must contact the RUS and UI Health & Safety Partner or nominated representative to advise the notifiable incident.
- COS Contractors must contact the RUS and COS Health & Safety Partner or nominated representative to advise the notifiable incident.

A notifiable incident includes the following in relation to a place of work:

a) Fatality.

b) immediate treatment as an in-patient in a hospital, or

c) immediate treatment for:

  - the amputation of any part of his or her body, or
  - a serious head injury, or
  - a serious eye injury, or
  - a serious burn, or
  - the separation of his or her skin from an underlying tissue (such as delving or scalping), or
  - a spinal injury, or
  - the loss of a bodily function, or
  - serious lacerations, or

d) medical treatment within 48 hours of exposure to a substance, or

e) an uncontrolled escape, spillage or leakage of a substance, or

f) an uncontrolled implosion, explosion or fire, or

g) an uncontrolled escape of gas or steam, or

h) an uncontrolled escape of a pressurised substance, or

i) electric shock, or

j) the fall or release from a height of any plant, substance or thing, or

k) the collapse, overturning, failure or malfunction of, or damage to, any plant that is required to be authorised for use in accordance with the regulations, or

l) the collapse or partial collapse of a structure, or

m) the collapse or failure of an excavation or of any shoring supporting an excavation, or

n) the inrush of water, mud or gags in workings, in an underground excavation or tunnel, or

o) the interruption of the main system of ventilation in an underground excavation or tunnel.

Any of the above incidents must be followed up with a full written report by the contractor detailing the incident, actions taken and recommendation to avoid a re-occurrence.

Non-disturbance provisions apply to the scene of a serious incident.

Where a notifiable incident has occurred on site, the Contractor must take measures to ensure, so far as is reasonably practicable, that the site where the incident occurred is not disturbed until an inspector arrives at the site or any earlier time that an inspector directs. This does not apply where interference is necessary to aid or revive any person involved in an accident or to prevent further injury to persons or property.

In the instance of a notifiable environmental *pollution incident*, University Security must be contacted to ensure compliance with the notification requirements of the POEO Act. A pollution incident includes a leak, spill or other escape of a substance, where pollution has occurred or is likely to occur. Pollution incidents do not include noise.

A pollution incident becomes notifiable when material harm to the environment is caused or threatened. *Harm* to the environment is *material* if it involves actual or potential harm to people or to ecosystems that is not trivial, or it results in actual or potential loss (includes clean up costs) or property damage exceeding $10,000 (in aggregate). A spill does not need to leave University premises to cause material harm to the environment.

A notifiable pollution incident is required to be notified to the relevant authorities ***immediately*** after becoming aware of the incident. There are significant penalties under the POEO Act ($4M for a corporation, $1M for an individual) if a pollution incident is not notified. Therefore, it is very important to ensure that the University notifies potential pollution incidents.

8 Definitions

Term	Definition
Contractor	A person, organisation or entity engaged to carry out work or provide services for the University under a contract for services arrangement. This includes the contractor's workers, subcontractors, consultants, suppliers and any nominated representative engaged or directed by the contractor to perform work on University land, buildings, infrastructure or other University-controlled work areas.
Construction Work	Any work carried out in connection with the construction, alteration, conversion, fitting-out, commissioning, renovation, repair, maintenance, refurbishment, demolition, decommissioning or dismantling of a structure and may include: a) any installation or testing carried out in connection with an activity referred to in the above paragraph. b) the removal from the workplace of any product or waste resulting from demolition. c) the prefabrication or testing of elements, at a place specifically established for the construction work, for use in construction work. d) the assembly of prefabricated elements to form a structure, or the disassembly of prefabricated elements forming part of a structure. e) the installation, testing or maintenance of an essential service in relation to a structure. f) any work connected with an excavation. g) any work connected with any preparatory work or site preparation (including landscaping as part of site preparation) carried out in connection with an activity referred to the first paragraph; and h) any of the aforementioned activities that are carried out on, under or near water, including work on buoys and obstructions to navigation.
Hazard	A source of potential harm, or a situation with potential for harm, to human health or wellbeing or damage to property or the environment.
High Risk Construction Work	High risk construction work includes: a) involves a risk of a person falling more than 2 metres, or b) is carried out on a telecommunication tower, or c) involves demolition of an element of a structure that is load-bearing or otherwise related to the physical integrity of the structure, or d) involves, or is likely to involve, the disturbance of asbestos, or e) involves structural alterations or repairs that require temporary support to prevent collapse, or f) is carried out in or near a confined space, or g) is carried out in or near a shaft or trench with an excavated depth greater than 1.5 metres, or a tunnel, or h) involves the use of explosives, or i) is carried out on or near pressurised gas distribution mains or piping, or j) is carried out on or near chemical, fuel or refrigerant lines, or k) is carried out on or near energised electrical installations or services, or l) is carried out in an area that may have a contaminated or flammable atmosphere, or m) involves tilt-up or precast concrete, or n) is carried out on, in or adjacent to a road, railway, shipping lane or other

Term	Definition
	traffic corridor that is in use by traffic other than pedestrians, or o) is carried out in an area at a workplace in which there is any movement of powered mobile plant, or p) is carried out in an area in which there are artificial extremes of temperature, or q) is carried out in or near water or other liquid that involves a risk of drowning, or involves diving work.
Principal Contractor	A Person Conducting a Business or Undertaking (PCBU) which has taken control and management of a construction site from the PCBU which commissioned the construction project. The construction project must be greater than $250,000 in value before a PCBU who commissioned the construction project can relinquish management and control of the project to another PCBU.
Responsible University Supervisor (RUS)	Where 'Responsible University Supervisor' is stated, it refers to 'University Facilities/Project Manager and includes Contract Managers, Supervisors, ICT Project Managers/contacts and anyone at the university managing contractors.
Structure	Structure means anything that is constructed, whether fixed or moveable, temporary or permanent, and includes: a) buildings, masts, towers, framework, pipelines, transport infrastructure and underground works (shafts or tunnels), and b) any component of a structure, and c) part of a structure Examples: a roadway or pathway; a ship or submarine; foundations, earth retention works and other earthworks, including river works and sea defence works; formwork, falsework or any other structure designed or used to provide support, access or containment during construction work; an airfield; a dock, harbour, channel, bridge viaduct, lagoon or dam; a sewer or sewerage or drainage works.
'must'	Any sentence within the Handbook containing 'must' is to be considered a mandatory requirement.

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25 August 2026

Joline Hubers
FDC Building
22-24 Junction Street
Forest Lodge NSW 2037
Via email: jolineh@fdcbuilding.com.au

To Joline,

Re: A01 Ross Street, University of Sydney Camperdown Campus NSW – Aboriginal Cultural Heritage Management Sub-Plan – Aboriginal Stakeholder Consultation

An Aboriginal Cultural Heritage Management Sub-Plan (**ACHMSP**) is being prepared by Urbis for FDC on behalf of The University of Sydney (**the Proponent**) for the A01 Ross Street Teaching and Learning Hub within the University of Sydney's Camperdown Campus, Lot 101 in DP 1270568 (**the subject area**). It is being prepared to meet Condition B35 as outlined in the Instrument of Consent for SSD-57838709 issued 17 December 2025.

In accordance with **Condition B35 (b) RAP Consultation** has been initiated. A draft of the present ACHMP was sent to all RAPs registered for the ACHA via email on 8 June 2026 for review and comment. Comments were requested by 3 September 2026, providing 28 days to respond. Follow up calls were made on 8 August 2026. In cases in which phone calls were answered, responses were of two categories. Either the ACHMSP had not been reviewed yet and/or no comment was provided, or responses were in support of the methodology.

Following the deadline for response of 3 September 2026 Urbis will provide the final ACHMSP for inclusion in the submission.

Feel free to reach out if you have any questions or comments.

Kind regards,

Owen Barrett
Senior Consultant
+61 2 8424 5135
obarrett@urbis.com.au

Consultation Documentation

From: Pedro Silva
Cc: Owen Barrett
Bcc: "cazadirect@live.com"; "amandahickey@live.com.au"; "butuheritage@gmail.com"; "corroboreecorp@outlook.com"; "Dharramalin.culture@gmail.com"; "didgengunawalclan@yahoo.com.au"; "bunjil.smith@gmail.com"; "Gunjeewongculturalheritage21@hotmail.com"; "wenlissa01@hotmail.com"; metrolalc@metrolalc.org.au; "philipkhan.acn@live.com.au"; "kooridigs@gmail.com"; Ethan Trewlynn; "ninnum_group@outlook.com"; "RAW.CulturalHealing@hotmail.com"; "gamila_roi@yahoo.com.au"; "scott@yarrawalk.com.au"
Subject: URBIS | P0048465 | A01 Ross Street Teaching and Learning Hub within the University of Sydney's Camperdown Campus | Draft ACHMSP for Review
Date: Thursday 6 August 2026 16:07:00
Attachments: image001.png
RPT_P0048465_A01 Ross Street_ACHMSP_V1_260807_Redacted.pdf

Good afternoon,

The A01 Ross Street Teaching and Learning Hub within the University of Sydney's Camperdown Campus project (SSD- 57838709) has been approved for development.

As part of the Conditions of Consent established through the project SEARs, an Aboriginal Cultural Heritage Management Sub-Plan (ACHMSP) must be prepared to support and guide the upcoming works.

This process also includes consultation with the Registered Aboriginal Parties (RAPs) who participated in the project's Aboriginal Cultural Heritage Assessment (ACHA).

In accordance with Condition B35 of the SEARs for SSD- 57838709, please find attached the draft ACHMSP report which provides information on the project and methodology to be employed.

If you wish to provide any comments in relation to the attached document, please do so in writing, preferably by email by Close of Business 3rd September 2026.

Should you have any questions, please do not hesitate to reach out.

Warm regards,

Pedro Silva he/him/his

Consultant

d. +61 2 8424 5121

e. psilva@urbis.com.au

Brandon Daley

From: Ian Short
Sent: Wednesday, 19 August 2026 4:01 PM
To: Brandon Daley
Subject: FW: SSD-57838709 – University of Sydney A01 – Stage 1 CTPMSP consultation
Attachments: SCT_00956 A01 Construction - FDC_REP_CTPMSP_v4.0.pdf

Ian Short
Senior Project Manager

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From: James Goodman <james.goodman@sctconsulting.com.au>
Sent: Wednesday, 19 August 2026 3:41 PM
To: development.CTMP.CJP@transport.nsw.gov.au
Cc: Matthew Chow <matthew.chow@sctconsulting.com.au>; Andy Yung <andy.yung@sctconsulting.com.au>; Ian Short <ians@fdcbuilding.com.au>
Subject: SSD-57838709 – University of Sydney A01 – Stage 1 CTPMSP consultation

Hi TfNSW Development CTMP Team,

Please find attached the Stage 1 Construction Traffic and Pedestrian Management Sub-Plan for the A01 Ross Street Teaching and Learning Hub at the University of Sydney's Camperdown Campus.

The plan has been prepared on behalf of FDC Construction & Fitout to address the relevant requirements of Development Consent SSD-57838709. Condition B11(b) requires the plan to be prepared in consultation with Transport for NSW and the City of Sydney.

The Stage 1 plan applies while Western Avenue remains operational as a two-way road and covers site establishment, excavation, piling, inground services and structural works. It outlines the proposed construction vehicle routes and site access arrangements, loading and unloading procedures, pedestrian and cyclist controls, traffic management measures, and construction worker travel arrangements. A separate Stage 2 plan will be prepared before the later works requiring one-way operation of Western Avenue.

The plan also includes measures to avoid queuing or impacts on Parramatta Road.

Could TfNSW please review the attached plan and provide any comments for consideration and incorporation into the final document? If TfNSW has no comments, written confirmation would also be appreciated so the consultation can be documented.

Please let me know if you require any further information.

Kind regards,

James Goodman
SENIOR CONSULTANT

james.goodman@sctconsulting.com.au | 0422 908 161
Suite 1.02, Level 1, 2 Elizabeth Plaza, North Sydney NSW 2060

SCT Consulting
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SCT Consulting acknowledges the traditional owners of the lands on which we work.
We pay our respects to Elders past, present and emerging.

Disclaimer

URBIS

Aboriginal Cultural Heritage Management Sub-Plan

A01 Ross Street, University of Sydney's Camperdown Campus NSW

September 2026

Prepared for: FDC on behalf of The University of Sydney

Urbis staff responsible for this report were:

Director	Balazs Hansel, MA Archaeology, MA History, M. ICOMOS
Senior Consultant	Owen Barrett, BA Archaeology and Paleoanthropology, Dip. Indigenous Archaeology
Consultant	Pedro Silva, BA (Hons) History and Archaeology
Project Code	P0048465
Report Number	V1 – Draft to Client – 06 August 2026
	V1 – Draft to RAPs Review - 06 August 2026
	V2 – Final - 03 September 2026

Acknowledgment of Country

Urbis acknowledges the Traditional Custodians of the lands we operate on.
We recognise that First Nations sovereignty was never ceded and respect First Nations peoples continuing connection to these lands, waterways and ecosystems for over 60,000 years.
We pay our respects to First Nations Elders, past and present.

Urbis is committed to incorporating our respect for First Nations cultures, peoples and storytelling in our work across the Country. We are proud to have partnered with Darug Nation artist, **Hayley Pigram**, and to profile her artwork - **Sacred River Dreaming**.



The river is the symbol of the Dreaming and the journey of life. The circles and lines represent people meeting and connections across time and space. When we are working in different places, we can still be connected and work towards the same goal.

All information supplied to Urbis in order to conduct this research has been treated in the strictest confidence. It shall only be used in this context and shall not be made available to third parties without client authorisation. Confidential information has been stored securely and data provided by respondents, as well as their identity, has been treated in the strictest confidence and all assurance given to respondents have been and shall be fulfilled.

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Contents

Executive Summary 4

1 Introduction 6

1.1 Subject Area 6

1.2 Project Details 6

1.3 Statutory Context 7

1.4 Aboriginal Cultural Heritage Assessment 7

1.5 Conditions of Consent 8

2 RAP Consultation 12

3 Management Measures 13

3.1 Ongoing Consultation 13

3.2 Unexpected Finds Procedures 14

3.3 Induction and Training 15

3.4 Roles and Responsibilities 16

3.5 Compliance 16

3.6 Monitoring and Reporting 16

4 References 19

5 Disclaimer 21

Appendix A – Select Development Plans 22

Appendix B – Consultation Documents 25

Figures

Figure 1 – Regional location of the subject area 9

Figure 2 – Subject area..... 10

Figure 3 – Proposed demolition plan. 22

Figure 4 – Proposed site plan..... 23

Figure 5 – Level 1 general arrangement plan. 24

Tables

Table 1 – Comments on Draft ACHMP..... 12

Table 2 – Registered Aboriginal Parties..... 13

Table 3 – Roles and Responsibilities..... 16

Table 4 – Performance indicators 16

Executive Summary

The present Aboriginal Cultural Heritage Management Sub Plan (**ACHMSP**) has been prepared by Urbis for FDC on behalf of The University of Sydney (**the Proponent**) for the A01 Ross Street Teaching and Learning Hub within the University of Sydney's Camperdown Campus, Lot 101 in DP 1270568 (**the subject area**). It has been prepared to meet Condition of Consent B35 outlined in the Instrument of Consent issued 17 December 2025.

The project, which is the subject of a State Significant Development Application (**SSD-57838709**), comprises the redevelopment of the subject area for a new five level multi-disciplinary teaching building within the subject area.

An Aboriginal Cultural Heritage Assessment (**ACHA**) prepared for the project by Urbis (2024) for SSD-57838709 identified **low potential** for Aboriginal objects to be retained within the subject area.

The purpose of the ACHMSP is to outline procedures to be undertaken in the event that any unexpected Aboriginal objects are found within the subject area during project works and to provide for ongoing consultation with the Aboriginal community.

The ACHMSP was prepared in consultation with the Registered Aboriginal Parties (**RAPs**) for the ACHA and Heritage NSW. A draft of the ACHMSP was provided to the RAPs and to Heritage NSW for review and comment on 6 August 2026.

1 Introduction

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The present Aboriginal Cultural Heritage Management Sub Plan (**ACHMSP**) has been prepared by Urbis on behalf of FDC (**the Proponent**) for the A01 Ross Street Teaching and Learning Hub within the University of Sydney's Camperdown Campus, Lot 101 in DP 1270568 (**the subject area**). It has been prepared to meet Condition of Consent B35 outlined in the Instrument of Consent issued 17 December 2025.

The project, which is the subject of a State Significant Development Application (**SSD-57838709**), comprises the redevelopment of the subject area for a new five level multi-disciplinary teaching building within the subject area. An Aboriginal Cultural Heritage Assessment (**ACHA**) prepared for the project by Urbis (2024) for SSD-57838709 identified **low potential** for Aboriginal objects to be retained within the subject area.

The purpose of the ACHMSP is to outline procedures to be undertaken in the event that any unexpected Aboriginal objects are found within the subject area during project works and to provide for ongoing consultation with the Aboriginal community.

The ACHMSP was prepared in consultation with the Registered Aboriginal Parties (**RAPs**) for the ACHA and Heritage NSW. A draft of the ACHMSP was provided to the RAPs and to Heritage NSW for review and comment on 6 August 2026.

1.1 Subject Area

The subject area is approximately 4,910 m^2 in area and is situated at the corner of Western Avenue and Parramatta Road, Camperdown NSW, legally defined as Part Lot 1/DP 1171804, approximately 3km south-west of the Sydney CBD and on Gadigal land. The site is located within the City of Sydney Local Government Area (LGA) and is zoned as *SP2 Infrastructure (Educational Establishment).*

The subject area consists of a portion of the Camperdown Campus of the University of Sydney, located on the east side of the Ross Street entrance on the northern edge of the campus. It comprises land currently occupied by a single storey demountable building directly east of the Ross Street entrance; a portion of the grassed area directly to the west of the Ross Street entrance; the Ross Street entrance gates and areas of Science Road to the south. It is bounded by Parramatta Road to the north, a grassed area to the west, University Oval No. 2 to the south and by the University Social Sciences building and the RD Watt Building to the east (See Figure 1 and Figure 2).

1.2 Project Details

The proposed works to the subject area comprise:

- Relocation of existing demountable buildings.
- New 5 storey building comprising approximately 6,200m^2 GFA.
- General Learning Spaces (GLS) comprising 60, 90 and 120 person flat floor 'formal' learning spaces as well as 'informal' learning spaces.
- 5-star Greenstar building.
- Significantly enhanced public domain, including outdoor seating areas, new landscaping and increased tree canopy.
- The wider project comprises of traffic improvements, including changes on Western Avenue within the University to improve traffic flow and enhanced pedestrian amenity and connectivity.
- The realignment of Science Road, which is a separate REF application, has been shown indicatively.
- Food and beverage offering directly fronting the new public domain.

Select plans of the approved development are provided in Appendix A (Figure 3 Figure 4 and Figure 5).

1.3 Statutory Context

The *National Parks and Wildlife Act 1974* (NSW) ('the NPW Act') protects 'Aboriginal objects' and 'Aboriginal places' in NSW. The NPW Act defines 'Aboriginal objects' and 'Aboriginal places' as follows:

- **Aboriginal object** means any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.
- **Aboriginal place** means any place, which may or may not contain Aboriginal objects, that is declared to be an Aboriginal place under section 84 of the NPW Act because it is or was of special significance with respect to Aboriginal culture.

Under section 86 of the NPW Act, it is an offence to harm or desecrate an Aboriginal object or Aboriginal place. Section 87 of the NPW Act provides the following defences to prosecution under s. 86 of the NPW Act:

- The harm was to a previously unknown Aboriginal object, other than a modified tree, and was caused by a low impact activity as defined in reg. 58 of the NPW Reg.
- The harm was to a previously unknown Aboriginal object and due diligence was exercised by the Proponent to determine whether the activity would harm an Aboriginal object and reasonably determined that no Aboriginal object would be harmed, per section 87(2) of the NPW Act.
- The harm or desecration was authorised by an Aboriginal Heritage Impact Permit, per section 87(1) of the NPW Act.
- The harm or desecration was authorised by an approved State Significant Development Application, per section 4.41(1)(d) of the *Environmental Planning and Assessment Act 1979* (NSW).

All reasonable measures must be taken so as not to harm, modify or otherwise impact Aboriginal objects except as authorised by approval of SSD-57838709.

1.4 Aboriginal Cultural Heritage Assessment

An Aboriginal Cultural Heritage Assessment (**ACHA**) of the subject area was undertaken by Urbis in 2024. The assessment identified no known Aboriginal objects or declared Aboriginal places within the subject area. The assessment further concluded that there is low potential for unknown Aboriginal objects to be retained within the subject area. While the subject area is within 200m of a former waterway both the waterway and the overall landform have been heavily modified by historic developments and the course of the waterway has been altered and converted to modern drainage infrastructure. Nonetheless, it determined to have some social and cultural value to the Aboriginal community owing to the connection the Aboriginal community have with the broader landscape. However, no strong or special social or cultural association with subject area was indicated by the Registered Aboriginal Parties (RAPs) during the consultation and assessed the subject area as having low Aboriginal cultural heritage significance.

The ACHA recommended

- All site workers be given an Aboriginal cultural heritage induction (Recommendation 1)
- Unexpected archaeological finds and human remains procedures be implemented (Recommendations 2 and 3)

These recommendations are captured in Sections 3.2 and 3.3 of this ACHMSP.

1.5 Conditions of Consent

Condition B35 of the Conditions of Consent requires that:

> *Prior to the commencement of construction, the Applicant must ensure Aboriginal heritage management procedures are prepared for the development and included in the Project's Construction Environmental Management Plan (CEMP). The Aboriginal heritage management procedures must:*
>
> *(a) be prepared by suitably qualified and experienced persons.*
>
> *(b) be prepared in consultation with Registered Aboriginal Parties and be reviewed by Heritage NSW.*
>
> *(c) include a description of the measures that would be implemented for:*
>
> *i. ongoing consultation with Registered Aboriginal Parties, including consultation regarding changes to the management of Aboriginal cultural heritage.*
>
> *ii. a contingency plan and reporting procedure for the management of Unexpected Heritage Finds and Human Remains that is prepared by suitably qualified and experienced heritage specialist in relation to Aboriginal cultural heritage, in consultation with the Registered Aboriginal Parties and in accordance with the Code of practice for archaeological investigation of Aboriginal objects in New South Wales (DECCW 2010). The Unexpected Heritage Finds and Human Remains Procedure, as submitted to the Planning Secretary, must be implemented for the duration of construction.*
>
> *iii. ensuring workers on site receive suitable heritage inductions prior to carrying out any development on site, and that records are kept of these inductions.*

In addition to the above Condition C29 of the Conditions of Consent requires that:

> *The Registered Aboriginal Parties must be kept informed about the SSD. The Registered Aboriginal Parties must continue to be provided with the opportunity to be consulted about the Aboriginal cultural heritage management requirements of the SSD.*

This ACHMSP has been prepared to address Condition B35 and C29 of the Conditions of Consent.

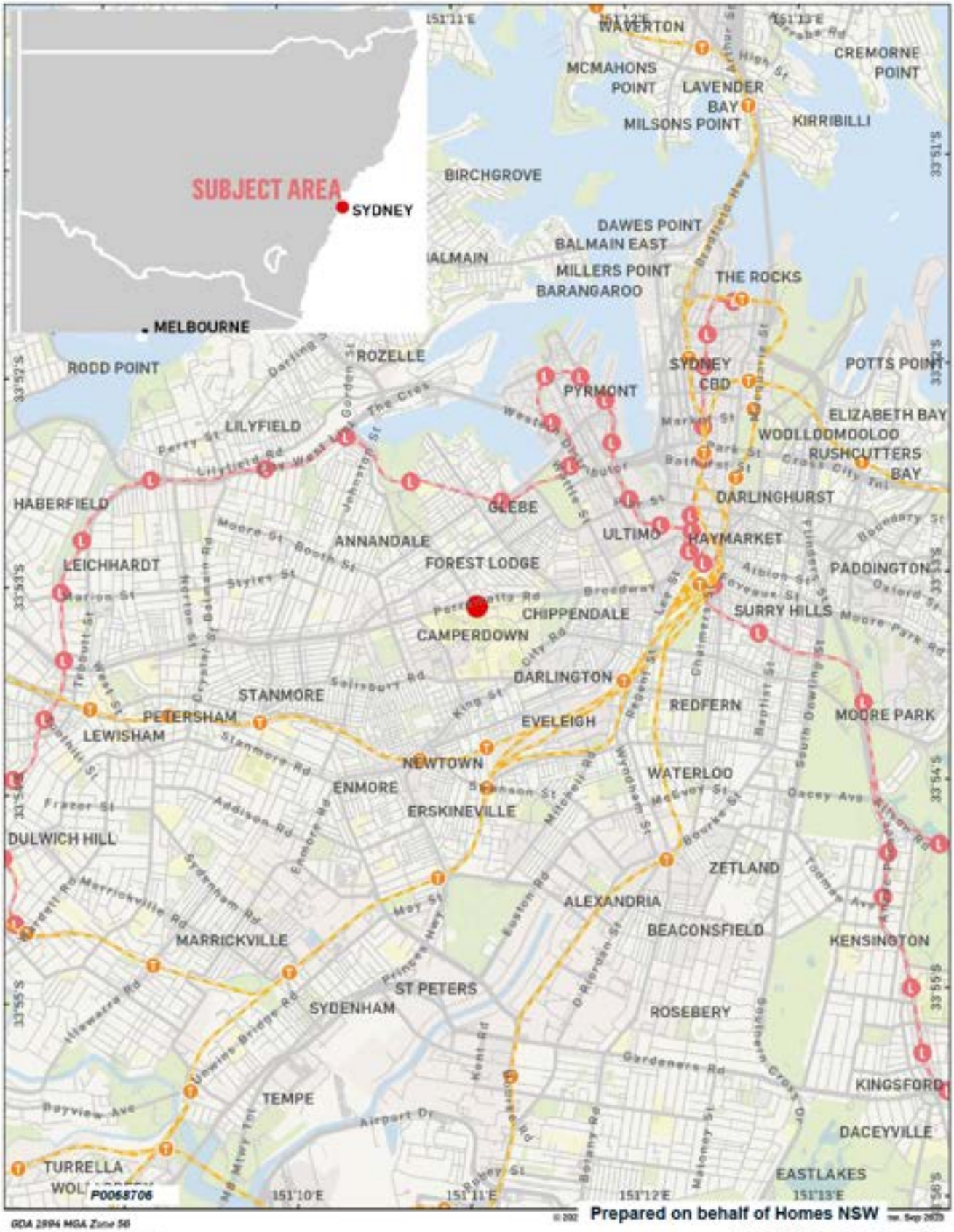


Figure 1 – Regional location of the subject area



GDA 1994 MGA Zone 56

© 2024. Data: ABS, OpenStreetMap, Nearmap. Helping shape our cities, one map at a time. Aug 2024

50 M

Project No: P0048794
Project Manager: Balazs Hansel

Subject Area Contours

LOCATION OF THE SUBJECT AREA
A01 Ross Street Teaching and Learning Hub
University Infrastructure

Figure 2 – Subject area

2 Management Measures

2 RAP Consultation

In accordance with **Condition B35 (b)** RAP Consultation was undertaken. A draft of the present ACHMP was sent to all RAPs registered for the ACHA via email on 8 June 2026 for review and comment. Comments were requested by 3 September 2026, providing 28 days to respond. Two responses were received via phone call in relation to the draft ACHMP. The responses are included are addressed in Table 1 below.

Copies of all correspondence sent to and received from the RAPs are provided in Appendix B.

Table 1 – Comments on Draft ACHMP

Registered Aboriginal Party	Comment
[redacted]	[redacted]
[redacted]	[redacted]

3 Management Measures

The principles of ecologically sustainable development (ESD), in particular the precautionary principle, state that full scientific certainty about the threat of harm should never be used as a reason for not taking measures to prevent harm from occurring. All practicable measures must therefore be taken to avoid harm and conserve any significant Aboriginal objects and/or Aboriginal places, along with their cultural heritage values.

If harm to Aboriginal objects and/or Aboriginal places is unavoidable, management strategies must be implemented to minimise the harm. The type of management strategies proposed must be appropriate to the significance of Aboriginal heritage values, Aboriginal objects and/or Aboriginal places. Harm avoidance and minimisation measures must be feasible and within the financial viability of the proposed activity.

The following management procedures must be followed during any site works throughout the life of the project.

The below management measures have been prepared to address **Condition B35 c)**.

3.1 Ongoing Consultation

As per **Condition C29** the Registered Aboriginal Parties (**RAPs**) for the ACHA must be kept informed about the project and continue to be provided with the opportunity to be consulted about Aboriginal cultural heritage management requirements for the life of the project. A list of the RAPs for the ACHA is provided in Table 2 below.

Specific circumstances in which the RAPs will be consulted include:

- An Aboriginal object or human remains are found.
- Any amendments to the ACHMP are proposed.
- Any further archaeological investigation (e.g. archaeological survey or test excavation)

The RAPs will also be provided with regular updates (i.e. at least every 6 months) throughout the life of the project.

Consultation with the RAPs will generally be provided in writing via email (or mail if email unavailable). All consultation with RAPs must be recorded in a log to ensure auditable compliance. It is the role of the Proponent to ensure consultation is undertaken when required and the consultation records are maintained.

Table 2 – Registered Aboriginal Parties

RAP	Contact	Email
[redacted]	[redacted]	[redacted]

RAP	Contact	Email
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

3.2 Unexpected Finds Procedures

Where Aboriginal archaeological material or any human remains are uncovered during project works, the Unexpected Finds Procedures outlined below must be followed. The below procedures must be incorporated into the Construction Environmental Management Plan for the project, per **Condition B35 c ii** of the Conditions of Consent.

3.2.1 Aboriginal Archaeological Material

In the event that any Aboriginal archaeological material is uncovered during any site works, the following steps must be carried out.

(a) All works must halt in the immediate area to prevent any further impacts to the object(s) and a minimum buffer zone of 20 m must be established around the find.

(b) The find must not be moved 'out of the way' without assessment.

(c) A suitably qualified archaeologist must be contacted to determine if the material is an Aboriginal object.

(d) The Planning Secretary and Heritage NSW must be notified immediately upon identification of any Aboriginal object via the Major Projects Portal.

(e) The Applicant must consult with the Aboriginal community representatives, the archaeologist(s) and Heritage NSW to develop and implement management strategies for the Aboriginal object.

(f) The Aboriginal object must be registered with the Aboriginal Heritage Information Management System (AHIMS) within a reasonable time (per section 89A of the NPW Act) and the management outcome for the site included in the information provided to AHIMS.

(g) Depending on the significance of the find, reassessment of the archaeological potential of the subject area may be required and further archaeological investigation undertaken.

(h) The ACHMP must be updated, in consultation with the RAPs and Heritage NSW, to outline measures for managing the Aboriginal object.

(i) Works must only recommence with the written approval of Heritage NSW.

3.2.2 Human Remains

In the event that human remains are uncovered during any site works, the following steps must be carried out:

(a) All works must cease immediately in that area and the NSW Police, Heritage NSW and the NSW Department of Planning, Housing and Infrastructure contacted. A minimum buffer zone of 50 m must be established around the find. All workers on site are notified about the buffer zone.

(b) The find must not be moved 'out of the way' without assessment.

(c) A suitably qualified archaeologist must be contacted to determine the specific nature and significance of the skeletal remains.

(d) The Planning Secretary must be notified immediately upon identification of any human remains via the Major Projects.

(e) The Applicant must consult with relevant stakeholders, the archaeologists and Heritage NSW to develop and implement appropriate management strategies for the skeletal (or other) human remains. Should the human remains be deemed Aboriginal in origin all registered Aboriginal parties for the Project are to be notified in writing.

(f) The ACHMP must be updated, in consultation with the RAPs and Heritage NSW, to outline measures for managing the remains.

(g) Works must only recommence with the written approval of Heritage NSW.

3.3 Induction and Training

All workers on site must receive a suitable heritage induction prior to carrying out any development on site in accordance with **Condition B35 c) iii**.

Urbis has prepared a heritage induction as a separate document.

The induction material has been prepared by a qualified archaeologist in consultation with the RAPs. Information to be covered in the induction includes:

- An outline of the purpose of the induction.
- Definitions and images of types of Aboriginal objects/site types.
- Legislative requirements for cultural heritage under the *National Parks and Wildlife Act 1974*.
- Offences and penalties for harming Aboriginal objects
- Overview of the Unexpected Finds Procedures for Aboriginal objects and human remains.
- An outline for recommended reporting and communications procedure to be followed in the event of suspected archaeological find.
- Contact details for Urbis archaeologists, Heritage NSW and Metropolitan LALC

The site supervisor, or other relevant on-site staff member in charge of managing environmental safety, will ensure that inductions outlining the responsibilities of individuals and companies with regard to the management and protection of Aboriginal objects.

A written or digital record of each induction will be maintained.

3.4 Roles and Responsibilities

The roles and responsibilities in relation to the present ACHMP are outline in Table 3 below.

Table 3 – Roles and Responsibilities

Role	Responsibility
Site Manager	Provision of adequate resources and training for the implementation of this ACHMP. Ensuring that all reporting requirements in according with this ACHMP are met, including reporting on site condition and audit results, as well as unexpected finds and database updates.
Employees and Contractors	Undertake all activities in accordance with this ACHMP and report all potential Aboriginal objects, including human remains, immediately
Qualified Archaeologist and Registered Aboriginal Parties	Assessment of significance of any potential Aboriginal objects and formulation of management strategies in the event that an Aboriginal object is found

3.5 Compliance

The Proponent must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with this ACHMP.

The Planning Secretary must be notified through the Major Projects portal within seven days after the Proponent becomes aware of any non-compliance. The notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

3.6 Monitoring and Reporting

Evaluation of performance against all policies and targets within this document must be undertaken throughout the life of the project.

Table 4 – Performance Indicators

Criteria	Indicator	Target	Monitoring Frequency
Induction & Training	Delivery of heritage induction to each worker prior commencement of onsite works	100% compliance	Monthly
Ongoing Consultation	Reporting of unexpected finds. Project updates.	Within timeframes specified in Section 3.1	Monthly
Unexpected Finds Procedures	Reporting of potential Aboriginal archaeological material and/or potential human remains	Within timeframes specified in Section 3.2	Monthly

The following conditions would trigger a review and revision of the ACHMP:

- Discovery of an Aboriginal object: the ACHMP should be updated to outline measures for managing the Aboriginal object (per Section 3.2.1)
- Discovery of Aboriginal human remains: the ACHMP should be updated to outline measures for managing the human remains (per Section 3.2.2)
- The Proponent becomes aware of any non-compliance with the procedures outline in the ACHMP (per Section 3.5).

Where amendments to the ACHMP are required, these must be made in consultation with the RAPs and after approval from DPHI and/or Heritage NSW. The revised ACHMP must be submitted to DPHI within 6 weeks of the review.

3 References

4 References

Department of Environment Climate Change and Water (DECCW) 2010, *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*

National Parks and Wildlife Act 1974 (NSW)

Office of Environment and Heritage (OEH) 2011, *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*

Urbis 2024, *Aboriginal Cultural Heritage Assessment, A01 Ross Street Teaching & Learning Hub University of Sydney Corner of Western Avenue and Parramatta Road, Camperdown NSW*

4 Disclaimer

5 Disclaimer

This report is dated 3 September 2026 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Ltd **(Urbis)** opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of FDC on behalf of The University of Sydney **(Instructing Party)** for the purpose of Aboriginal Cultural Heritage Management Plan **(Purpose)** and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

In preparing this report, Urbis was required to make judgements which may be affected by unforeseen future events, the likelihood and effects of which are not capable of precise assessment.

All surveys, forecasts, projections and recommendations contained in or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report, and upon which Urbis relied. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

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Whilst Urbis has made all reasonable inquiries it believes necessary in preparing this report, it is not responsible for determining the completeness or accuracy of information provided to it. Urbis (including its officers and personnel) is not liable for any errors or omissions, including in information provided by the Instructing Party or another person or upon which Urbis relies, provided that such errors or omissions are not made by Urbis recklessly or in bad faith.

This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.

Appendix A – Select Development Plans

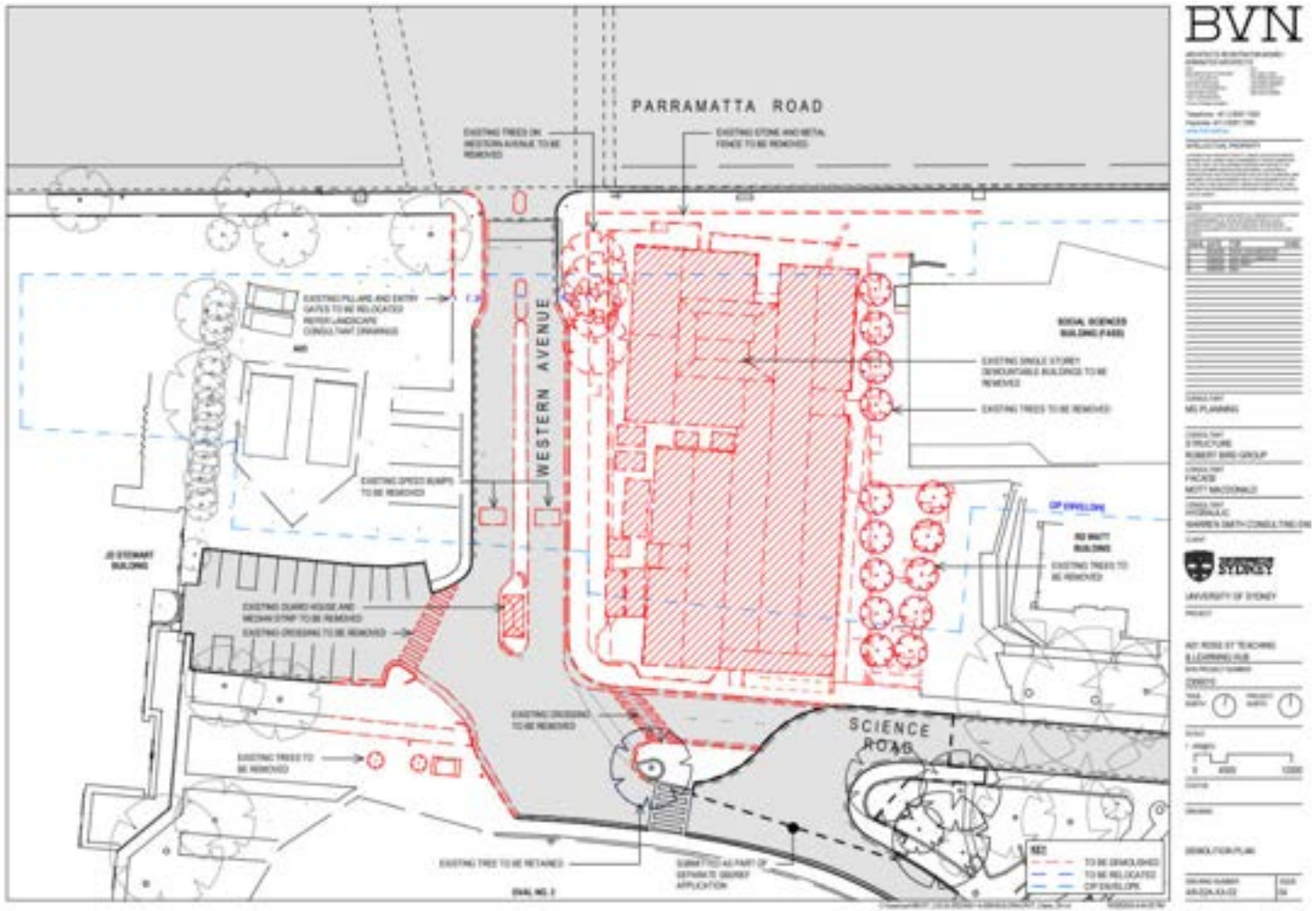


Figure 3 – Proposed demolition plan.

Source: BVN, 2024.

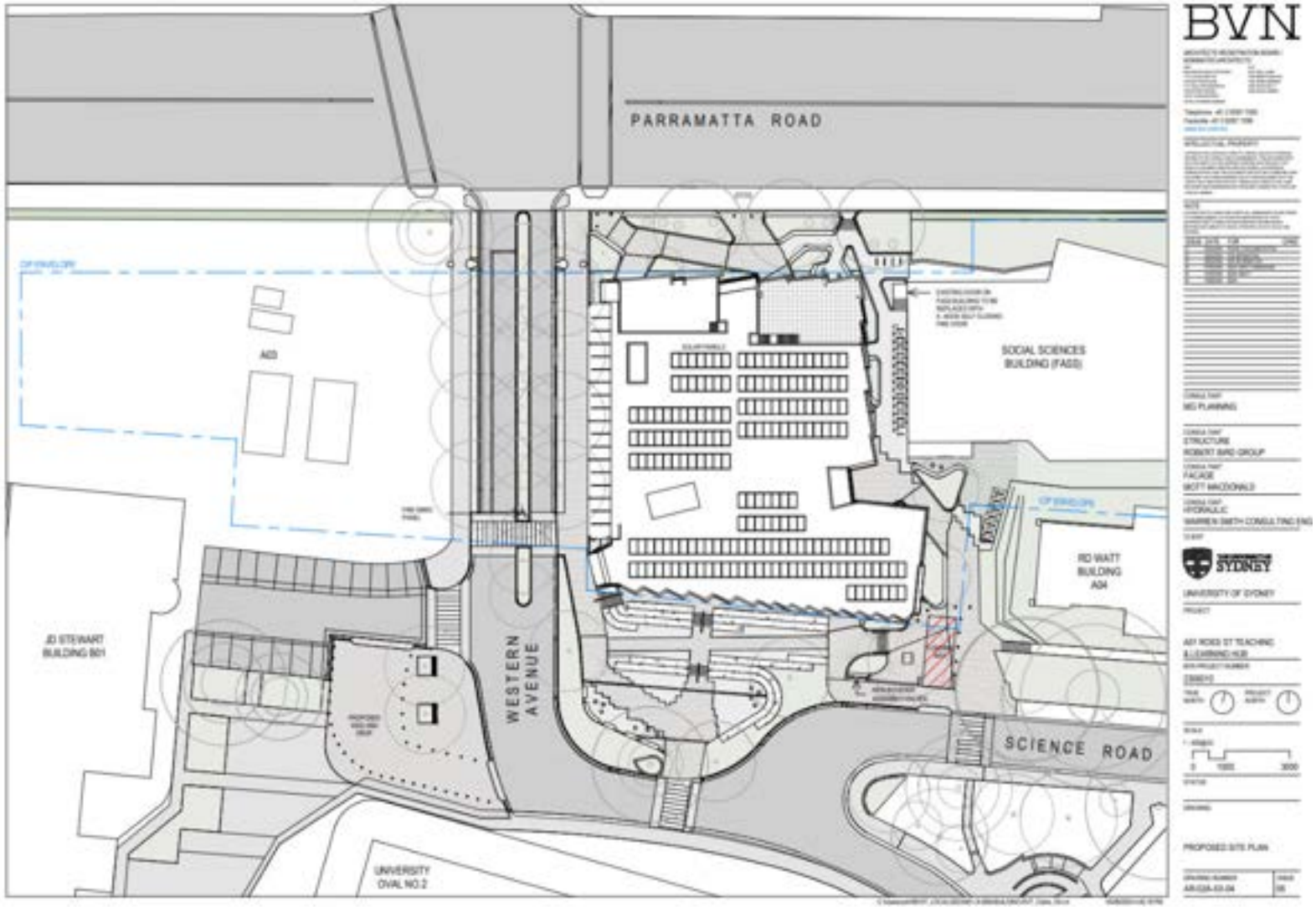


Figure 4 – Proposed site plan.

Source: BVN, 2024.

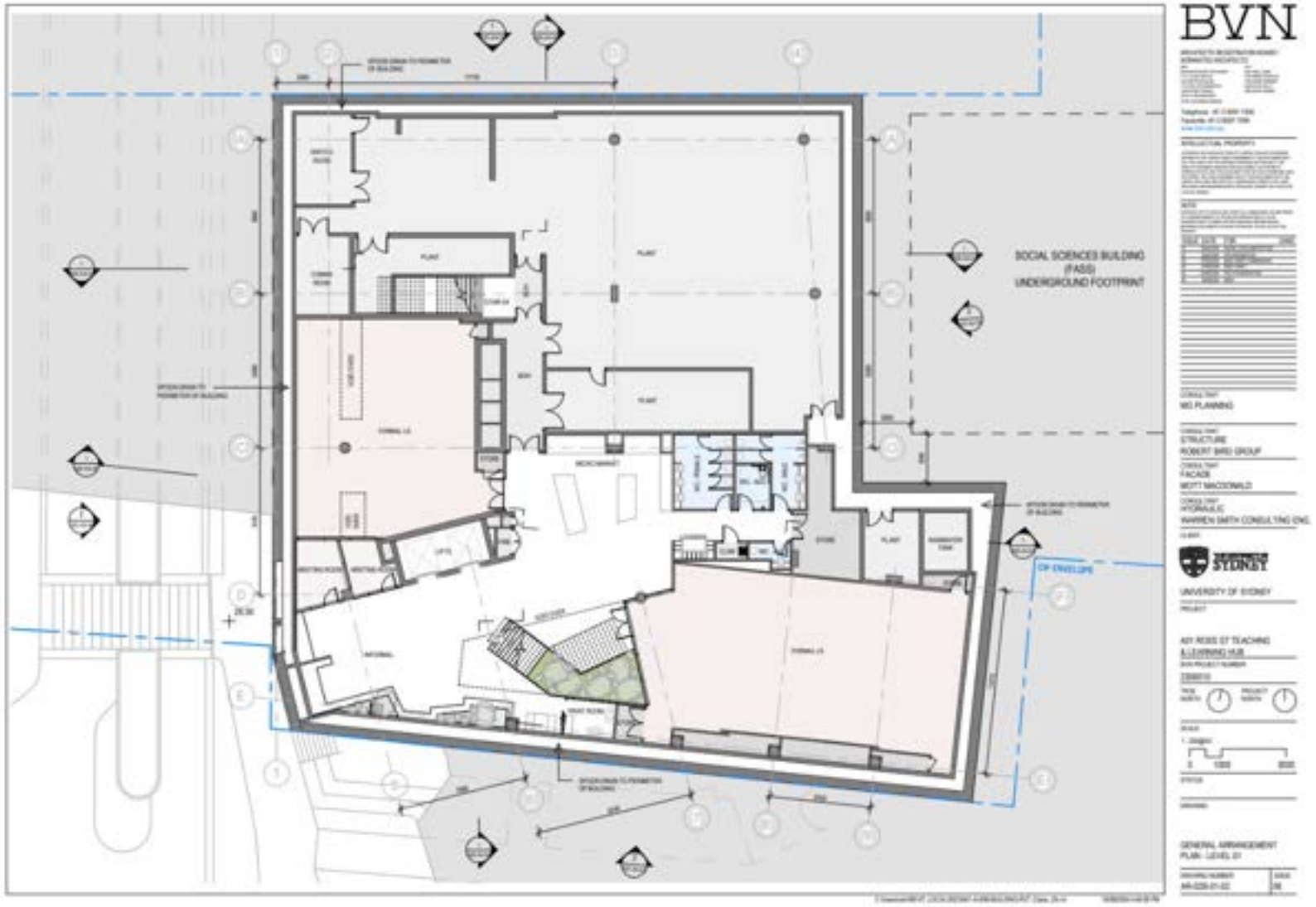


Figure 5 – Level 1 general arrangement plan.

Source: BVN, 2024.

Appendix B – Consultation Documents

From: Pedro Silva
Cc: Owen Barnett
Bcc: [redacted]

Subject: URBIS | P0048465 | A01 Ross Street Teaching and Learning Hub within the University of Sydney's Camperdown Campus | Draft ACHMSP for Review
Date: Thursday 6 August 2026 16:07:00
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As part of the Conditions of Consent established through the project SEARs, an Aboriginal Cultural Heritage Management Sub-Plan (ACHMSP) must be prepared to support and guide the upcoming works.

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In accordance with Condition B35 of the SEARs for SSD- 57838709, please find attached the draft ACHMSP report which provides information on the project and methodology to be employed.

If you wish to provide any comments in relation to the attached document, please do so in writing, preferably by email by Close of Business 3rd September 2026.

Should you have any questions, please do not hesitate to reach out.

Warm regards,

Pedro Silva he/him/his

Consultant

d. +61 2 8424 5123
e. psilva@urbis.com.au

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Inspiring and creating solutions
for a changing world.
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Urbis recognises the traditional owners of the land on which we work.
Learn more about our Reconciliation Action Plan.

Nominated architects: Katie Paterson – NSW reg 8582, QLD reg 6140, TAS reg 1605,Vic reg VIC00200, and Caroline Stokes – WA reg 7020

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From: Pedro Silva
To: Barry Gunther
Cc: Owen Barrett; Balazs Hansel
Subject: URBIS | P0048465 | A01 Ross Street Teaching and Learning Hub within the University of Sydney's Camperdown Campus | HNSW Draft ACHMSP
Date: Thursday 6 August 2026 16:20:00
Attachments: RPT_P0048465_A01 Ross Street_ACHMSP_V1_260807_Redacted.pdf
image001.png

Good afternoon Barry,

The A01 Ross Street Teaching and Learning Hub within the University of Sydney's Camperdown Campus project (SSD- 57838709) has been approved for development.

As part of the Conditions of Consent established through the project SEARs, an Aboriginal Cultural Heritage Management Sub-Plan (ACHMSP) must be prepared to support and guide the upcoming works. This process also includes consultation with the Registered Aboriginal Parties (RAPs)

In accordance with Condition B35 of the SEARs for SSD- 57838709, Urbis has contacted all RAPs who participated in the project's Aboriginal Cultural Heritage Assessment (ACHA).

Please find attached the draft ACHMSP report which provides information on the project and methodology to be employed .

Should you have any questions, please do not hesitate to reach out.

Pedro Silva he/him/his
Consultant

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inspiring and creating solutions
for a changing world.

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Learn more about our Reconciliation Action Plan.

Urbis Ltd and Urbis Property Services Pty Ltd, trading as Urbis Heritage Architecture, has the following nominated architects:
Katie Paterson – NSW reg 5552, QLD reg 6148, TAS reg 1617, VIC reg VIC00200
Caroline Stokes – WA reg 1520

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From: Pedro Silva
To: heritagemailbox
Cc: Owen Barrett
Subject: UR825 | P0048465 | A01 Ross Street Teaching and Learning Hub within the University of Sydney's Camperdown Campus | HNSW Draft ACHMSP
Date: Thursday 6 August 2026 16:25:00
Attachments: RPT_P0048465_A01 Ross Street_ACHMSP_V1_260807_Redacted.pdf
image001.png

Good afternoon,

The A01 Ross Street Teaching and Learning Hub within the University of Sydney's Camperdown Campus project (SSD- 57838709) has been approved for development.

As part of the Conditions of Consent established through the project SEARs, an Aboriginal Cultural Heritage Management Sub-Plan (ACHMSP) must be prepared to support and guide the upcoming works. This process also includes consultation with the Registered Aboriginal Parties (RAPs)

In accordance with Condition B35 of the SEARs for SSD- 57838709, Urbis has contacted all RAPs who participated in the project's Aboriginal Cultural Heritage Assessment (ACHA).

Please find attached the draft ACHMSP report which provides information on the project and methodology to be employed .

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Shaping cities
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OCP ARCHITECTS

UNIVERSITY OF SYDNEY, CAMPERDOWN NSW 2050

ROSS STREET TEACHING AND LEARNING HUB (A01)



SALVAGE METHODOLOGY

Item Details:	Ross Street Teaching and Learning Hub (A01)
Address:	Camperdown NSW 2050
Client:	Stone Mason & Artist Pty Ltd
Job No.:	25053
Date:	7 September 2026
Issue:	B

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Cover Image

The Ross Street (Western Avenue) vehicular entrance to The University of Sydney Gadigal (Cadigal) Camperdown / Darlington Campus, which is the subject of this report.
Source: OCP Architects, June 2026.

Report Register

The following report register indicates the development and issue number of this report, undertaken by OCP Architects.

Document status:

Issue	Date	Purpose	Written	Approved
A	20 July 2026	Draft Issue to Client	Bianca Hollo	Pejman Mahabadi
B	7 September 2026	Final Issue to Client	Bianca Hollo	Pejman Mahabadi

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CONTENTS

1 INTRODUCTION 4

1.1 Report Objectives 4

1.2 Site Identification 4

1.3 Overview of Salvage Works 5

1.4 Heritage Management Framework 8

1.5 Authorship 8

1.6 Limitations 8

2 SALVAGE METHODOLOGY 8

2.1 Salvage works methods for removal and storage 8

2.1.1 Skilled Heritage Trades 8

2.1.2 Heritage Induction 8

2.1.3 Protection of remaining heritage fabric 8

2.1.4 Care is to be taken 9

2.1.5 Extent of works 9

2.1.6 Provide preliminary samples for approval by Heritage Architect 9

2.1.7 Assess condition of salvaged fabric 9

2.1.8 Record and label salvage elements 9

2.1.9 Salvage of stone elements 9

2.1.10 Salvage of gates 10

2.1.11 Salvage of palisades and metalwork 10

2.1.12 Storage 10

2.1.13 Reuse of salvaged materials 10

2.1.14 Recycling 10

3 SALVAGE SCHEDULE 11

1 INTRODUCTION

OCP Architects has been engaged by Stone Mason & Artist Pty Ltd to prepare the following Salvage Methodology Report. This report has been prepared following State Significant Development Approval (SSD-57838709) of the construction Building A01, a new teaching and learning hub, adjacent to the Ross Street (Western Avenue) vehicular entrance to The University of Sydney Gadigal (Cadigal) Camperdown / Darlington Campus. As part of the approved development, a range of public domain works will be carried out to the grounds, entrance and fencing immediately surrounding the building in order improve the pedestrian environment and safety for pedestrians, cyclists and vehicles.

This report has been prepared to address the conditions of consent for the State Significant Development (SSD-57838709) approval which contains the following requirement for a salvage methodology report:

> *B33. Prior to commencement of construction, the following documents are to be prepared and provided to the Certifier for the Ross Street Gates sandstone columns and palisade fence by a suitably qualified and experienced heritage consultant:*
>
> *…*
>
> *(b) a Salvage Methodology for the portions of palisade fence, stone base, and c.1910 metal gate approved for removal. This Salvage Methodology should clearly outline the steps for safe removal of the materials and storage for future use.*

This salvage methodology has been prepared with input from experienced heritage stonemason, Stone Mason & Artist Pty Ltd. This report should be read in conjunction with the Schedule of Works for the A01 Ross Street - Palisade Fencing and Pillars prepared by OCP Architects in July 2026.

1.1 Report Objectives

This report aims to identify items to be salvaged prior to the commencement of public domain works associated with the construction of Building A01 at the Ross Street (Western) entrance to the University on Parramatta Road.

The aims of this Salvage Methodology are to:

- Identify original and early fabric to be salvaged
- Provide a methodology for the removal of identified items, ensuring retention, preservation and the conservation (where possible) of the removed original building elements and materials for future maintenance or repair purposes.
- Specify actions for the salvage of elements and materials to ensure their preservation and allow for later reuse.

1.2 Site Identification

The Gadigal (Cadigal) Camperdown / Darlington Campus at The University of Sydney is the main campus of the University.

The study area for this report is located within the Camperdown Campus of The University of Sydney, which is on the northern side of Carillon Avenue and City Road within the SHR-listed curtilage. It is sited within a vast, irregularly-shaped lot which comprises a substantial portion of The

University of Sydney's Camperdown Campus, and which is legally described as Lot 101 in DP 1270568.

The site of the proposed works is located on the northern boundary of the campus at the vehicular entrance (Western Avenue) to the campus opposite Ross Street, referred to as 'The Ross Street (Western Avenue) vehicular entrance' in this report (refer to Figure 1.1).

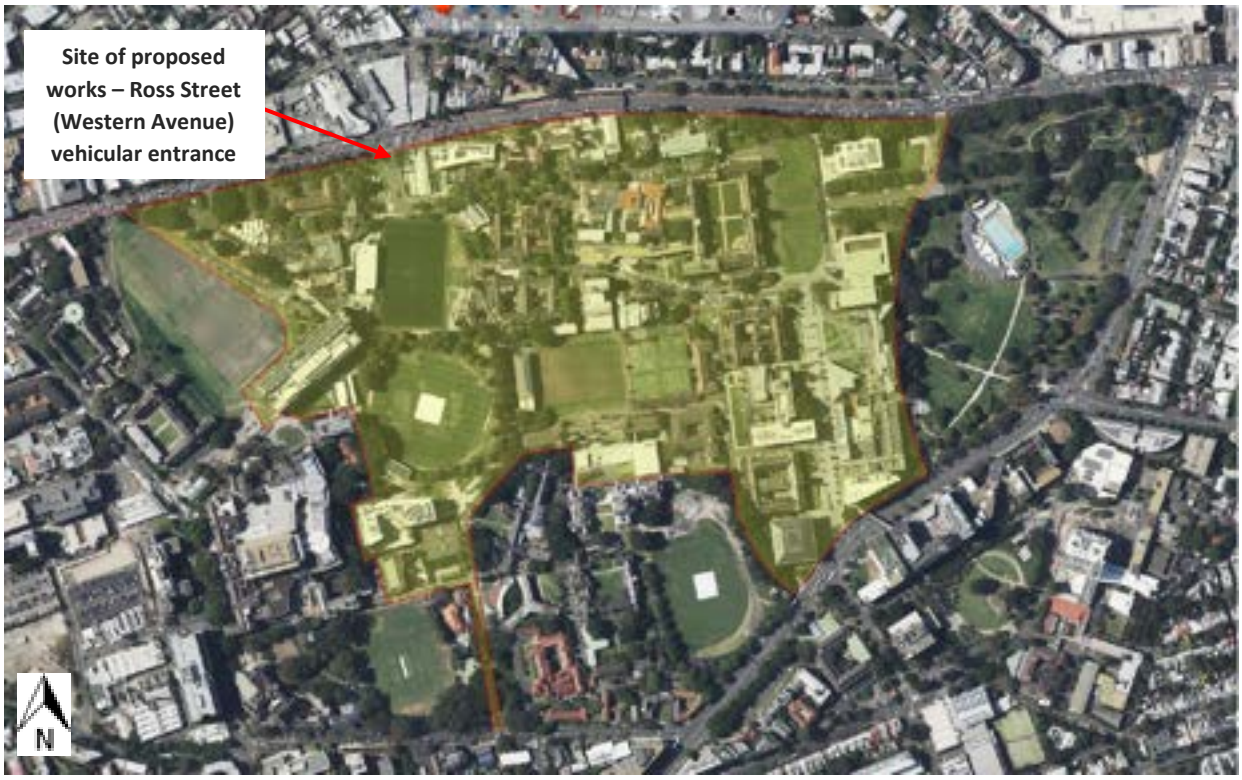


Figure 1-1: Lot 101 in DP 1270568 is shown outlined in red and shaded in yellow. The study area is located within the lot (at its northern side, opposite Ross Street) and is identified by the red arrow. Source: SIX Maps, 2026 (with annotation by OCP Architects).

1.3 Overview of Salvage Works

The public domain works associated with the construction of the new teaching and learning hub (Building A01) broadly include:

- three new pedestrian entrances to the perimeter palisade fencing (which is comprised of a metal picket fence with sandstone base) adjacent to the proposed building A01 to the east of the vehicular entrance;
- repairs to the perimeter palisade fencing;
- the temporary removal, repair and reinstatement of sandstone piers in a new location;
- the removal of non-original gates;
- the temporary removal of sections of the perimeter palisade fencing for repair and reinstatement; and
- alterations to footpath surfaces.

The works are illustrated in the following diagrams and plans.



Figure 1-2: Diagram showing the locations of the three proposed pedestrian entrances, and the locations in relation to the options for terminating the perimeter palisade fencing at the proposed pedestrian entrances. (Source: OCP Architects, 2026)

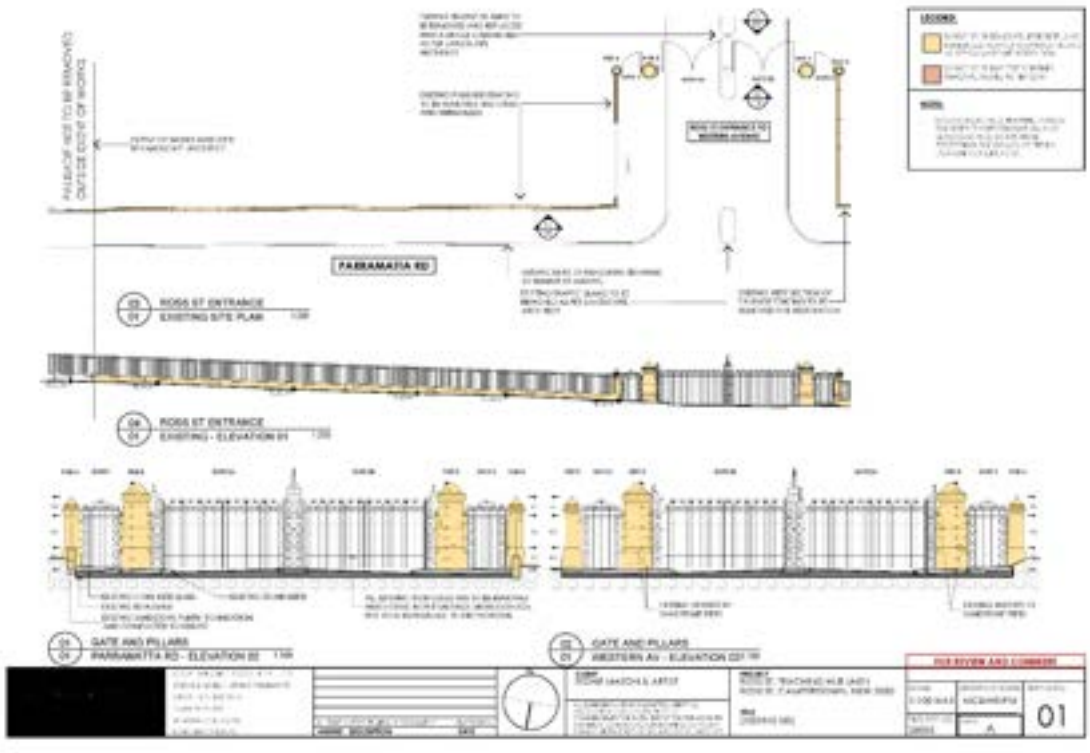


Figure 1-3: Architectural plans and elevations showing the existing configuration and details of the perimeter palisade fencing, gates and pillars at Ross Street (Western) University Entrance. (Source: OCP Architects, July 2026).

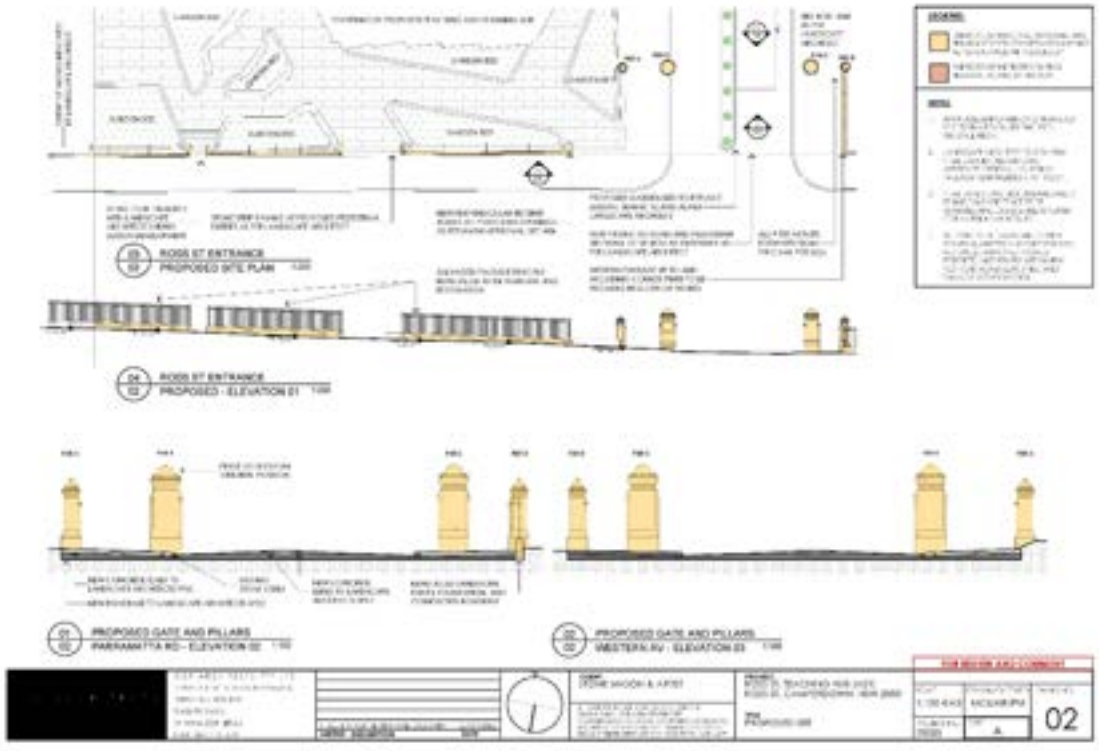


Figure 1-4: Architectural plans and elevations showing the proposed configuration of the perimeter palisade fencing, new pedestrian entrances and proposed new location of entrance pillars at the Ross Street (Western) University Entrance. (Source: OCP Architects, July 2026).

1.4 Heritage Management Framework

The statutory heritage listings that apply to the site have been summarised in the following table:

STATUTORY LISTING	ITEM NAME	SIGNIFICANCE	ITEM NO.
State Heritage Register (SHR), *Heritage Act 1977*	The University of Sydney, University Colleges and Victoria Park	State	01974
Sydney Local Environmental Plan (SLEP) 2012	Site Landscaping, University of Sydney Perimeter Fencing and Gates	Local	I72
Sydney Local Environmental Plan (SLEP) 2012	University of Sydney Heritage Conservation Area	Local	C5

1.5 Authorship

OCP Architects provides architectural and heritage consulting services for contemporary and heritage projects. The company has over 40 years of experience, including architectural and heritage consultancy services to guide conservation and restoration works. OCP Architects have had a longstanding involvement in providing heritage advice in relation to projects at The University of Sydney. The report was written by Bianca Hollo, Senior Conservation and Planning Specialist, and reviewed by Pejman Mahabadi, Senior Conservation Architect.

1.6 Limitations

This report relates to the salvage of fabric associated with the public domain works affecting the historic perimeter palisade fencing and gates at the Ross Street (Western Avenue) vehicular entrance only.

2 SALVAGE METHODOLOGY

The following methodology provides direction for the salvage of materials during works to enable later reuse. The methodology was developed with input from Stone Mason & Artist Pty Ltd and should be read in conjunction with the Schedule of Works prepared by OCP Architects.

2.1 Salvage works methods for removal and storage

2.1.1 Skilled Heritage Trades

The salvage, repair and reconstruction works are to be carried out by an experienced heritage stonemason.

2.1.2 Heritage Induction

Conduct a pre-start meeting and review all relevant SWMS, lift plans, permits, and project requirements prior to commencing works. Provide a heritage induction to all contractors.

2.1.3 Protection of remaining heritage fabric

Protect any existing heritage stonework, steel palisade fencing, pavements, and surrounding structures from damage during the dismantling process.

2.1.4 Care is to be taken

Care must be taken to ensure that items identified for salvage are removed in a manner that will allow these elements to be used for future repairs, reconstruction or maintenance work.

2.1.5 Extent of works

Heritage Architect and contractor to review extent of fabric to be salvaged prior to the commencement of works.

2.1.6 Provide preliminary samples for approval by Heritage Architect

Provide an initial sample of each element identified for salvage for review and approval by the Heritage Architect before the remainder of salvage and demolition works are carried out.

2.1.7 Assess condition of salvaged fabric

Heritage Architect and contractor to review condition of salvaged elements to determine best option for removal and suitability for reuse.

2.1.8 Record and label salvage elements

Label and record each element to facilitate future identification and reinstatement. Prior to dismantling stone and palisade fencing, note and log the position and location of fabric, element-by-element prior to removal. Keep salvaged materials from each element in separate groups.

Provide a weatherproof, indelible label or tag for every item to be salvaged prior to removal from the site. Each label is to be securely attached to the salvaged item or batch using weatherproof removable ties, e.g. coated wire, plastic ties. The ties shall not become easily unsecured. They shall be attached through existing apertures or securely around the item.

2.1.9 Salvage of stone elements

1. Carefully remove mortar pointing from all bed joints and perpends using appropriate tools to free the stone element from adjoining masonry and fence connections. Mortar removal shall be undertaken in a controlled manner to minimise damage to surrounding heritage fabric.
2. Label, number and note the position and location of the stone unit in accordance with 2.1.8 above.
3. Position the nominated lifting equipment in accordance with the approved lift plan (e.g. block and tackle, chain hoist, or crane truck).
4. Secure the steel picket fence on either side of the stone element to be removed and disconnect any fixings attached to the stone element.
5. Use soft lifting slings around the stone element and apply light lifting tension to safely support the cradle stone prior to removal.
6. Verify that the stone element is completely free from adjoining masonry, fence components, and any other restraints before lifting commences.
7. Gradually apply lifting loads and carefully lift the stone element clear of all surrounding fabric.
8. Under the direction of a qualified Senior Stone Mason, carefully swing the stone element away from the structure while maintaining full control of the load at all times.
9. Lower the stone element onto prepared timber gluts or pallets fitted with suitable protective padding ready for transport.
10. Load the stone elements onto transport vehicles and secure them for transport.

2.1.10 Salvage of gates

Remove cast iron gates and store. Keep each section of gate intact. Take care to ensure that stone pillars are not damaged.

2.1.11 Salvage of palisades and metalwork

Due to the variable condition of plinth stones, two options are proposed for the removal of cast iron spears.

Option 1: Where plinth stones are to be cut horizontally due to potential splitting; chisel the leaded joint from stonework in order to dislodge the spear from stone plinth. Apply the above process to each spear within a section joined by a continuous top rail section.

Option 2: Where lead joints have been removed; attach a clamp to the bar and hammer metal wedges between it and the stone to gradually lift the spear from the plinth. Apply the above process to each spear within a section joined by a continuous top rail.

Once all spears in a section are lifted from the plinth remove the section altogether, including all associated metal elements and store.

2.1.12 Storage

Transport and store the stone elements at the nominated storage locations:

a. Short-term storage (during construction – approximately 12 months): Stone Mason & Artist Holding Yard at Llandilo.
b. Long-term storage: University of Sydney's Lidcombe property. The c.1910 gates and any other elements salvaged and not reinstated during works will be stored by the University for potential future use.

Salvaged elements should be stored in distinct groups (e.g. fabric from each section of fencing to be kept separate, and fabric from each sandstone pier to be kept separate) for ease of reconstruction.

Materials should be kept on pallets and stored away from vehicles. Ensure that storage location is away from Eucalyptus trees to avoid staining of stonework.

Ensure that stored materials are adequately protected.

NB. Some elements may need to be transferred from short term storage to long term storage on completion of the works, pending completion of the associated works and receipt of instructions for reinstatement. This is to be coordinated between Stone Mason and Artist and the University.

2.1.13 Reuse of salvaged materials

Reuse displaced historic fabric on site as much as possible. Much of the salvaged stone and palisade fencing will be reused for the reconstruction of the boundary fence. Other elements that are not being reused as part of the subject works, for example, localised sections of stone and palisade fencing and the c.1910 gates, will be stored for future reuse by the University.

2.1.14 Recycling

Disposal and recycling may be considered as a last resort for displaced architectural items or fabric that cannot be reused on site and/or are in poor condition. Consult with the Heritage Architect prior to removing and recycling any items that have been identified for salvage.

Fabric that cannot be reasonably reused may be transferred to a material recycling facility, for example:

- Stone elements in poor condition will be transferred to a specialist recycler such as Rock & Dirt Recycling facility for crushing, sorting and reuse in construction, e.g. as granular fill or road base.
- Metal elements, e.g. sections of palisades in poor condition which are not suitable for reuse, will be separated and transferred to a metal recycler such as Sims Metal Management.

3 SALVAGE SCHEDULE

The following table provides an itemised schedule for each item, and identifies actions for salvage, storage and reuse. Refer to the schedule of works for a more detailed description of works.

SALVAGE ITEM	PHOTOGRAPH	SALVAGE ACTIONS
Palisade fencing		Salvage for repair and reuse on site. Carefully remove palisades and leaded joints from sandstone plinths. Refer to 2.1.11 above. Remove all spears within one section and then remove and store in sections for repair and reuse in reconstructed perimeter fence.
Sandstone plinths to palisade fencing		Salvage plinth stones in good condition for repair and reuse on site. Refer to section 2.1.9 above.
Fence foundations	(No photos as element is below-ground. Will be inspected during construction works).	Inspect condition of fence foundations. If foundations are in poor condition, remove and dispose in accordance with 2.1.5 above. Salvage foundation elements in good condition. Refer to section 2.1.9 above.

Iron entrance gates (c.1910)	 	Salvage and store for potential future use at the university. NB. Gates will not be reused as part of these works. Remove gates and store at the University's Lidcombe property for future use by the University. Gates to be repaired and conserved at a later date once a use has been determined.
Sandstone entrance piers	 	Salvage elements in good condition for repair and reconstruction in proposed new location. Refer to section 2.1.9 above.

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Ross Street Teaching & Learning Hub

Construction Waste Management Plan

August 2026

Table of Contents

1. Introduction 3
2. Risk Management 4
3. Objectives & Targets 5
4. Waste Management Strategies & Responsibilities 5
5. Management Practices 5
   5.1 General Principles & Site Setup 5
   5.2 Liquid Waste Management 6
   5.3 Asbestos & Hazardous Materials Management 7
   5.4 Waste Classification, Tracking & Reporting 7
   5.5 Waste Processing & Green Star Verification 7
6. Demolition Phase 8
7. Construction Phase 8
Appendix 1: Site Establishment Plan 11

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1. Introduction

This construction Waste Management Sub-Plan (CWMSP) has been prepared by Waste Audit and Management Group ('Waste Audit') on behalf of the University of Sydney (the applicant) in support of a State Significant Development Application (SSDA) submitted to the Minister of Planning under Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

This plan is intended to provide guidance on management of general waste and recyclable materials that will be generated during the demolition and construction phases of the project, and addresses current legislation, standards, guidelines and best practices, including the relevant SEARs and Green Star requirements.

All waste management provisions, including internal bins, central storage areas, management and handling protocols, and contractor requirements, have been designed to ensure safe and sustainable management of all materials.

Storage areas have been designed to achieve compliance with general best practice requirements as regards design, sizing, and location, and will, as designed, be adequate to manage the expected types and volumes of materials that will be generated.

The following table outlines the project's Development Consent Conditions relating to construction waste management and their corresponding locations within this sub-plan.

Condition Item	Description	Section / Page
B13	**Construction Waste Management Sub-Plan (CWMSP)** Must address procedures for waste management including: (a) Recording quantities, classification (materials removed), and validation (materials to remain) generated during construction and proposed use for remaining materials; (b) Information regarding recycling and disposal locations; and (c) Confirmation of contamination status of development areas based on validation results.	Section 7 Section 5.4 Section 5.3
B24	**Construction and Demolition Waste Management** Prior to removing waste material from site, the Applicant must notify the TfNSW Traffic Management Centre of truck route(s) to be followed by waste transport trucks.	Section 5.1, Section 6, Section 7
C32	**Waste Storage and Processing** All waste generated during construction must be secured and maintained within designated waste storage areas at all times and must not leave the site onto neighbouring public or private properties.	Section 5.1, Appendix A
C33	**Waste Classification** All waste generated during construction must be assessed, classified, and managed in accordance with *Waste Classification Guidelines Part 1: Classifying Waste* (EPA, 2014).	Section 5.4

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C34	**Concrete Waste & Washout** Ensure concrete waste and rinse water are not disposed of on site and are prevented from entering natural or artificial watercourses.	Section 5.2
C35	**Waste Quantities & Location Tracking** Record quantities of each waste type generated during construction and proposed reuse, recycling, and disposal locations for the duration of construction.	Section 5.4
C36	**Hazardous Materials Removal** Ensure removal of hazardous materials (specifically containment and fibre emission control) and disposal at approved facilities complies with relevant legislation, codes, standards, and guidelines.	Section 5.3
AN11	**Handling of Asbestos** Consult with SafeWork NSW regarding any asbestos waste encountered during construction. Comply with the *Protection of the Environment Operations (Waste) Regulation 2014* (specifically Part 7 – Transportation and management of asbestos waste).	Section 5.3

2. Risk Management

Under NSW legislation (*Protection of the Environment Operations Act 1997*), the generator of waste remains the legal owner of the waste until the material crosses a weighbridge into a licensed processing or disposal facility.

Waste removal contractors (Dumpit Bins) will be the primary transporters of waste off-site. Tip locations and disposal sites will be managed directly through Dumpit Bins and recorded as part of the waste tracking and reporting process. Furthermore, Subcontractor Inspection and Test Plans (ITPs) will govern Remediation and Bulk Excavation works.

Accordingly, contractors are required to provide monthly waste reports detailing quantities, classifications, facilities used, and proportions diverted from landfill versus sent to landfill. Monthly waste reports provided by Dumpit Bins will be maintained on site as part of the project waste records.

This WMP will be implemented on site throughout demolition and construction. All entries in the site Waste Data File / Waste Register will record:

- Time and date of material removed
- Description, classification, volume/weight of waste, and receiving facility used
- Vehicle registration and waste contractor details (Dumpit Bins)
- Weighbridge dockets and consignment documentation

The Waste Data File will be kept on site and made available for inspection to authorized Council or Department of Planning officers at any time during site works. At the conclusion of works, the designated site manager will retain all validating documentation.

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3. Objectives & Targets

The project's waste management objectives include:

- Meeting all waste management standards while ensuring the health and safety of the workers on the project
- Maximising the quantities of materials diverted from landfill by reusing, recycling and reprocessing off-site
- Disposal of no more than 20% of residual waste materials to a licensed landfill in accordance with both regulatory and legal requirements
- The diversion from landfill of 90% of construction waste by weight, to meet the criteria of the NSW State Government's waste legislation, policy settings and regulatory regime

Management strategies and parties responsible for ensuring these objectives are achieved are detailed in Section 4.

4. Waste Management Strategies & Responsibilities

The following waste management strategies for the project will operate over the design, procurement, and construction (including fit out) stages of the project:

Management Strategies	Responsibilities
Design:	
Use of modular components in design	Architect & Engineer
Use of prefabricated components in design	Architect, Builder, Subcontractors
Design for materials to standard sizes	Architect, Subcontractors
Design for operational waste minimisation	Architect & Builder
Procurement:	
Select recycled and reprocessed materials	Architect, Engineer, Builder, Subcontractors
Select components that can be reused after deconstruction	Architect, Engineer & Builder
Pre-construction:	
Waste management plan to be reviewed and approved prior to construction	Builder
Construction on-site:	
Use the waste hierarchy principles of avoidance, reuse, reduction, and recycling	Builder & Waste Contractor
Minimisation of recurring packaging materials	Sub-contractors
Returning packaging to the supplier	Builder & Sub-contractor
Separation and recycling of materials off site	Waste Contractor
Audit and monitor the correct usage of bins	Builder & Waste Contractor
Audit and monitor the Waste Contractor	Builder

5. Management Practices

5.1 General Principles & Site Setup

The following standard waste management hierarchy principles have been used to guide this waste management plan:

Avoid: Use sound work practices during the demolition and construction processes that avoid the creation of waste products:

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- Design for Manufacture and Assembly (DfMA) process combines the manufacture of building components, such as wall systems and facades, in a safe, clean and efficient factory environment, with on-site construction assembly.

Reduce and Reuse

- Reduce the use of materials during demolition that require treatment or disposal
- Ensure that wherever possible, materials are reused either on site or offsite
- Identify and put systems in place to separate and store materials for onsite reuse
- Identify the potential applications for reuse offsite and facilitate this process

Recycle and Recover: Identify all recyclable waste products to be produced on site:

- Provide systems, bins, and signage for separating and stockpiling of recyclables
- Process the material for recycling either onsite or offsite

Treat and Dispose: Waste products which cannot be reused or recycled will be removed and treated/disposed of at licensed facilities. To minimise vehicle movements and transportation costs, bins should be monitored for fullness and collected on an efficient schedule.

To apply these principles effectively, specific physical infrastructure and access controls have been designated across the site:

- Site Waste Storage (Condition C32): Nominated waste storage and collection areas are established as shown on the Site Establishment Plan (Appendix A):
  - Primary Waste/Bin Storage Area: Positioned along the eastern site perimeter adjacent to Science Road and Vehicular Gate 2 (Exit) to facilitate efficient collection and servicing by Dumpit Bins.
  - Secondary Bin Storage: Located within the western Site Storage Compound adjacent to the JD Stewart Building for localized general waste and recycling collection.
  - Loading & Material Handling: Material handling and loading occur via the designated Loading Zone and Loading Platform along southern side of the main construction building footprint.
  - All waste generated during construction will be secured within designated skip bins and receptacles at all times and strictly controlled within site hoardings/ATF fencing to prevent migration onto neighboring University or public properties.
- Traffic & Truck Routes (Condition B24): Waste transport vehicles will access the site via Vehicular Gate 1 (Entry) off Science Road, perform waste collection and exit onto Parramatta Road. Truck routes will be communicated to the TfNSW Traffic Management Centre prior to waste removal commencing.

5.2 Liquid Waste Management

- Ensure water is used in moderation and no taps are left continuously running
- Use any grey water produced on site for irrigation or for dust suppression where compliant
- A dedicated concrete washout tray will be provided for concrete works as shown in the figure below. Once the concrete has hardened, the concrete waste will be placed into the main skip bin, where it will be separated and recycled off-site by Dumpit Bins.

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CONCRETE WASH OUT TRAY

5.3 Asbestos & Hazardous Materials Management

1. Friable Asbestos / Contaminated Soil (Condition B13): Management of friable asbestos (identified at an average depth of 900mm) will be managed in accordance with the Douglas Partners Report Remediation Action Plan 225008.01.R.002.Rev0.

2. Asbestos Management Plan (Condition C36): Hazardous material removal, containment, and emission control is to be carried in alignment with the report by TRACE Environmental Asbestos Management Plan, Proposed Ross Street Teaching and Learning Hub, University of Sydney, A01 Science Road, Camperdown NSW, 28 July 2026.

3. SafeWork NSW & Statutory Compliance (Condition AN11): If unexpected asbestos or hazardous waste is encountered during construction, the project will consult with SafeWork NSW concerning handling. All removal, transport, and disposal will strictly comply with Part 7 ('Transportation and management of asbestos waste') of the Protection of the Environment Operations (Waste) Regulation 2014.

5.4 Waste Classification, Tracking & Reporting

All waste streams generated on site will be assessed, classified, and managed in accordance with the EPA *Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014)*.

Dumpit Bins will provide verified monthly waste reports, which will be maintained on site as part of the project waste records. These reports will detail:

1. Cumulative total waste generated (by weight in tonnes / kg).
2. Proportions diverted from landfill vs. sent to landfill.
3. Breakdown of individual material streams (concrete, timber, metals, paper/cardboard, general waste, etc.).
4. Destination facilities, weighbridge receipts, and recycling verification.

5.5 Waste Processing & Green Star Verification

Waste removal services and processing facilities are provided by Dumpit Bins NSW (holding current Green Star Waste Facility Certification).

To meet Green Star *Construction and Demolition Waste* credit criteria:

- Dumpit Bins and associated material recovery facilities maintain independent verification of compliance with GBCA reporting criteria.
- Compliance Verification Summaries and monthly waste reporting metrics will be collated and submitted as part of the project's overall Green Star environmental submission.

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6. Demolition Phase

The table below shows estimated quantities in m^3 of demolition waste to be generated, and the recommended management strategy for each type of material, based on removal of materials. The existing demountable sheds on site will not be demolished under the SSDA, it will be via an exempt development planning pathway.

Disposal and recycling will be managed through Dumpit Bins to licensed resource recovery facilities.

Demolition Waste - Expected Materials Streams

Materials on Site		Destination/Treatment		
Type of Material	Volume (m^3)/ Tonne	Onsite (Reuse/Recycle)	Offsite (Reuse/Recycle)	Disposal (Landfill)
Structural Concrete	10 m^3 12 t	Separated onsite and crushed for use in pavement and/or temporary access road	Collected by contractor and taken to recycling facility	No disposal to landfill
Bricks/Pavers	10 m^3 10.6 t	Separated onsite and crushed for use in pavement and/or temporary access road	Collected by contractor and taken to recycling facility	No disposal to landfill
Garden Organics	5 m^3 0.75 t	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill
Misc. General Waste	8 m^3 1.5 t	No onsite reuse or recycling	Separated onsite into dedicated receptacles and collected by the waste contractor for disposal	Disposal to landfill
Tiles/ Tiling	3 m^3 2.0 t	No onsite reuse or recycling	Removed if still serviceable and sold for reuse to an appropriate contractor, or collected by specialist contractor for recycling	No disposal to landfill
Plumbing Pipework, Fixtures	4 m^3 2.2 t	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill
TOTAL VOLUME OF MATERIALS	40 m^3 29 t	In total, the development's demolition phase will produce around 40 cubic metres of waste materials, of which over 80% can potentially be diverted from landfill disposal, either by being reused on or off site, or recycled off-site at a specialised facility.		
POTENTIAL RECOVERY	>80%			

7. Construction Phase

The development will seek to employ construction methodology which will result in significantly reduced wastage during the on-site construction process. It is estimated that for a typical construction project, application of for example Design for Manufacture and Assembly (DfMA) can reduce materials wastage by over 30%.

The table below shows expected volumes of waste arising from the construction process, including materials generated from deliveries of materials, including pallets, pallet wrap, cardboard packaging, and general waste and recyclable containers disposed of by construction contractor staff.

All construction waste streams will be collected via designated skip bins (located per the Site Establishment Plan in Appendix A) and managed by Dumpit Bins.

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Construction Waste - Expected Materials Streams

Materials on Site		Destination		
Type of Material	Volume (m^3)/ Tonne	Onsite (Reuse or Recycle)	Offsite (Reuse or Recycle)	Disposal (Landfill)
Excavation Materials	3000 to 4000 m3	Yet to be classified. No on-site reuse or recycling	Collected by contractor and disposed of at recycling facility	No disposal to landfill
Used Pallets	20 m^3 6.0 t	Reused on site for storage where possible	Collected by contractor and disposed of at recycling facility	No disposal to landfill
Paper/Cardboard Recycling	20 m^3 2.0 t	Reuse cardboard boxes for storage where possible	Separated onsite into dedicated receptacles and collected by the waste contractor for recycling	No disposal to landfill
Soft Plastics (Pallet Wrap etc.)	10 m^3 0.1 t	Reused on site for storage where possible	Collected by contractor and disposed of at recycling facility	No disposal to landfill
Concrete (Excess)	16 m^3 24 t	Separated on site and crushed for use in temporary access road construction	Collected by contractor and taken to concrete recycling facility	No disposal to landfill
Misc. General Waste	10 m3 1.5 t	No on-site reuse or recycling	Separated onsite into dedicated receptacles and collected by the waste contractor for disposal	Disposal to landfill
Timber Offcuts	10 m^3 3.0 t	Reuse for formwork where possible	Untreated recyclable timber will be collected and recycled at appropriate timber yard. Unrecyclable (treated) timber will be disposed of at landfill	Material that cannot be recycled will be disposed of at landfill facility
Plasterboard Offcuts	5 m3 1.0 t	No on-site reuse	Material to be separated and stockpiled onsite and collected by the waste contractor for recycling for use as soil improver with gypsum etc. removed by recycler	Material that cannot be recycled will be disposed of at landfill facility
Glass (Excess)	4 m^3 0.4 t	No on-site reuse	Recyclers consulted as to potential for recycling	No disposal to landfill
Floor Coverings	4 m^3 1.2 t	No on-site reuse	Collected in designated bin and sent for recycling if of required quality; otherwise sent to landfill	Material that cannot be recycled will be disposed of at landfill facility
Metal Offcuts, Roof Sheeting, Wiring, etc.	2 m^3 1.8 t	No on-site reuse	Collected by specialist metal subcontractor for separation into different metal types for recycling	No disposal to landfill

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Materials on Site		Destination		
Type of Material	Volume (m^3)/ Tonne	Onsite (Reuse or Recycle)	Offsite (Reuse or Recycle)	Disposal (Landfill)
Mixed Recyclables	10 m^3 0.63 t	No on-site reuse or recycling	Separated onsite into dedicated receptacles and collected by the waste contractor for recycling	No disposal to landfill
TOTAL VOLUME OF MATERIALS	111 m^3 41.63 t	In total, the development's construction phase, *not including excavation materials*, will produce around 111 cubic metres of waste materials, of which over 90% can potentially be diverted from landfill disposal, either by being reused on or off site, or recycled off-site at a specialised facility.		
POTENTIAL RECOVERY	>90%			

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Appendix 1: Site Establishment Plan

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USYD AO1 - LEARNING AND TEACHING HUB

SITE ESTABLISHMENT PLAN

PARRAMATTA ROAD

EXISTING TREES ON WESTERN AVENUE TO BE REMOVED

EXISTING STONE AND METAL FENCE TO BE REMOVED

SITE COMPOUND

CHANGE ROOM 12M X 3M

CHANGE ROOM 12M X 3M

F.TOILET 6M X 3M

LUNCH 6M X 3M

LUNCH 6M X 3M

LUNCH 6M X 3M

FIRST AID 6M X 3M

TOILET 6M X 3M

TOILET 6M X 3M

LUNCH ROOM 12M X 3M

LUNCH ROOM 12M X 3M

MEETING ROOM 12M X 3M

INDUCTION ROOM 12M X 3M

LUNCH ROOM 12M X 3M

LUNCH 6M X 3M

M / F TOILET 6M X 3M

SITE OFFICE 12M X 9M

JD Stewart Site Access Door

JD Stewart Vehicle Access

8.50 m

7.50 m

CLEANER 1M X 1M

JD STEWART BUILDING

General Waste Bin and Recycling Bin

EXISTING GUARD HOUSE AND M

SITE STORAGE

EXISTING CROSSING TO BE REMOVED

EXISTING PILLARS AND ENTRY GATES TO BE RELOCATED

WESTERN AVENUE

CONSTRUCTION SITE

Turnstile Access To Site Compound

Pedestrian Bridge Site Access

KERB UPSTANDS TO BE REMOVED

EXISTING TREES TO BE REMOVED

Building Envelope

Crane Base

CIP ENVELOPE

Basement (Level 01) Footprint

EXISTING TREES TO BE REMOVED

Building Hoist

Loading Platfrom

Loading Zone

Waste/Bin Storage Area

M / F TOILET 6M X 3M

Vehicular Gate 2 (Exit)

TC

TC

TC

SCIENCE ROAD

Vehicular Gate 1 (Entry)

EXISTING TREES TO BE REMOVED

EXISTING TREE TO BE RETAINED

OVAL NO. 2

1 DEMOLITION PLAN LEVEL 00

LEGEND

- STAGE 1 & 2 SITE HOARDING
- SITE COMPOUND HOARDING
- VEHICLE GATE
- PEDESTRIAN GATE
- FASS FIRE EGRESS
- SITE SHED AND AMENITIES
- LOADING ZONE
- TRAFFIC CONTROL (TC)
- HOIST
- LOADING PLATFORM
- CRANE
- VEHICULAR PATH
- ATF FENCING

FDC

Project:	*Ross Street T&L Hub*
Project ID:	*260058*
Date:	*24th August 2026*
Subject:	***Ross Street T&L Hub, Construction Flood Emergency Management Sub-Plan***
Version:	*Version 2 (Final)*
Author:	*Tomas Steele*
Reviewer:	*Stephen Gray*
Authorised by:	*Stephen Gray*

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RE: Construction Flood Emergency Management Sub-Plan for the construction phase of the proposed Ross Street Teaching and Learning Hub

As per the project's 'Schedule of Conditions and Review' this flood emergency management plan (FEMP) has been prepared as required under condition B10 (g) and addresses the requirements of condition B14. Condition B14 is listed in the table below with section references to the required information.

Condition No.	Condition	Section Reference
B14: The Construction Flood Emergency Management Sub-Plan must address, but not be limited to, the following:		
B14.a.	be prepared by a suitably qualified and experienced person(s)	Stephen Gray is formally accredited on the National Engineer Register (NER) #2435438 CVs are attached in Attachment A.
B14.b.	address the provisions of the Floodplain Risk Management Guidelines	Refer to Section 1.5 for the list of guidelines used to prepare this FEMP Refer to Section 1.6 for the discussion on compliance of this FEMP with the Floodplain Risk Management Guidelines.
B14.c	include details of:	N/A
B14.c.i	the flood emergency responses for both construction phases of the development	Refer to Section 2.2 'Impact of Construction Phases on Flood Response'
B14.c.ii	predicted flood levels	Refer to Section 2.1 in Sub-Section 'Predicted Flood Levels'
B14.c.iii	flood warning time and flood notification	Refer to Section 2.1 in Sub-Section 'Flood Warning Time and Flood Notification'
B14.c.iv	assembly points and evacuation routes	Refer to Section 2.3, in particular: • Sub-Section 'Flood Monitoring and Early Warning' • Image 4 'Assembly points and evacuation routes'
B14.c.v	evacuation and refuge protocols	Refer to Section 2.3, in particular: • Sub-Section 'Identified Triggers and Actions' • Table 3 'Summary of triggers to enact emergency response actions'

B14.c.vi	awareness training for employees and contractors, and users/visitors.	Refer to Section 2.3 in Sub-Section 'General operation procedures and activities'

Yours Sincerely



Steve Gray
Director.
NER 2435438

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1. Introduction

The Ross Street Teaching and Learning Hub (Ross St T&L Hub) at the University of Sydney, Camperdown Campus (USYD) was approved in a State Significant Development (SSD) on the 17th December 2025. FDC Construction and Fitout (FDC) won the tender for the subsequent phases of the project following the SSD Application approval and have subcontracted GRC Hydro to provide flood consulting services to provide a Construction Flood Emergency Management Sub-Plan (FEMP) for the construction phase of the project.

The FEMP has been structured as follows:

- Section 1: Introduction to the project, how the site is being setup and provides an overview of the flood behaviour and identified risks.
- Section 2: The Construction Flood Emergency Management Sub-plan

1.1. Glossary of Terms

1% AEP:
'AEP' stands for 'Annual Exceedance Probability' and is a measure of the magnitude of a flood. The 1% AEP specifically refers to a theoretical flood that has a 1% chance of occurring (or being exceeded) in a given year.

PMF:
The 'PMF' stands for 'Probable Maximum Flood' and is the largest theoretical flood that could occur for a given location based on the 'Probable Maximum Precipitation'.

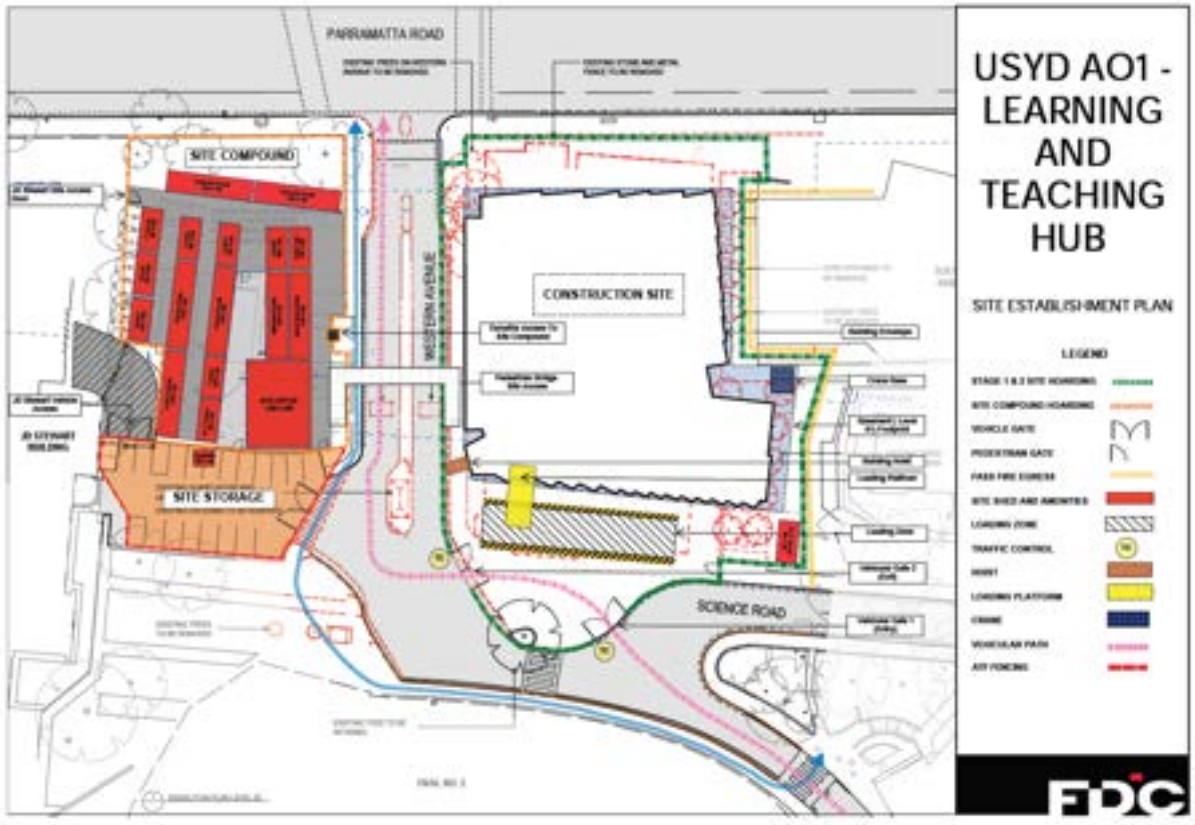
1.2. The Site

The site comprises of three areas located adjacent to Parramatta Road in the USYD Camperdown Campus as shown in Image 1. The three areas are:

- Construction Site: The location of the future Ross St T&L Hub. A crane is located at the east of the site and a loading zone in the south of the construction site near Science Road and Western Avenue.
- Site Compound: The staging area for the construction team with the site office, meeting areas and lunch/toiletry facilities
- Site Storage: Temporary storage of equipment and materials for the construction.

The Construction Site and Site Compound are surrounded by hoarding (i.e. temporary solid fencing) and the site storage is surrounded by temporary fencing with openings. A pedestrian bridge located above Western Ave provides access between the Construction Site and Site Compound without having to traverse through Western Ave itself.

Image 1: Site establishment plan



1.3. Overview of Flood Behaviour

Flood behaviour is based on an updated Council hydraulic flood model with results from the Ross Street T&L Hub, Flood Assessment (Final, GRC Hydro, 22/07/2025) and USYD A03 MECO Building, Flood Assessment (Draft, GRC Hydro, 29/04/2026). Due to the low flood liability of the site, the proposed construction or site establishment is not expected to modify flood behaviour in any significant manner.

Most of the site has low flood liability as the upstream catchment comprises of two small catchment areas:

(1) Parramatta Road catchment of approximately 2.6ha, and
(2) Science Road catchment of approximately 4.0ha.

Both catchments drain towards University Oval #2 to the south of the site.

Image 2 provides an overview of flood depths and direction and flow during the Probable Maximum Flood (PMF) and Image 3 shows the flood hazard categories during the PMF. Floodwater is mostly shallow overland flow conveyed within the road corridors and does not form a flow path through either site except:

- The southern portion of the Construction Site, specifically south of the loading zone, can experience shallow (<0.3m deep) non-hazardous floodwater in all major flood events.
- The Site Compound is flood free in the 1% AEP but during the PMF can have shallow (<0.3m deep) non-hazardous floodwater encroaching on the eastern and western portions of the site with deeper floodwater (>0.3m deep) on the southern boundary.
- The Site Storage area is in a local low point where floodwater can reach 0.5m deep in the 1% AEP and exceeds 1.0m depth in the PMF. In both instances the floodwater is slow moving and only hazardous due to the depth of floodwater.

It is only during extreme flood events, specifically the Probable Maximum Flood (PMF), where the capacity of University Oval #2 is exceeded and rising floodwater reaches 24.1mAHD which will inundate the Site Storage area and create a flowpath around the north and eastern sides of JD Stewart Building, which partially impacts on the Site Compound. This can be seen in Image 2 as the dark blue area.

It should be noted that whilst floodwater is shallow in Science Road, it is hazardous due to its high velocity.

The proposed construction is not expected to modify flood behaviour in any meaningful manner with the main potential for change being:

- Hoarding adjacent to Science Road may prevent some of the floodwater in the south of the Construction Site, which will instead remain in Science Rd and diverted into University Oval #2. This is a positive outcome as methods to convey more floodwater to the detention basin of University Oval #2 is synonymous with most flood mitigation methods in the area.
- Similarly hoarding in Western Ave may provide similar benefits as noted above for Science Road.

These impacts are estimated to be only of local benefit.

Image 2: Overview of flood depths and direction of flow during the PMF

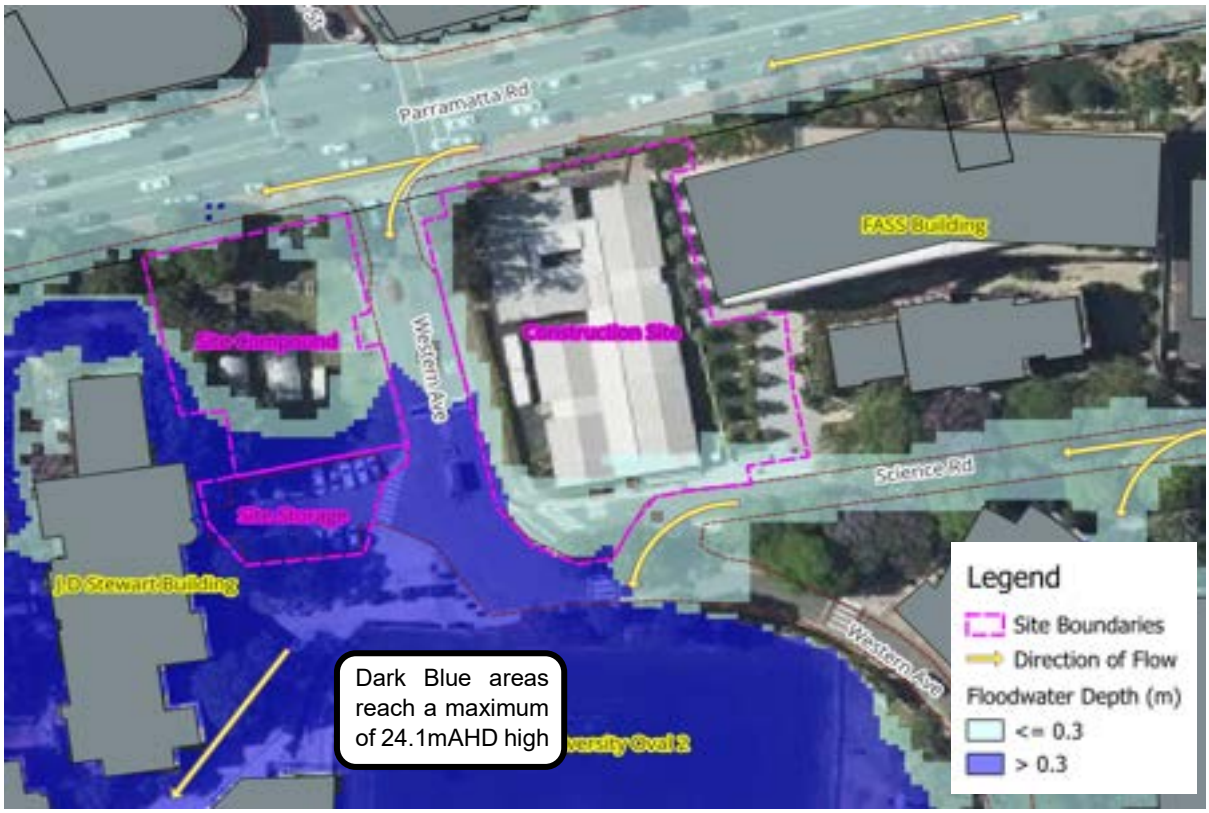
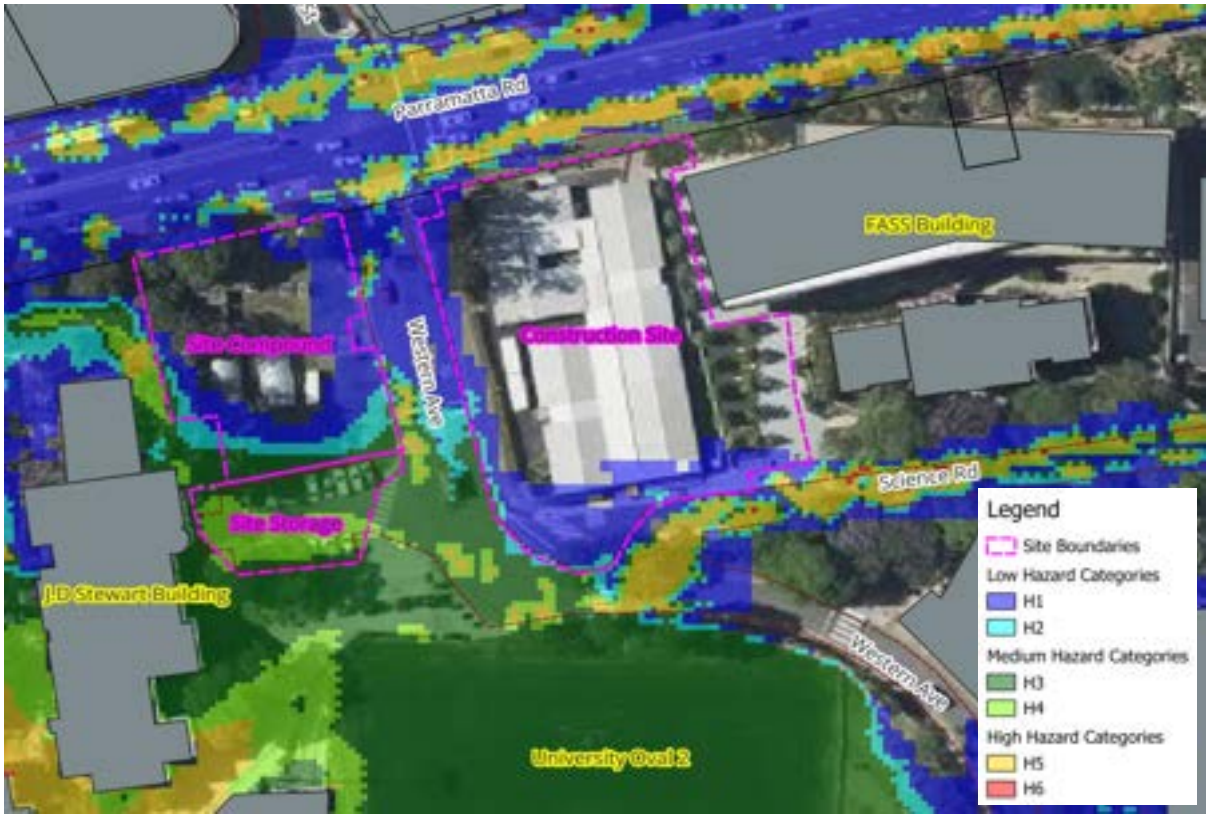


Image 3: Flood hazard categories during the PMF (Hazard Categories from the Australian Disaster Resilience Handbook Collection Guideline 7-3)



1.4. Identified Flood Risk

Due to the low flood liability, most of the site is a low flood risk. However, the following risks have been identified:

- The Site Storage area is prone to deep floodwater during all major events.
- The Site Compound has a low chance for deep floodwater on its southern side near the site office. Notably this does not impact on access to the pedestrian bridge between the Site Compound and Construction Site.
- Vehicle access routes to the Site Storage area and Construction Site lie in areas that can experience high hazard floodwater during extreme flood events.
- Traffic control locations on Western Ave and Science Rd are in high hazard floodwater locations
- Science Rd is a high hazard environment during flood events
- Parramatta Rd is mostly low hazard but can reach high hazard within the road gutters.
- The warning time for floodwater is relatively short (<30 minutes) which classes the highest risk flooding to the site as 'flash flooding'
- Flash flooding is difficult for emergency combat authorities to provide early warning for
- During a flood most exit routes from the sites are at risk of high hazard conditions

These risks are all manageable through the Construction Flood Emergency Management Sub-Plan (FEMP).

1.5. Guidance

The following legal and regulatory guidance has been referred to in the development of this FEMP:

- Flood risk management manual (2023)
- NSW SES FloodSafe Guidelines;
- NSW Emergency Management Act 2002;
- Support for Emergency Management Guidelines (EM01, DPE 2023)
- Understanding and Managing Flood Risk Guideline (FB01, DPE 2023)
- DPHI Disaster Risk Reduction Framework; and the
- DPHI Shelter-in-Place Guideline for Flash Flooding (2025)

1.6. Compliance with Floodplain Risk Management Guidelines

The Flood risk management manual (2023) and associated documents under the Flood risk management toolkit, including 'Support for Emergency Management Guidelines' (EM01, DPE 2023) and 'Understanding and Managing Flood Risk Guideline' (FB01, DPE 2023) provide the core set of guidelines for the management of flood risk in NSW through the entire flood risk management process. The guidelines are largely aimed at guiding NSW Councils on how to manage flood risk for their community.

The guidelines don't have prescriptive controls to address for the preparation of emergency management plans. Most of the compliance is through adherence to the outcomes of the flood study for the SSD Application for the site in SSD-57838709, which was prepared in accordance with:

- the Flood risk management manual (2023) guidelines for a Flood Impact and Risk Assessment (LU01, DPE 2023)
- Local Council flood controls and guidelines in the LEP and DCP
- Full compliance with the project Planning Secretary's environmental assessment requirements (SEARs)
- Prepared in consultation with NSW SES, who are the flood emergency combat agency in NSW

'Support for Emergency Management Guidelines' (EM01, DPE 2023) provides seven principles which taken together with the full set of guidelines can provide direction for the preparation of FEMPs. These principles and how the FEMP addresses these is given in Table 1 to show compliance with the key emergency management guidance document.

Table 1: Emergency management guideline principles

Principle	Response
Principle 1: Any proposed EM strategy should be compatible with any existing community EM strategy	This FEMP specifically requires adherence to the existing community EM strategy as a priority (refer Section 2.3). The purpose of this FEMP is to help minimise potential flood risk in situations where there is insufficient warning time for the community EM strategy to be implemented.
Principle 2: Decisions should be informed by understanding the full range of flood EM risks to the community	This FEMP specifically refers to the 1% AEP and PMF as they provide the most risk to the site. This choice is based off flood information the SSDA FIRA which considered more frequent floods including the 20% AEP. Refer to Section 2.1
Principle 3: Development of the floodplain does not impact on the ability of the existing community to safely and effectively respond to a flood	This FEMP prioritises actions and responses that don't take away time or resources from the existing community by prioritising evacuating the site before a flood occurs. Should a shelter-in-place strategy be required the FEMP prioritises shelter onsite without the use of external resources. Refer to Section 2.3

Principle 4: Decisions on redevelopment within the floodplain are supported by an EM strategy that does not increase risk to life from flooding	As per the SSDA FIRA the site is a very low flood hazard area. For the very minor residual risk to life from flooding, the FEMP prioritises using early warning to minimise the potential of people being located onsite during a flood, the local flood behaviour is of a flash flooding nature with minimal isolation times, and includes strategies for the management of secondary risks such as a fire emergency. Refer to Section 2.3
Principle 5: Risks faced by the itinerant population need to be managed	Visitors to the project site are accompanied by a fully inducted person, who is responsible for ensuring the protocols of the FEMP are followed. Refer to Section 2.3
Principle 6: Recognise the need for effective flood warning and associated limitations	The flood warning limitations are minimised through the monitoring of flood inducing weather with actions that prioritise minimal personal to be present onsite for predicted rainfall depths congruent with a flood of sufficient magnitude to impact the site. Refer to Section 2.3
Principle 7: Ongoing community awareness of flooding is critical to assist effective emergency response	Project inductions are carried out for all workers onsite which addresses the assembly points, evacuation routes, and evacuation and refuge protocols. This provides the most direct method to raise awareness of flooding risks for the site. Refer to Section 2.3

2. Construction Flood Emergency Management Sub-Plan (FEMP)

This FEMP provides a framework that management and workers can look to for guidance in how to prepare and respond to a potential flood emergency at the project site.

2.1. Supporting information

Predicted Flood Levels

Flood levels and depths for the site are summarised in Table 2 for the 1% AEP and PMF. The table gives an indication of how the various floods will impact each site location and what level of protection is provided.

Table 2: Flood depths and levels for each site area

Location	Terrain Levels (mAHD)	1% AEP		PMF	
		Flood Level (mAHD)	Comments	Flood Level (mAHD)	Comments
Site Compound	23.2 – 24.7	NA	Not meaningfully flooded	24.1	Deep on the southern side of the site
Construction Site	24.1 – 26.5	NA	Not meaningfully flooded	24.1	Not meaningfully flooded. Only some shallow depths at the south of the site
Site Storage	22.6 – 23.4	23.2 mAHD	Less than 0.5m deep	24.1	Can exceed 1.0m in depth

Flood Warning Time and Flood Notification

The predicted warning time is less than 30 minutes from the onset of flood inducing rainfall. This is estimated from the time it takes for a flood response to be present about the site after the application of rainfall to the flood model. With such a short warning time there is little opportunity for flood combat agencies to provide flood warnings for the site.

Alternative to official flood warnings are severe weather warnings issued by the Bureau of Meteorology (BoM) which can provide some indication of weather conditions that could result in flooding. These are typically quite generalised and only an indication that there are conditions that could cause flash flooding, with no indication of the potential flood magnitude possible. However, taken in combination with predicted rainfall depths these provide triggers for action in the FEMP.

2.2. Impact of Construction Phases on Flood Response

From a flooding perspective the approach to managing flood risk remains the same across most of the construction phases except for two aspects of the design:

1. During excavation works there are extra flood risk management methods to include to minimise the potential risk of workers being caught by unexpected rising floodwater in the excavation area.
2. When the A01 Ross St T&L Hub building is structurally sound it is a better location for seeking refuge in for any people unexpectedly caught onsite during a flood over the Compound Site area.

Variations to the FEMP due to these two cases are noted when they occur.

2.3. Emergency Management Procedures

Site Establishment

The site has passively provided flood protection through the location of the Site Compound and Construction Site in areas with low flood liability. In addition, the pedestrian bridge provides flood free access between the two compounds. Additional recommendations are to:

- Having locations in the Site Storage area where high value or hazardous materials can be stored at levels above predicted flood levels:
    - Above 23.2 mAHD provides protection against the predicted 1% AEP flood levels
    - Above 24.1 mAHD provides protection against the predicted PMF flood levels
- Sandbags or similar protection can be added to the base of the hoarding along Science Rd to minimise the influx of shallow floodwater
- Maintain water and food storage within the Site Compound
- Any computers or valuables within the Site Compound should be located above the 24.1 mAHD level
- Noting which of the site sheds within the Site Compound are located above the 24.1 mAHD level

Roles and Responsibilities

To enact the FEMP there are three key responsibilities:

- A designated person to sign up for flood warnings and monitor them daily. Details on the recommended flood warning services to use is given below in the section on 'Flood Monitoring and Early Warning'.
- A designated person or team to act on the recommended triggers for action. The triggers for action are based on the flood warnings and are listed in Table 3 of section 'Identified Triggers and Actions'.
- A designated person to manage communication between the site and emergency combat authorities when required.

The allocation of roles and responsibilities should be decided before a flood occurs, and those with those responsibilities should be aware of them prior to attending site.

General operation procedures and activities

These are recommended operational procedures and activities to maintain in order to streamline any emergency flood response.

- Monitor flood warnings and review expected rainfall depths every morning with a sufficient time allowance to be able to notify staff of any updates before they leave home to attend site.
- Ensure evacuation routes are maintained as reasonably practical. This includes keeping them clear for use, especially the pedestrian bridge between the Site Compound and Construction Site.
- Changes to evacuation routes will be communicated through toolbox talks
- All fuel cells, jerry cans and other hydrocarbon containing materials and chemicals shall be permanently stored above the 1% AEP level (23.2 mAHD) so they will not need to be relocated during a flood event. This mainly applies to the Site Storage area as the other site areas are above this level.
- Ensure good housekeeping to minimise the number of loose items that lie in flood prone areas (Site Storage area and near Science Road in the Construction Site)
- Ensure that loose materials that may form floating debris are not stockpiled in large volumes in flood prone areas (Site Storage area and near Science Road in the Construction Site)
- Continue to keep toiletry facilities outside of flood prone areas (Site Storage area and near Science Road in the Construction Site)

- All scaffold materials will be secured to avoid the risk of mobilisation in flood waters
- Personal located onsite should be made aware there is a small flood risk and the protocols to enact should a flood inducing storm occur. Ideally these are reviewed and noted daily
- Project inductions are carried out for all workers onsite which addresses the assembly points, evacuation routes, and evacuation and refuge protocols.
- Visitors to the project site are accompanied by a fully inducted person, who is responsible for ensuring the protocols of the FEMP are followed.

Flood Monitoring and Early Warning

Due to the flash flooding risk, there is unlikely to early warnings issued by the NSW SES, who are the designated state emergency combat authority for a flood emergency. However, if they do issue a warning it is likely to be generalised to an area (i.e. the entire city CBD) and communicated through several channels including:

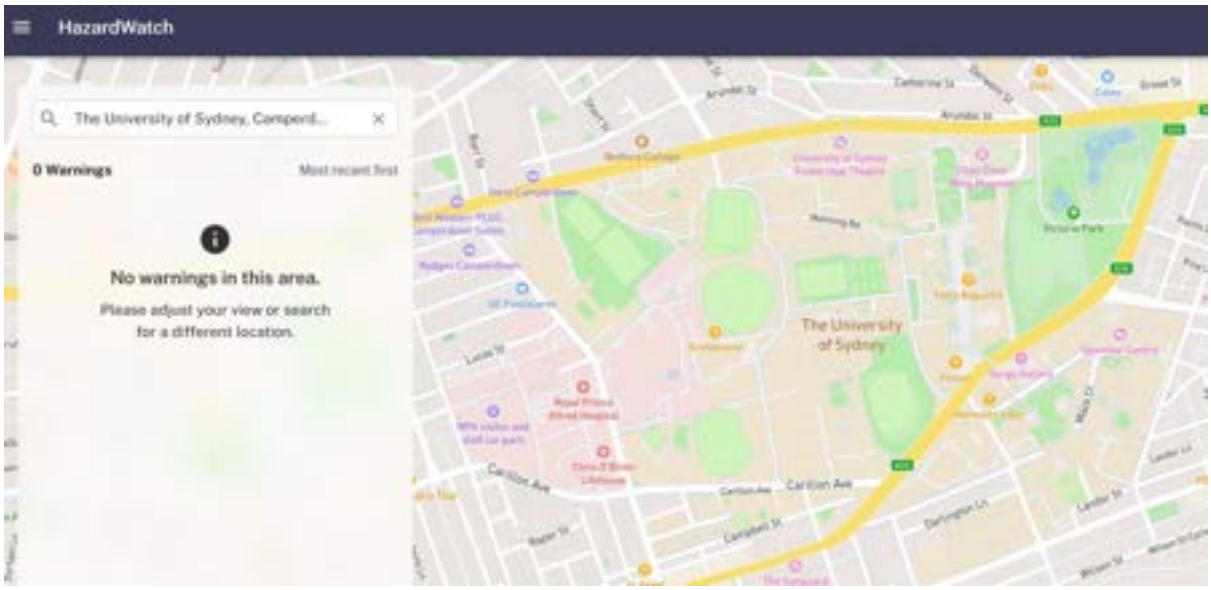
- AusAlert – An unblockable notification is sent to all compatible mobile devices within an area
- News outlets – emergency broadcasts
- Social media channels – emergency alerts from Police, Council and/or NSW SES

Warnings issued by any of these outlets are to be adhered to as a priority and supersede the advice from this FEMP.

As there is a flash flooding risk, there is a need to utilise flood monitoring sites to give some early warning. Three sources of warning are recommended to be used and to be reviewed daily by designated personnel. The three sources are all free and include:

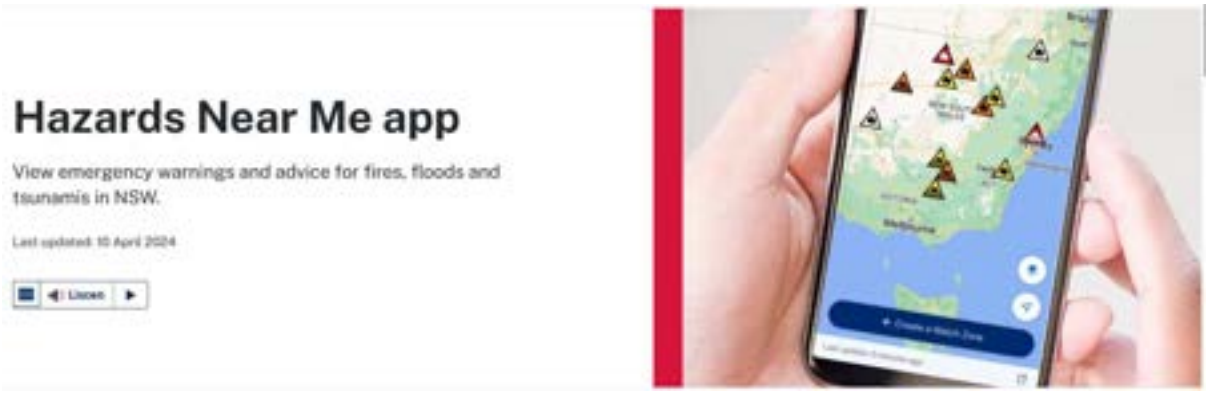
Hazardwatch

Hazardwatch is an online only site that shows warnings from NSW SES. It can be accessed online at: https://hazardwatch.gov.au/



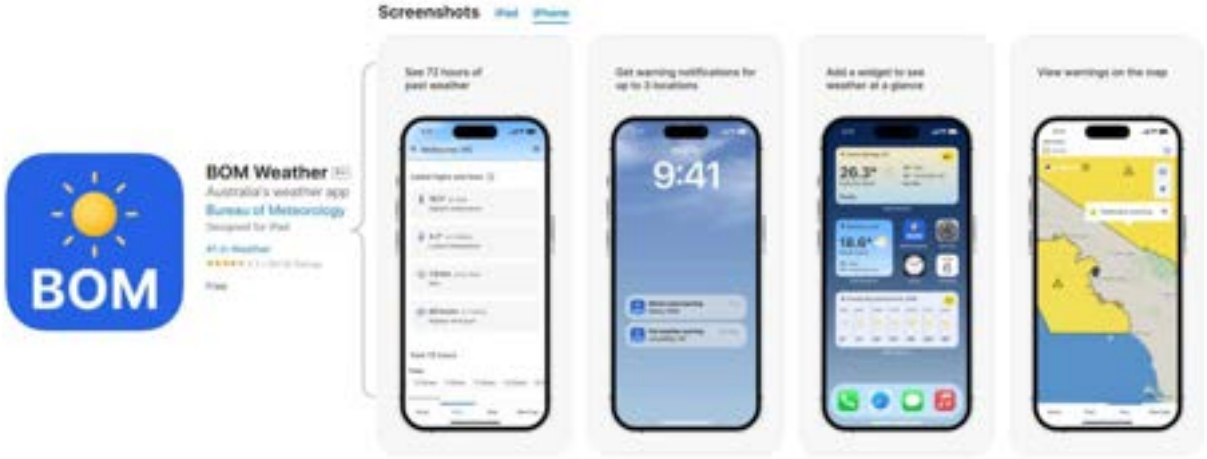
Hazards Near Me NSW

Hazards Near Me NSW is an app and website that displays real time warnings for hazard including bush fire, flood and severe weather. It allows the user to create watch zones which will send notifications to you for hazard warnings important to you in an area. The app is available for download at: https://www.nsw.gov.au/emergency/hazards-near-me-app



BoM Severe Weather Warnings

The Bureau of Meteorology weather app allows the user to sign up for warnings for an area. Severe Weather Warnings and Severe Thunderstorm Warnings are both indicators for the potential for flood inducing rainfall to occur. The app also allows for estimates of rainfall depths for the site. The app is available for download at:
https://www.bom.gov.au/bom-weather-app



Identified Triggers and Actions

Triggers and corresponding actions linked to the flood warning and flood monitoring sources above are summarised in Table 3 with further details given below the table for actions during each flood risk category.

Table 3: Summary of triggers to enact emergency response actions

Source of Flood Warning	Type of Alert and Threshold	Required Action
NSW SES via: General emergency warnings issued via channels such as: • AusAlert • News Outlets • Social Media Or from reviewing emergency monitoring on: • Hazardwatch	Any official alert	Adhere to the advice from NSW SES as a priority over this FEMP Assemble personnel at the Site Compound to coordinate the response If immediate evacuation required, then prioritise actions to evacuate personnel over securing the site against flood damages.

A 'Severe Weather Warning' or 'Severe Thunderstorm Warning' on either: • BoM App • Hazards Near Me NSW App	If less than 50mm of rainfall is estimated for the day	There is a Low Flood Risk. Actions are given below which prioritises: • Normal site function but remaining on alert • Regular checks for updates
	If between 50mm to 100mm of rainfall is estimated for the day	There is a Medium Flood Risk. Actions are given below which prioritises: • Minimising work in flood risk areas • Preparing the site to minimise flood damages
	If more than 100mm of rainfall is estimated for the day	There is a High Flood Risk. Actions are given below which prioritises: • Ceasing all activity on the site • Actions to minimise personnel onsite
Observed floodwater	The following are indications that a flood is occurring at the site if observed: • Rising water levels within the excavated areas • Rising water levels within University Oval #2 • High velocity floodwater within the road corridors	Enact actions to cease activity onsite and assemble in the Site Compound

Actions when a Low Flood Risk is triggered

If the "Low Flood Risk" trigger is met (see Table 3 above), this is an indication that the site should be on alert. Actions include:

- Assigning a responsible team member to continue monitoring the flood warning and monitoring services to watch for updates. Reviewing every 2 hours is recommended.
- Visual monitoring of the site and surrounds should be undertaken as part of the duties of personnel onsite. Any observed floodwater should be responded to as a priority as per Table 3.
- If thresholds for a higher risk trigger are met, then proceed to immediately move to enacting the recommended actions.
- If there is future potential for the flood risk to increase to a Medium or High flood risk, then the site should prepare to minimise flood risk. The estimated flood risk can change rapidly and a sudden observation of High Flood Risk does not allow time for securing the site. Indicators include:
    - There is close to a 50mm rainfall estimated for the day
    - The rainfall depth estimates for the day increase over multiple reviews
    - There are estimates of bursts of rainfall during the working day i.e. the estimated rainfall for the day is quite low for most of the day but has a few hours where the bulk of the rainfall is expected to fall.

Actions when a Medium Flood Risk is triggered

When the "Medium Flood Risk" trigger is met (see Table 3 above), initiate the following activities:

- Normal activities can proceed except for the following:
  - Minimise work being conducted within excavated areas
  - Review and maintain paths to rapidly evacuate personnel working within excavated areas
  - Un-man traffic control points near Science Road
  - Minimise the use of the traffic access door on Science Road
- It is recommended to move items at risk of flood damage above the 1% AEP flood level (23.2 mAHD) within the Site Storage area. Items moved to above the PMF flood level (24.1 mAHD) are safest from flood damage.

Actions when a High Flood Risk is triggered

If a "High Flood Risk" trigger is met (see Table 3 above) before the working day:

- The priority is to not have personnel located onsite to minimise the chances of people being isolated onsite due to floodwater. Actions to support this include:
  - Messaging personnel to not attend site
  - Cancelling deliveries expected that day
- Do not attend site even to secure the site against flooding on a day where there is a high flood risk.
  - All items that require securing against possible flood risk damages should have been conducted prior to a day with a high flood risk.

If a "High Flood Risk" trigger is met (see Table 3 above) during the working day:

- The priority is to evacuate the site if there is at least 4 hours warning time.
  - This includes immediately ceasing all activity on the site and sending all employee's home
  - Minimal activities to close the site down. The priority is to get people offsite and for them to be at home before any flood inducing rainfall occurs.
  - Do not secure items against possible flood risk damages as this puts people in zones with high flood risk (i.e. the Site Storage area) and delays their evacuation from the site.
- Should less than 4 hours warning time be available:
  - Immediately cease all activity on the site and notify personnel to assemble within the Site Compound
  - The NSW SES should be contacted for further advice:
    - Notify them that the personnel can shelter in place in a flood free zone
    - Seek advice as to whether it is safe for personnel to evacuate the site as the NSW SES can provide better estimates of when flood inducing rainfall might be impacting the area.
  - Enact the evacuation and refuge protocols from the section below if the recommendation is to remain on site or if unsure of how to act.

Evacuation and Refuge Protocols

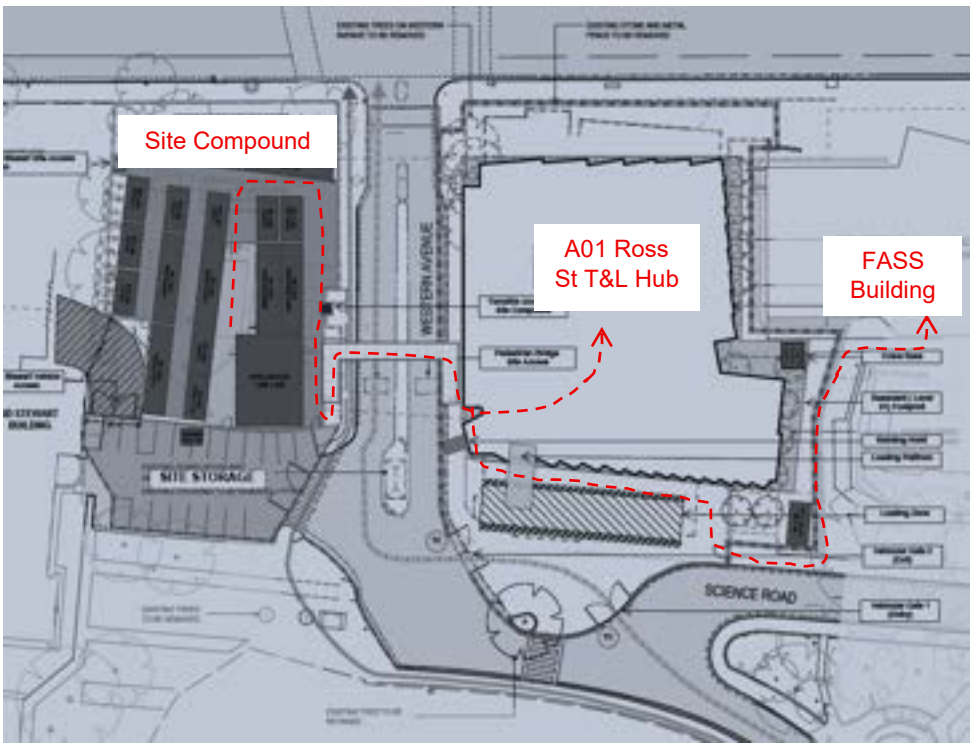
The priority is to not have people located onsite during a flood. However, should the unexpected occur and people are located onsite during an emergency flood the following actions should be taken:

- Assemble all personnel at the Site Compound
- The following locations are appropriate to shelter in, with the priority from top to bottom:
  - 1st priority: The A01 Ross Street T&L Hub building should it be structurally sound and it can provide better amenities for shelter

- 2nd priority: Within the Site Compound
- 3rd priority: Within USYD's FASS building to the east of the site
- 4th priority: Buildings within the USYD campus north of Science Rd that can be reached on foot without entering Science Rd.

- Move personnel to the most appropriate shelter location. The path from the Site Compound to each location is marked on Image 4.
  - DO NOT traverse floodwater either on foot or by vehicle
  - DO NOT enter the roadways as there could be high velocity shallow floodwater
  - DO NOT access or use the Site Storage area
  - DO NOT return to another shelter location unless it is an emergency
- When moving to a shelter location:
  - Bring food, water and clothing to remain warm
  - Move in small groups so that people can watch out for each other
- Notify NSW SES of the elected location for sheltering and give them details for the best personnel to communicate with
- The priority is to keep people safe, fed, hydrated, warm and out of the weather until NSW SES have given the all clear to end the shelter-in-place.
- In an emergency call emergency services on 000
- Should a fire occur while sheltering at the site, move to another appropriate shelter, call emergency services on 000, and notify NSW SES of the new shelter location.

Image 4: Assembly points and evacuation routes



Attachment A

CVs for Tomas Steele and Stephen Gray

Stephen Gray
Director



Date of Birth:
13 July 1974

Nationality:
Australian

Profession:
Water Resources Engineer (hydrologist)

Qualifications:
Bachelor of Engineering (Res. Eng) University of New England, 1997

Masters of Engineering (Research) University of Technology Sydney, 2009

PROFILE

Steve has twenty five years' experience working in the field of hydrology and hydraulics with a principle focus on flooding. Steve's has worked in the Supreme Court of NSW and the NSW Land and Environment Court as a modelling expert. Steve would reasonably be considered an expert in the fields of: flood hydrology; flood modelling (1D and 2D models); stormwater, riverine and urban modelling; floodplain management works design; GIS integration into flooding work and floodplain management as it integrates with council planning. Steve also has a variety of experience in other water resource related fields including yield analysis, water balance and water quality related studies.

PROFESSIONAL EXPERIENCE

GRC Hydro (Director) - 2017 and ongoing

- Various Planning Proposal Reports - NSW
- L&E Expert for Nelligen Residential
- L&E Expert for Lindfield Residential
- Design Competition – 110 George St Parramatta
- Work for Valuer General NSW - Review of Flood Reports
- Rutherglen Insurance Review
- Exile Bay FRMSP (ongoing)
- Cooks Creek Overland Flow Flood Study - ongoing
- A'Becketts Creek Flood and Floodplain Risk Management Study and Plan (ongoing)
- Brisbane Insurance Review
- Dozens of Sydney Metropolitan Development Application Flood Reports
- L&E Expert for Rosehill Development
- L&E Expert for MLC Development in North Sydney
- L&E Expert for Proposed Development at Chifley St Smithfield
- Insurer Reports for Lismore March 2022 Event
- Wollongong Brooks Creek FRMSP (ongoing)
- L&E Court Expert for 10 Raceway Place Eastern Creek v 50 Peter Brock Drive
- Inner West Council Developer Contributions Plan Assessment
- Insurer Reports for March 2021 Event – Port Macquarie, North Haven and North Shore
- Wollongong CBD FRMSP Review (ongoing)
- Yarralumla Creek flood study review and mitigation works development
- ACT Light Rail Flood Impact Design and Assessment
- Rich Street Marrickville – Flood Management Report
- Barangaroo Reference Design and flooding Technical Advisor for INSW
- Snowy 2.0 Main Works SEARs Assessment - flooding
- Sydney Metro City and Southwest, Marrickville – Flood analysis for Detailed Design
- Yarralumla Creek flood study review and mitigation works development
- Canberra Light Rail Project – Flood analysis for Detailed Design
- Hickson Road Flood Modelling and Drainage Design
- Lismore/Murwillumbah 2017 Flood Event, Event Analysis for Overland Flow Damages
- Delhi Road Upgrade REF
- Private Hospital Site Flood Risk Assessment – Johnstons Creek
- Austral Flood Risk Management Report
- Erskine Park Sub-surface Flow Report
- Yallah Road OSD Review – Expert Opinion

- Chatswood Freemans Road Stormwater Impact Assessment
- Wallacia Golf Course Flood Study
- North Bexley Stormwater Assessment
- Austral Flood Risk Management Report
- Appian Way L&E Court Report
- Appian Way Supreme Court Expert Report
- Gladesville – Hillcrest Avenue Supreme Court Expert Court
- Kingsgrove – L&E Court – Flood Expert
- Snowy Mountains Flood and FRMS&P Studies
- University of Sydney – Health Precinct Project – Reviewer
- University of Sydney – Engineering Precinct Project – Reviewer
- North Sydney - LGA FRMS&P
- Hunters Hill - LGA Flood Study
- Burwood Council – Expert Advice re: 149(2) and FPA for Overland Flow Catchments
-

WMAwater (Director) - 2009 to 2017

- Hawthorne and Dobroyd Canal FRMS&P
- Alexandria and Johnstons Creek Flood Studies
- Tuggerah Lake Overland Flow Studies
- Ourimbah Creek FRMS&P
- Wagga FRMS&P Revision
- Exile Bay and Powell's Creek Flood Studies
- Culcairn, Holbrook and Henty Flood and FRMS&P Studies
- Rushcutters Bay, Centennial Park and Woolloomooloo Flood and FRMS&P Studies
- Gundagai Flood Study
- Currambene and Moona Moona Creeks FRMS&P
- Milperra Riverside Development Modelling
- CBD and Darling Harbour FRMS&P
- L&E Court – Ashfield Council
- North Sydney Overland Flow Flood Study
- Detailed Model Review – Wagga Wagga
- Lockhart and The Rock – Flood and FRMS&P Studies
- Blackwattle Bay and Johnstons Creek FRMS&P
- Medowie FRMS&P
- Harold Park Flooding, Stormwater and WSUD Review
- Commission into Brisbane River Floods of January 2011
- SES – Griffith 2012 Flood Review
- Griffith CBD FRMS&P
- Griffith CBD Flood Study
- Dobroyd Canal Flood Study
- Hawthorne Canal Flood Study
- Astrolabe Park Flood Impact Study and Design Project
- Middle Bays Floodplain Risk Management Study and Plan
- Woolaware Bay Flood Study
- Eastern Creek Hydrological Assessment – RAFTS Model Build
- Parken Pregan Road Improvement Impact Assessment
- SES - Murrumbidgee River December 2010 Flood Data Collection
- Wagga LGA Murrumbidgee River 2D Modelling
- Griffith Aerodrome Floodplain Risk Management Study and Plan
- RTA Narara to Lisarow Flood Impact Analysis and Review of Modelling
- Wagga Wagga Caravan Park Flood Impact Assessment
- Marrickville Valley Flood Study
- Jugiong Floodplain Risk Management Study and Plan
- Oura to Braehour Flood Mapping, WWCC

- Holbrook Road Development Impact Assessment – Wagga
- ANU Flood Study – ACT
- Flower Power Flood Impact Study and Floodplain Management Advice
- Medowie Drainage Study
- Upper South Creek Flood Study
- Wagga Wagga Major Overland Flow Study
- Box Hill Impact Assessment, LPMA – Sydney
- L&E Court - Timbumburi Creek Flood Study
- Boral Moorebank Impact Assessment and Floodplain Management Advice
- Murray Area 2D Modelling Review
- Hay Overland Flow Study
- Cotter MIKE She Post Bushfire Yield Review
- Young Street Residential Development – Surface Water Study
- Wagga Wagga 1D to 2D Model Conversion Project
- Griffith Airport Overland Flow Study
- Sandy Beach Development Proposal Environmental Assessment – Review of Findings

DHI Malaysia SDN. BHD, KL (Water Resources Manager)

Flooding and Floodplain Management

- Thurgoona Dam Break Study
- Tanoui NZ MIKE Flood Modelling
- Chowilla Velocity Impact Analysis
- Chowilla Water Use Analysis
- Wyong Economic Zone Hydrologic and Hydraulic Study
- Haslams Ck Tooheys Site MIKE Flood Investigation
- Thurgoona and Airport Flood Study
- Bungambrawatha Dam Break Study
- MIKE Flood Model Review – Greater Wellington Regional Council
- Bankstown Airport MIKE Flood Impact Study
- Chowilla Wetlands 2D Modelling Project
- MIKE Flood Development – Denmark
- Phulbari Open Cut Coal Mines Levee Design – Bangladesh
- East Lavington Drainage Study
- Benalla Model Conversion – MIKE21/MIKE11
- ACT Yield Modelling – MIKESHE/MIKE11
- Poulton Park 2D Drainage Study
- Huon valley Dam Break
- Iberia Street 2D Drainage Study
- Elanora 2D Drainage Study
- SMEC Laos 2D/1D Flood Diversion Project
- Bulimba Creek 2D Preliminary Flood Study
- Buttonderry Creek Development Impact Study
- Hume Dam Catchment Hydrology
- Tenterfield Flood Study
- Orange Flood Study
- RTA Tamworth Road Works
- Brisbane City Council Sewer Study
- Townsville Flood Study

Training Carried Out

- Software Support
- MIKE Product Training – Gui and Partners Sdn Bhd Training
- Papakura Council SHE/MIKE STORM Training
- MIKE Flood Advanced Training – Auckland NZ
- MIKE21 Training – Auckland NZ
- Greater Wellington Regional Council – MIKE21/Mike11 Training

- University of Canberra CRC for Freshwater Ecology – MIKE21/MIKE11 Training
- HydroTasmania MIKE21/MIKE11
- MIKE FLOOD (2D/1D) Training Course

ERM Australia PTY LTD (Senior Engineer)

- Canungra Army Base Re-development Water Strategy Study
- Parramatta Rail Link Soil and Water Sub-plans
- Hoxton Park Flood Impact Assessment
- Rolleston Coal Mine Environmental Impact Assessment
- Rhodes Peninsula Soil Rehabilitation Project EIS
- AUSTEEL Steel Mill and Harbour Facilities EIS

WBM Oceanics Australia (Water Resources Engineer)

- Hexham Swamp Tide Gate Re-Opening Impact Analysis (inclusive of TUFLOW beta testing)
- East Hills Flood Mitigation Work Analysis
- Singleton Stormwater Management Plan and Infrastructure Design Report
- Cudgera Creek, Yelgun NSW
- Riverlink Canal Estate Development Impact Study
- Steel St, Newcastle NSW
- Cottage Creek Flood Study
- Ulmarra Floodplain Management Study, Ulmarra NSW
- Newcastle Flood Data Collection Study

Ecowise Envirnmental LTD (Water Resources Engineer)

- Flood Inundation Mapping, Benalla VIC
- ACT Flood Plan
- Flood Forecasting Operations
- Flood Study for the Ginninderra Catchment, ACT

Water Resource Related Civil Works

- Installation of Discharge Monitoring Sites, Dampier WA
- Design of Sedimentation Ponds and Pipe Network, Dampier WA

Water Yield Analysis

- Proposed Lake Jerrambombera Aquatic Facility
- Cotter Dam – SHE Modelling Assessment
- Gold Creek Golf Club – Water Balance Assessment
- Department of Social Services – Basin Leak Assessment
- Preliminary Water Balance Investigation, Tuggeranong
- Water Supply Study for ACTEW

Water Quality Modelling

- Proposed Lake Jerrambombera Aquatic Facility
- GIS Land Capability Mapping and CMSS Modelling

Dam Break Modelling

- Kenyir Dam Break Assessment
- Thurgoona Dam Break Study
- Bungambrawatha Dam Break Study
- Huon Valley Dam Break Modelling
- Hume Dam Hydrology and Failures Scenarios

PUBLICATIONS

- Gray, S.D, Ball, J.E. and M.K. Babister (2011). The Direct Rainfall Method – A Critical Discussion of Current Practice. Proceedings 51st Floodplain Management Association Floodplain Managers Conference Tamworth , February 2011

- Gray, S.D and Ball, J.E. (2010). Coupled One and Two Dimensional Modelling in Urban Catchments – Reducing Uncertainty in Flood Estimation. Proceedings 32nd Hydrology and Water Resources Symposium, December 2009

- Beavis, S. G., A. J. Jakeman, L. Zhang and S. D. Gray (1997). Erosional History of Selected Upland Subcatchments in the Liverpool Plains, New South Wales. Proceedings International Congress on Modelling and Simulation, MODSIM97, University of Tasmania, 8-11 December 1997. A. D. McDonald. (Eds). Vol. 1 pp. 277

Tomas Steele
Senior Engineer

Date of Birth:
24/04/1991

Profession:
Civil Engineer

Qualifications:
Graduate Certificate in Mathematics, University of Technology, Sydney, 2021

Bachelor of Engineering Environmental Engineering, University of NSW, Sydney, 2018

PROFILE

Tomas has seven years' experience as a consultant engineer between GRC Hydro and Catchment Simulation Solutions. He specializes in working in the field of hydrology and hydraulics assessment with proficiency in the use of software such as RAFTS-XP, WBNM, TUFLOW, SOURCE and several GIS packages. He graduated with a Bachelor of Environmental Engineering from University of New South Wales and has pursued further studies in mathematics focussing on computer modelling and numerical methods at the University of Technology Sydney. Tomas has been involved as the project manager or hydraulic engineer in over 50 different projects during his time at GRC Hydro all involving hydrologic or hydraulic modelling.

PROFESSIONAL EXPERIENCE

GRC Hydro – November 2021 and ongoing

- *Cooks River Overland Flow Study – Review and Update – Stage 1*
  Tomas was the lead hydraulic engineer and project manager for the Cooks River Stage 1 flood study updates GRC Hydro conducted for Canterbury-Bankstown Council from January 2024 until September 2025. In his role he led a team in the delivery of flood studies for three catchment areas within the LGA. This included the day-to-day management of the project, development of the hydraulic flood models, reporting, and presenting the workshop days with Council. A chief outcome was to define the methodologies for the development of the hydraulic flood models to be used across the LGA during his work in the first of the Stage 1 catchments at Punchbowl catchment.

- *University of Sydney's A01 Ross Street Teaching & Learning Hub*
  Tomas was the project manager and lead modelling engineer for the proposed A01 T&L Hub building as part of the University of Sydney's Campus Improvement Program. This was one of the first projects conducted by GRC Hydro using the newly introduced guidelines in the Flood Risk Management Toolkit released by the Department of Planning and Environment in June 2023. Tomas successfully delivered the project in July 2025 with his role involving the hydrologic and hydraulic modelling, the reporting, and project management.

- *A'Becketts Creek Flood Study and Floodplain Risk Management Study*
  Tomas has built and developed hydrologic and hydraulic models for the joint flood study and floodplain risk management study being conducted for the City of Parramatta Council. Chief project aims were to align the new study with the Parramatta River Flood Study along with assessing the complicated effects of joint flood events between A'Becketts Creek, Parramatta River, Duck River and Duck Creek.

- *Sydney Biomedical Accelerator Project*
  The Sydney Biomedical Accelerator is a $438m co-funded partnership between the NSW Government, Sydney Local Health District and the University of Sydney to build a state-of-the-art biomedical research complex. Tomas managed the flooding component of the project, including the reporting, hydraulic modelling and assessment, and representing GRC Hydro as the flooding specialist during the coordination between various stakeholders and project elements.

- *Review of the Wollongong City Floodplain Risk Management Study and Plan*
  Tomas undertook flood modelling and reporting for the review conducted by GRC Hydro for Illawarra City Council. The objective was to update the previous modelling with the new Australian Rainfall and Runoff (2019) guidelines and to include recent flooding information for 2021 and 2022. Tomas undertook flood modelling, reporting and rainfall analysis for the project.

- *Blueys Beach Development - Flood Study and Assessment*
  The sub-division and proposed development at Blueys Beach required a flood study and assessment to remove all impacts to existing downstream development. Tomas managed a successful design through the building of a hydrologic DRAINS model and hydraulic TUFLOW model, designing the proposed stormwater network, designing mitigation options including dam assessments and he also conducted the reporting and mapping elements of the project.

Catchment Simulation Solutions – Jan 2019 to Apr 2021

- *Blacktown Local Overland Flow Path Study*
  Seven different catchments and TUFLOW models were updated by Tomas for Blacktown City Council. Tomas managed the successful coordination of over 600+ TUFLOW model runs required to represent the catchments flood behaviour under the ARR2019 guidelines, which took over a month to complete.