Engineering and Technology Precinct (ETP) – Stage 1
Construction Environmental Management Plan

Document and revision history

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Revisions

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1	21 November 2016	DRAFT: ECI Phase submission	Peter Zmuda	Peter Gurd
2	28 February 2017	DRAFT: ECI Phase resubmission	Peter Zmuda	Peter Gurd
3	11 January 2017	For Contract	Philip Barkman	James Last
4	19 April 2017	J03 Demolition Works REF Submission	Lachlan Scotcher	James Last
5	28 May 2018	J03 Demolition Works – Updated Waste Management	Keith Willis	Joe Thompson
6	21 September 2018	ETP Construction Phase – Updated Waste Management	Keith Willis	Joe Thompson
7	18 February 2019	ETP Construction Phase – Updated and reviewed for CC1 Submission and to align with LOR's updated HSEMS	Jannaya Ashelford	Joe Thompson
8	28 February 2019	ETP Construction Phase – Updated and reviewed against Development Consent Condition	Steven Zakir	Joe Thompson

Management reviews

Review date	Details	Reviewed by

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Terms and definitions

The following terms, abbreviations and definitions are used in this plan.

Abbreviation	Meaning
CAR	Corrective Action Request
CoR	Chain of Responsibility
CRAW	Construction Risk Assessment Workshop
DECC	Department of Environmental Climate Change
DPE	Department of Planning and Environment
EIS	Environmental Impact Statement
ETP	Engineering and Technology Precinct
CEMP	Construction Environmental Management Plan
ERAP	Environmental Risk Action Plans
EPA	Environment Protection Authority
ESC	Erosion and Sediment Control
HAZID	Hazard Identification
Impact	Laing O'Rourke's online incident investigation reporting tool
JSEA	Job Safety and Environmental Analysis
OEH	Office of Environment and Heritage
PER	Project Environmental Representative
REF	Review of Environmental Factors
SDS	Safety Data Sheet
SWMS	Safe Work Method Statement
the University	The University of Sydney
WIRES	Wildlife Information Rescues and Education Service
WMP	Waste Management Plan

Table 1: Terms and definitions

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1. Introduction

This Construction Environmental Management Plan (CEMP) forms part of the suite of project management plans developed for the Engineering and Technology Precinct (ETP) – Stage 1 project. It outlines the key management systems, procedures and controls that Laing O'Rourke will use to:

- Achieve all project objectives
- Deliver the University of Sydney (the University) value for money
- Give certainty of delivering the project on schedule
- Provide innovative solutions that align with the overall project objectives
- Achieve exceptional and demonstrable outcomes in safety, whole of life, environment, sustainability and quality.

1.1 Project objectives

The University's objectives for the project are to deliver:

- An improved reputation as an innovative and modern engineering faculty
- Fit for purpose research facilities
- Increased research productivity and quality
- An enhanced student learning experience and quality of learning resources, such as learning spaces, computer laboratories, and teaching laboratories
- Iconic engineering innovations in design, construction and operation
- Improved integration between research and teaching
- Lower (rate of increase) of operating and maintenance costs
- Improved safety and security processes.

1.2 Purpose

This CEMP and its associated management plans have been prepared to comply with the contract requirements for environmental management, relevant environmental legislation and other environmental obligations associated with the project. This CEMP has been prepared to fulfil the Conditions of Consent issued by the Department of Planning and Environment (DPE) for the Project, specifically Conditions B16 and B17. The CEMP is a dynamic document and will be updated throughout delivery of the project, as required.

This CEMP is also intended to ensure that positive and negative effects on the environment are assessed as they relate to organisational stakeholders including those described in the Laing O'Rourke Environmental Management System.

This CEMP has been developed to:

– ensure that the needs and expectations of the client are met;
– ensure that the project meets contractual, legal and other environmental requirements;
– meet the requirements of ISO 14001 including the need for continual improvement;
– provide a link between the corporate and project management system; and

- provide all Laing O'Rourke personnel with systems, procedures and documentation necessary to undertake the construction of this project with environmental requirements.

2. Scope

This plan applies to the construction phase of the Engineering and Technology Precinct (ETP) project, in particular, Stage 1 (see below in this section).

This Laing O'Rourke Australia Construction Pty Limited (Laing O'Rourke) CEMP applies to the full scope of project activities described in the contract and relevant conditions of approval over which we have the ability to control or influence with due consideration to the life cycle perspective and stakeholder relationships.

The plan has been developed to address the Client's specific requirements and Laing O'Rourke Environmental Management System.

The University of Sydney is transforming its ETP into an environment that fosters scholarship at the highest standard possible and delivers a positive experience to all of its staff, students and stakeholders. Therefore the ETP Stage 1 works involve delivering high-quality infrastructure that accommodates maximum research opportunities while being flexible enough to respond to new education pathways in the future.

A new Micro Engineering Building (Building J03) will incorporate 11,000m² of new space and 6,000m² of refurbished facilities. The building will include research and teaching laboratories, office areas and teaching spaces. The project also involves the associated demolition works and infrastructure upgrades, as well as staging and decanting works in adjacent buildings.

2.1 Life Cycle Perspective

- The life cycle perspective relates to the environmental aspects associated with each stage of Laing O'Rourke's project delivery. Project delivery can be divided into the following five broad categories:Work Winning (estimating & cost planning, business development, bids & proposals)
- Commercial (head & sub-contract formation)
- Engineering (feasibility studies, concept design, front-end engineering design, detailed design)
- Procurement (supply and delivery of goods and services)
- Delivery (construction, commissioning)

When applying a life cycle perspective Laing O'Rourke considers the:

- Stage in the life cycle of the product or service
- Degree of control the business has over the life cycle stages
- Degree of influence it has over the life cycle
- Life of the product
- Ability to influence on the supply chain

At each stage of project delivery Laing O'Rourke determines aspects and opportunities to influence lifecycle outcomes.

3. Distribution policy

The master controlled CEMP document will be held within the project's document management system where it can be accessed by personnel as necessary.

All paper copies of this CEMP will be considered as uncontrolled unless they have been allocated a copy number in a colour other than black.

Where required, controlled copies of this CEMP will be published as a hard copy, allocated a copy number (colour other than black), and distributed according to **Error! Reference source not found.**.

Copy No.	Issued to
01	Project Manager, WHSEQ Manager
02	Client

Table 2: Distribution policy

The personnel to whom these copies have been issued will be sent amendments as they occur, and it is their responsibility to discard superseded pages and insert new pages.

3.1 Issue, revision and re-issue

The initial issue of this plan has been reviewed by the HSE Manager or Environmental Leader – Australia Hub to ensure it meets the requirements of the current Environmental Management System and policy, contract, specifications and standards. The plan is approved for use on the project by the Project Manager. Evidence of initial review and approval is by signatures on the cover sheet.

Revisions of this CEMP may be required throughout the duration of the project to reflect changing circumstances or identified deficiencies. Revisions may result from:

- Management review
- Audit (either internal or by external parties)
- Client complaints or non-conformance reports
- Changes to Laing O'Rourke's standard system.

Revisions will be reviewed and approved by the Project Manager before issue. Updates to this plan are numbered consecutively and issued to holders of controlled copies.

4. Environmental Management System

Laing O'Rourke Australia Construction Pty Limited operates an environmental system compliant with AS/NZS ISO 14001. This system is integrated with the health and safety management system and is known as the Laing O'Rourke's HSEMS. The system can be access through this weblink HSEMS – Environmental Requirements. The system includes 3 core components, System Requirements, Environmental Primary Standards and Severe Environmental Risk protocols.

The Company is currently certified (No. 4749) with SciQual.

SCI QUAL INTERNATIONAL

Environmental Management Systems

Certificate of Registration

Laing O'Rourke Australia Construction Pty Limited

Level 3, M & A Building, 825 Ann Street, Fortitude Valley QLD 4006
Level 2 – 5 100 Arthur Street, North Sydney NSW 2060
24 Sadgroves Crescent, Winnellie NT 0820
Level 20 HWT Tower, 40 City Road, Southgate VIC 3006
Level 1/3 Craig Street, Burswood WA 6100

In recognition of the implementation of a management system conforming to

ISO 14001:2015

The Scope of Certification covers the following activities:

Processes associated with the design, construction and project management of multi-discipline engineering construction and building projects including rail; commercial, residential and special purpose buildings; roads and bridges; gas; water and associated infrastructure and civil works.

Certificate No.	Date of Issue	Certification Date	Expiry Date
4749	30 October 2017	6 September 1991	30 October 2020

GENERAL MANAGER

Signed for and on behalf of Sci Qual International Pty Ltd

AVCB

JAS-ANZ

Suite 19, Building D, "The Lakes Centre", 8-22 King Street, Caboolture QLD 4510

The certificate of Registration, which remains the property of Sci Qual International Pty Ltd, is granted subject to the Regulations governing the certification scheme operated by Sci Qual International Pty Ltd and in respect of goods or services described in the schedule hereto, bearing the same number as this certificate.

Figure 1 Laing O'Rourke EMS Certificate of Registration

All works carried out on the site will be in accordance with:

- Client requirements as detailed in the Contract
- Laing O'Rourke Australia Construction Pty Limited Environmental Management System as detailed on iGATE
- ISO 14001 Environmental Management System
- Laing O'Rourke's compliance obligations including mandatory and voluntary requirements.

This CEMP references relevant parts of Laing O'Rourke's HSEMS and incorporates the additional elements necessary to satisfy the University's environmental system requirements. An outline of Laing O'Rourke's Environmental Management System is provided on Figure 1.

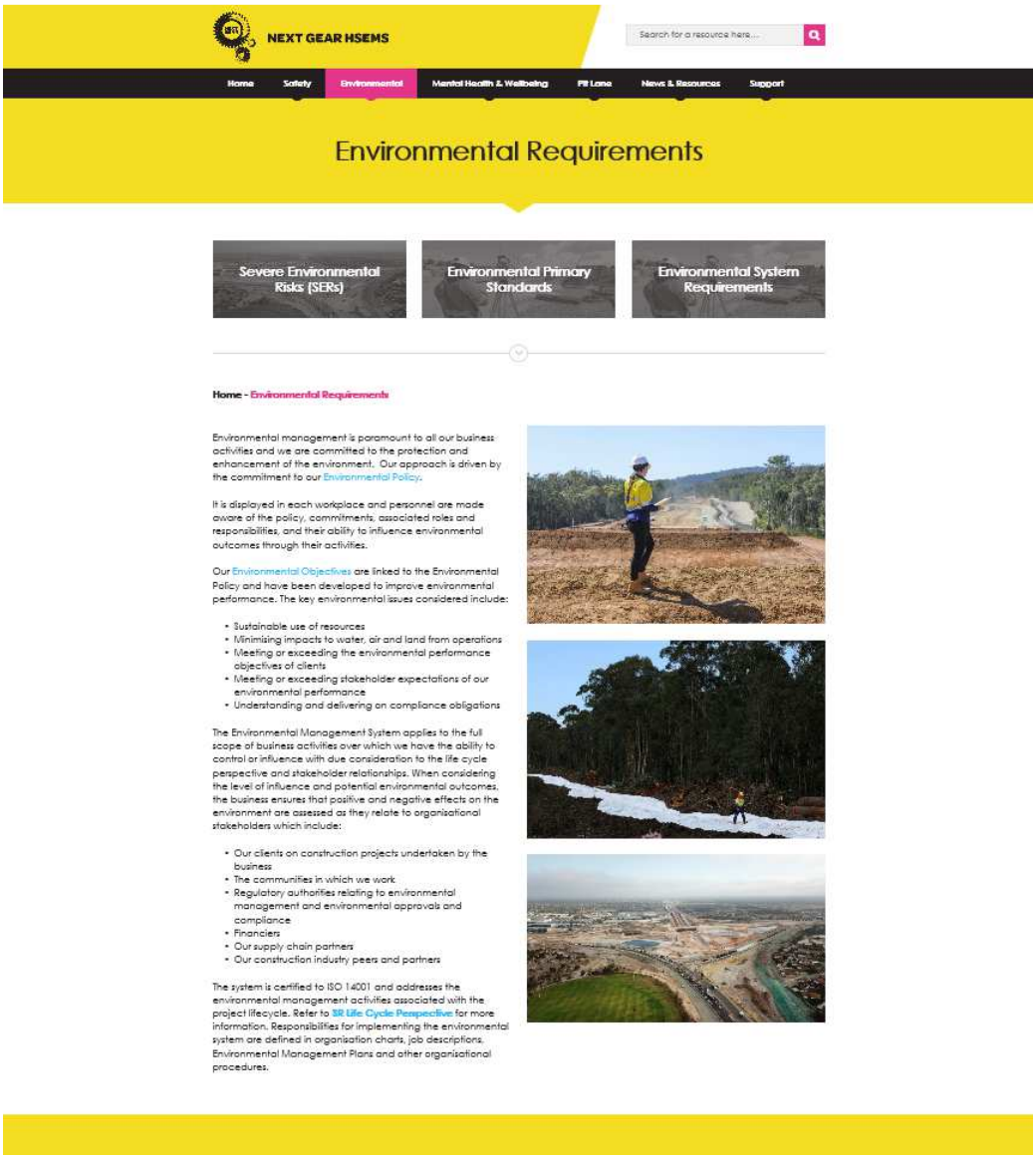


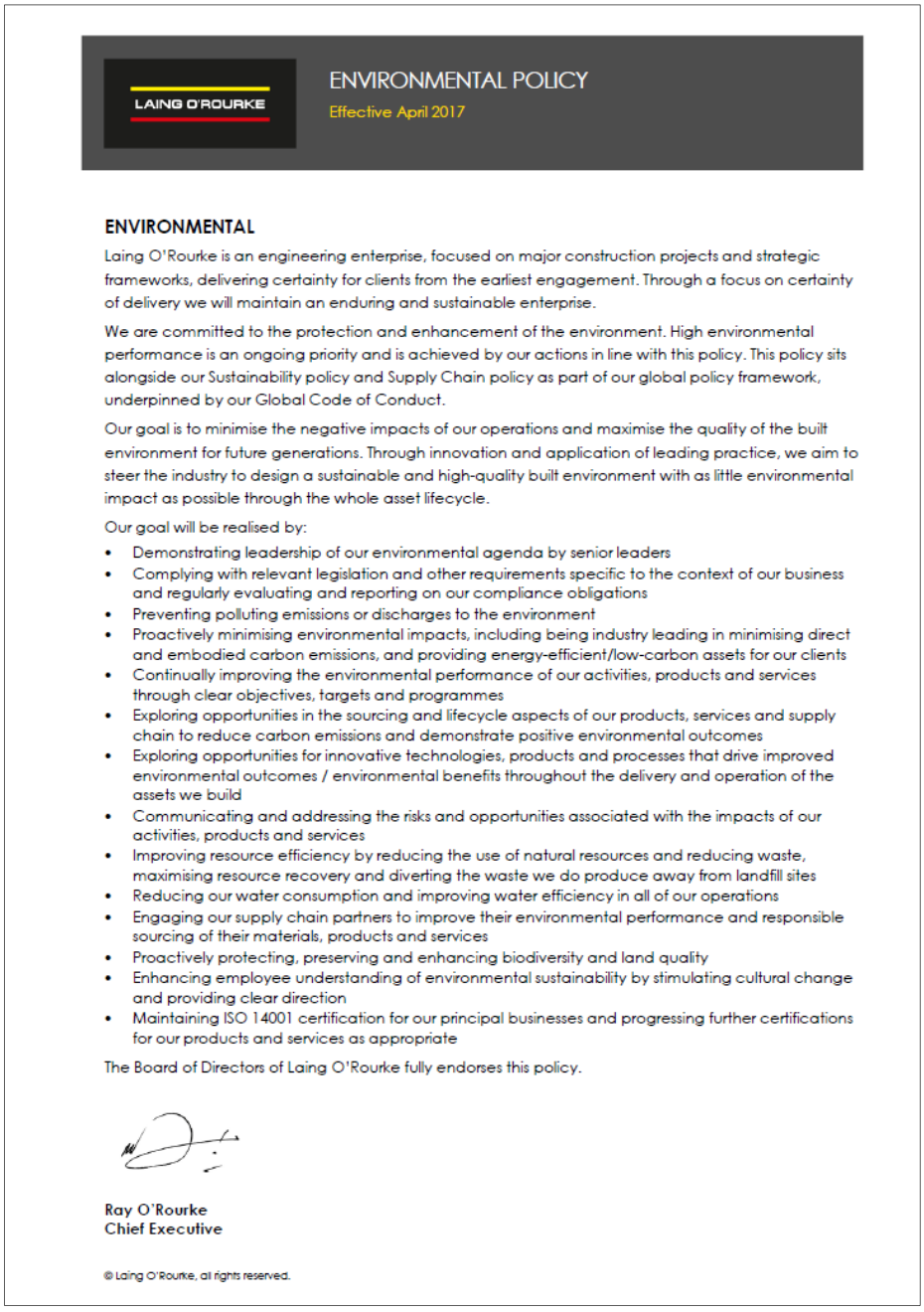
Figure 2: Laing O'Rourke's HSEMS

5. Policy

Laing O'Rourke maintains an Environmental Policy (shown in **Error! Reference source not found.**) which will be:

- Displayed at prominent locations on the project site
- Communicated to site personnel during induction and training
- Made accessible to the University and concerned/interested members of the public.

All personnel associated with the project including subcontractors must comply with the spirit and intent of the policy.



LAING O'ROURKE

ENVIRONMENTAL POLICY

Effective April 2017

ENVIRONMENTAL

Laing O'Rourke is an engineering enterprise, focused on major construction projects and strategic frameworks, delivering certainty for clients from the earliest engagement. Through a focus on certainty of delivery we will maintain an enduring and sustainable enterprise.

We are committed to the protection and enhancement of the environment. High environmental performance is an ongoing priority and is achieved by our actions in line with this policy. This policy sits alongside our Sustainability policy and Supply Chain policy as part of our global policy framework, underpinned by our Global Code of Conduct.

Our goal is to minimise the negative impacts of our operations and maximise the quality of the built environment for future generations. Through innovation and application of leading practice, we aim to steer the industry to design a sustainable and high-quality built environment with as little environmental impact as possible through the whole asset lifecycle.

Our goal will be realised by:

- Demonstrating leadership of our environmental agenda by senior leaders
- Complying with relevant legislation and other requirements specific to the context of our business and regularly evaluating and reporting on our compliance obligations
- Preventing polluting emissions or discharges to the environment
- Proactively minimising environmental impacts, including being industry leading in minimising direct and embodied carbon emissions, and providing energy-efficient/low-carbon assets for our clients
- Continually improving the environmental performance of our activities, products and services through clear objectives, targets and programmes
- Exploring opportunities in the sourcing and lifecycle aspects of our products, services and supply chain to reduce carbon emissions and demonstrate positive environmental outcomes
- Exploring opportunities for innovative technologies, products and processes that drive improved environmental outcomes / environmental benefits throughout the delivery and operation of the assets we build
- Communicating and addressing the risks and opportunities associated with the impacts of our activities, products and services
- Improving resource efficiency by reducing the use of natural resources and reducing waste, maximising resource recovery and diverting the waste we do produce away from landfill sites
- Reducing our water consumption and improving water efficiency in all of our operations
- Engaging our supply chain partners to improve their environmental performance and responsible sourcing of their materials, products and services
- Proactively protecting, preserving and enhancing biodiversity and land quality
- Enhancing employee understanding of environmental sustainability by stimulating cultural change and providing clear direction
- Maintaining ISO 14001 certification for our principal businesses and progressing further certifications for our products and services as appropriate

The Board of Directors of Laing O'Rourke fully endorses this policy.

Ray O'Rourke
Chief Executive

Figure 3: Laing O'Rourke's Environmental Policy

6. Objectives and Targets

High-level objectives and targets for this project are listed in Table 3.

Objective	Target	Reporting/monitoring
Effective site environmental controls	• Set-up prior to starting work in the affected area • Maintain effective controls	Inspection checklists
Environmental performance	No breaches or environmental infringement notices No Class 1 or Class 2 incidents All incidents EIFR of 1 by 2020	Monthly reports
Environmental lead indicators	50% of project environmental inspections accompanied by Foreman or engineering personnel Environmental Alerts (as issued across the LOR business) 100% of weekly environmental inspections signed off by the Project Leader	Monthly reports
Effective implementation of the environmental system	• No Level 1 Corrective Action Request (CAR) • <3 Level 2 risks each report • <10 Level 3 risks each report • Closure of CARs and HSE observations within 24 hours • Timely release of environmental hold points	Audit report/Gearbox app
Community issues carefully managed	• Complainant contacted within two hours • Matter closed out within one week	Complaints form and impact reporting

Table 3: Objectives and targets

Operational objectives and targets relating to significant environmental issues are contained within the operational control procedures provided in Appendix 4.

7. Responsibilities and Authorities

The key environmental management roles and responsibilities are outlined in Table 4.

Role	Responsibility
HSE General Manager	• Ensure that independent audits of the system are conducted. • Review audit outcomes and take action as necessary. • Review environmental performance though the monthly reporting cycle. • Authorise resourcing on environmental issues. • Resolve major issues which cannot be resolved by the Project Director.
Project Leader	• Ensure that project responsibilities and authorities are defined and communicated • Provide adequate resources to meet environmental objectives • Approve the CEMP and ensure it is effectively implemented and maintained • Appoint/nominate and provide support for the PER • Report to senior management on the performance of the system and environmental breaches • Take action to resolve environmental non-conformances and incidents • Ensure suppliers and subcontractors comply with requirements • Report environmental incidents to the University and local authorities as required.

Role	Responsibility
Construction Manager	• Supervise all site construction activities and personnel and ensure they meet environmental and other requirements • Organise and manage site plant, labour and temporary materials • Ensure site environmental controls are properly maintained and support the PER • Report all environmental incidents • Take action to resolve non-conformances and incidents.
Procurement Personnel	• Carefully select suppliers and subcontractors based on their ability to meet stated requirements • Ensure that purchase orders and agreements include environmental requirements as necessary • Where practical, select environmentally friendly materials.
Project Environmental Representative (PER)	• Ensure the CEMP is effectively established, implemented and maintained at the project level • Ensure compliance with all relevant statutes, regulations, rules, procedures, standards and policies • Liaise with the University's Environmental Representative and Superintendent on environmental issues including written notification of non-conformances (incidents, emergencies or deviations from the CEMP) • Ensure that all personnel on-site receive appropriate environmental induction and training and are aware of their environmental responsibilities under relevant legislation and the contract • Report to the Project Manager on the performance of the system and improvement opportunities • Provide support to the project team to enable them to meet their environmental commitments • Ensure that environmental records and files are collected and maintained • Regular compliance checking as required by this CEMP • Ensure non-conformances and environmental incidents are recorded and written reports provided to the University's representative and Environmental Manager within 24 hours. Liaise with required stakeholders to confirm the nature of the corrective action required and comply with the timeframe within which corrective actions must occur • Ensure that environmental controls, materials and equipment are maintained • Environmental support to the project team • Coordinate internal audits.
Environmental Leader – Australia Hub	• Provide environmental support to the project team • Coordinate internal audits
Subcontractors	• Comply with all legal and contractual requirements • Comply with site environmental requirements • Comply with management/foreman directions • Participate in induction and training as directed • Report all incidents.
All personnel	• Comply with the relevant Acts, regulations and standards • Comply with Laing O'Rourke's environmental policy and procedures • Promptly report to management any non-conformances, environmental incidents and system breaches • Undergo induction and training in environmental awareness as directed by management • Report all incidents • Act in an environmentally-responsible manner.

Table 4: Roles and responsibilities

Authorities and responsibilities for all positions are defined and communicated in RACI tables and project documentation. Reporting lines and key responsibilities are shown in the organisational chart in Appendix 11.

8. Legal and Compliance Obligations

Mandatory compliance obligations and requirements relevant to the project are outlined below. Environmental System Requirement - Compliance Obligations outlines the process that the organisation uses to determine legal and other mandatory requirements.

All personnel associated with the project will comply with all relevant requirements including:

- Laws (Acts, regulations and policies)
- Environment protection licence and permits
- Development consents
- Relevant industry standards and codes.
- Contract requirements
- Other compliance obligations outline in this CEMP, including any voluntary compliance obligations.

An assessment of the relevant legislative instruments has been conducted and recorded in Appendix 2.

Licences, permits and approvals are outlined in Appendix 8 in the Project Permits and Licences Register. The register will be developed at or before the start of the project to outline the full scope of the requirements for Government authority approvals.

The register will be reviewed in conjunction with the six-monthly management review outlined in Section 19 or where there has been a change to relevant legislation.

The register will be reviewed and updated as the project progresses and in compliance with the relevant conditions reported. Compliance conditions for items listed on the Project Permits and Licenses Register are incorporated into this CEMP. Specific details and controls are included in the associated sub-plans and Environmental Risk Action Plans (ERAPs) in Appendix 4.

A copy of relevant permits, licences and any development approvals relevant to Laing O'Rourke's activities will be kept on-site.

8.1 Project Planning Approval and Development Consent

This project has been assessed and approved under Section 89E of the *Environmental Planning and Assessment Act 1979*. The approval process includes specific planning conditions and commitments that must be addressed in this CEMP and delivered during the project.

A Conditions of Approval Compliance Tracking Matrix will be established at the start to ensure approval conditions are captured, addressed and closed out. The matrix includes all conditions relevant to Laing O'Rourke's scope of work and will be updated as the works progress and reviewed quarterly to verify compliance with each condition.

Specific conditions of approval relevant to construction activities are included in the project's operational controls in the aspect-specific ERAPs. Non-compliances with the conditions will be documented and addressed through Impact's assurance application. Impact is Laing O'Rourke's online incident investigation reporting tool.

8.2 Environmental Authority/Licence

No scheduled planning activities as specified in the *Protection of the Environment Operations Act 1997* are required for the ETP Stage 1 project. Environmental requirements are addressed within this CEMP through the operational controls and specifically included in ERAPs. These will be addressed and implemented by Laing O'Rourke as the project progresses.

A copy of relevant permits, licences and development consents will be kept on-site as controlled documents in the project's Electronic Document Management System.

9. Environmental Risk Assessment and Control

Laing O'Rourke has established a business wide Environmental Aspects and Impacts Register in accordance with System Requirement - Environmental Aspects and Impacts. The register outlines the environmental aspects that need to be assessed and effectively managed to meet the business's environmental obligations with respect to the context of the organisation and its projects.

System Requirement – Environmental Risk and Opportunity outlines the process by which environmental aspects and impacts are assessed at a project level. Project wide environmental risks and opportunities are assessed in the Project's Risk and Opportunity Register (C-T-3-0770). Site specific environmental aspects and impacts have been identified and assessed in Appendix 3 Risk and Opportunity Assessment of the management plan.

This assessment must consider the following as a minimum as outlined in System Requirement – Risk and Opportunity:

- Obligations and requirements associated with the environmental approval conditions
- Emissions to air
- Releases to water
- Releases to land
- Waste management
- Contamination
- Emission of noise including vibration
- Impact on the natural environment including wildlife, biodiversity and cultural heritage
- Resource efficiency and the use of materials
- Consumption of energy

The assessment for significant environmental aspects is based on risk and opportunity assessment matrix established in C-P-3-0770 and C-T-3-0770 Risk and Opportunity Assessment.

Project risk and opportunity assessments are to be reviewed and updated as the project progresses and as a minimum as part of the Environmental Management Plan Management Review. The Project's Risk and Opportunity Register (C-T-3-0770) is to be maintained on a monthly basis or as required and must include project wide environmental risks and opportunities.

By way of definition, the following applies to this environmental risk and opportunity assessment process and the associated matrix.

Green Risk – environmental impacts associated with the action are generally constrained to the project site and in accordance with the environmental assessment documentation. There is a low probability of occurrence.

Amber Risk – environmental impacts associated with the actions have the potential to result in offsite impacts, where the environment recovers over the medium term. There is reasonable probability that the impact would
occur with the absence of suitable controls.

Red Risk – environmental impacts that have significant offsite impacts. The environment recovers over the long term, there is impacts to the local community. There is a high probability that the impact would occur. Environmental impacts occur offsite are considered major. Impacts have resulted in the destruction of protected species, sensitive habits or other impacts not envisaged as part of the environmental assessment process. The environment is not able to recover without substantial intervention.

Significant environmental issues will be controlled to a degree which is commensurate with the level of risk and the level of influence which the Company has over these issues.

An Environmental Risk Action Plan (ERAP) or environmental issue specific Sub-Plans must be developed for aspects or impacts representing an amber or red risk after the initial risk assessment. The ERAP or Sub-Plan must reference and address the strategic mitigation and control measures determined following the initial risk assessment and as outlined in the Laing O'Rourke Environmental Primary Standards. In addition, an ERAP is required to be developed and implemented where an environmental obligation, environmental mitigation requirement or legal requirement dictates issues specific controls are required even though there may be a low risk to the environment. Activities, aspects and potential impacts considered to represent an extreme risk following the application of the strategic mitigation and control measures must be redesigned or re-sequenced or have the approval of the relevant HSE Leader or delegate.

If additional risks are encountered on site during the delivery phase, these will be addressed either by updating this EMP or by using separate Environmental Risk Action Plans (E-T-8-1200).

An overview of this process is contained in Appendix 10.

9.1 Severe Environmental Risk Controls

The Severe Environmental Risks (SERs) Controls Standard describes the various minimum mandatory requirements which must be in place, demonstrated and working effectively with the intent of managing severe environmental harm risks on the project. Severe environmental risks relevant to the project are outlined in Appendix 3.

Severe Environmental Risks relate to environmental harm caused by site operations which can result in long term damage to the environment. The focus of these risks is on high consequence environmental harm risks rather than regulatory exposure.

The SERs Control Standard provides clear guidance on the required controls and expectations relating to preventing high consequence environmental impact. Additional SER controls have been included as necessary to address site specific conditions.

The applicable SERs on this project as determined by the risk assessment are as follows.

Standard SERs	Project specific SERs
Biodiversity	Unauthorised removal of vegetation outside of work area, potential to remove threatened species. Removal of vegetation within site, potential for the wrong vegetation to be removed, uncontrolled run-off, build-up of sediment in surrounding vegetated areas and waterways, invasion of weeds, injury to native fauna. Disturbance of pests and rodents onsite, potential to relocate into residential areas, increased health risks associated with increased presence of rodents.

Heritage (Aboriginal and European)	Unexpected heritage items found, delayed work, additional studies, approvals required, damage to heritage item.
Water Quality and Wastewater Storage	Sediment laden runoff from works leaving site, potential for degradation of local watercourses, increased turbidity in local waterways with impact to aquatic life. Non-compliant water discharged from site, may lead to polluted water entering stormwater systems. Washout of concrete in undesignated areas, potential for sediment laden/alkaline water to pollute stormwater systems/waterways. Incorrect management of contaminated or untreated materials, could result in non-compliant material entering surrounding waterways with loss of ecosystem health. Storage of hazardous substances, leaking plant equipment and spillage from refuelling, could lead to pollution of stormwater systems/waterways. Fuel contaminated runoff from works leaves site, potential for contaminated runoff to enter stormwater systems/waterways. Disturbance of soils potentially containing acid sulphates, possibly leading to mobilisation of metals within runoff to levels toxic to natural systems, release of acidic runoff.
Erosion and Sedimentation	Removal of vegetation and large areas of exposed, non-vegetated ground associated with construction sites could lead to enhanced erosion of soils and build-up of sediments in run-off. Sediment tracked onto surrounding roadways by construction vehicles, affecting surrounding environment and possibly resulting in complaints from neighbours. Heavy rainfall events resulting in enhanced erosion and sediment-laden run-off demon the site entering stormwater drains, with negative effects on surrounding waterways, water quality and aquatic life.
Temporary Waterway Crossings	Not relevant to site.
Piling	Incorrect storage of lime, leading to mobilisation of lime into waterways or dust generation, loss of ecosystem health and decreased air quality. Overfilling of hook lift bins resulting in spill of pile spoil,

	which could lead to contamination of soil and stormwater systems/neighbouring waterways. Incorrect storage and disposal of polymer products used in piling works, substances enter waterways with negative impacts on aquatic health. Inadequate or lack of monitoring/maintenance of acid sulphate treatment areas resulting in acid sulphate material, sediment or acidic runoff being discharged into stormwater systems/waterways.

The required elements for the successful completion of the monthly SER activities are described below.

- The monthly field check should be recorded on the SER Field Report and form part of evidence to meet the monthly SER review. The field check is to be completed by the Package Manager or delegate from the operational team.
- System-based controls are to be reviewed for application and effectiveness on a monthly basis with the bounds of the project's construction environmental management plan. System checks are assessed through the SER Planning and Control Report.
- The monitoring activity frequency will be dependent on occurrence of activities with the potential to cause high-consequence environmental impact on the project and reflect the current construction risk processes and methodologies.
- If all aspects of the performance criteria are working effectively in all areas where the risk applies, then the risk can be deemed to be managed and controlled.
- The SER Field Report and SER Planning and Control Report shall be completed on a monthly basis
- SER outcomes shall be monitored monthly during the Portion/Project Review
- Impact will be used to document the completed monitoring activities.

The Severe Environmental Risks Control Adequacy Assessment Tool is to be used as guidance for the implementation of the standard.

The Severe Environmental Risks Control Adequacy Assessment Work Instruction defines the procedural requirements for completing the monitoring activities.

10. Training, Awareness and Competence

Requirements for training, awareness and competence for environmental aspects and impacts are outlined in System Requirement Onboarding, Training, Induction and VOC and this management plan.

All employees will receive suitable environmental induction and training to so they are aware of their responsibilities and are competent to carry out the work. Environmental requirements will be explained to employees during site inductions and ongoing training via toolbox meetings, briefings and notifications.

All employees including subcontractors will receive induction and training in the following:

- Environmental Policy
- Site environmental objectives and targets
- Understanding individual authorities and responsibilities
- Site environmental rules
- Potential consequences of departure from rules
- Emergency procedure and response (for example, spill clean-up)

- Basic understanding of their legal obligations.

Personnel performing tasks which can cause significant environmental impacts will be competent on the basis of appropriate education, training and experience.

All Laing O'Rourke operational staff on this project will be provided with training in the requirements and implementation of this CEMP. CEMP training for new staff members will be completed within one month of starting on the project. Training in the operation and implementation of Laing O'Rourke's EMS will be provided for all operational staff.

The Project Environmental Representative will establish a schedule of environmental training in conjunction with development of this CEMP.

Training in high-risk aspects will be undertaken as the project progresses. An outline of the proposed training is provided in Table 5. The training will be scheduled to reflect the requirements of the construction programme.

Aspect	Training inclusion	Personnel required	Timing/frequency/means
Emergency spill response	• Use and location of spill kits • Spill control • Emergency response procedures • Presentation and assessment • Spill response drill • Identification of hydraulic hose fatigue	Operational personnel	• Project induction • Project toolbox talks • Internal Laing O'Rourke course run as required for site personnel
Erosion and sediment control	• Standard erosion and sediment controls from the Landcom Blue Book • Implementation of controls on-site • Erosion and Sediment Control Plans	Operational personnel	• Project induction • Project toolbox talks
Heritage awareness	• Stop works and reporting protocols for works around excavations	Operational personnel	• Project induction • Project toolbox talks • Protocol posted on message boards
Contamination awareness	• Contamination status of site • Stop works protocols for unidentified potential contamination (for example, hydrocarbons, asbestos)	Operational personnel	• Project induction • Project toolbox talks • Protocol distributed to workers and posted on message boards
Environmental legal obligations	• *Protection of the Environment Operations Act 1997* and other project requirements • Applicable fines and prosecutions	Operational personnel	• Project induction • Project toolbox talks
Energy and resource usage	• Awareness training of energy and resource efficiency in the workplace including office/compound and site initiatives	Operational personnel	• Project induction • Project toolbox talks
Community/ Stakeholder awareness	• Adjacent community and project involvement • Relevant project stakeholders • Accepted behaviours • Approved hours of work	Operational personnel	• Project induction • Project toolbox talks

Table 5: Training requirements

Environmental content will be included in toolbox talks and all training and toolbox meetings will be recorded. In addition, the project will deliver themed toolbox talks as required. Laing O'Rourke site staff are required to sign the CEMP acknowledgment form in Appendix 12.

11. Communication and reporting

Laing O'Rourke's HSEMS includes specific organisational requirements related to communication and reporting within the System Requirement – Communication and Reporting. With respect to the functioning of the project's environmental system, Company employees, the client and other interested parties will be kept informed as necessary with specific requirements outlined in the section below.

11.1 Internal

Internal communication methods include:

- Digital Contract Reviews
- Management reports
- Site inspection reports
- Audit reports
- Incident reports
- Noticeboards
- Site meetings
- Employee induction, training and toolbox sessions
- Briefings, notifications and alerts.

11.2 External

External communication methods include:

- Site meetings with the University
- All significant incidents notified to the University
- Project reports to the University at progress meetings and in the project report
- Meetings and correspondence with interested parties (for example, local council and Environment Protection Authority (EPA) as necessary)
- Discussions with adjoining land owners and the community who may be affected by the project.

For further information on external communication management and complaints handling protocols, refer to project specific *Community Communication Strategy* submitted under planning condition B9-B12 and endorsed by the Planning Secretary.

12. System Documentation

Laing O'Rourke's integrated Health, Safety and Environmental Management System (HSEMS) is part of a business wide management system which is known as iGATE. The core elements of the system are described in this CEMP with reference to relevant HSEMS System Requirements, Primary Standards and Severe Environmental Risk Protocols.

13. Document Control and Records

Document control requirements associated with the Laing O'Rourke Health, Safety and Environmental Management System shall be implemented in accordance with E-P-8-0136 Document Control – Records and Filing.

Workplaces and Projects shall establish a record management system that allows for the ready access to HSE information. This may include hard copy folders, server-based electronic systems or proprietary document management systems.

Individuals with responsibilities for work packages are responsible for the proper maintenance and upkeep of the workplace / project record management system to ensure:

- Files and records are kept up-to-date
- Records are not lost, damaged or inadvertently destroyed
- Records are maintained in accordance with the contractual, statutory requirements and timeframes
- Kept as objective evidence of compliance with environmental requirements
- Filed in accordance with -P-8-0136 Document Control – Records and Filing.

14. Operational Control

14.1 General

Activities and business processes that have the potential to significantly affect our environmental performance must be identified, planned, documented and controls measures implemented to ensure the Company's policy, objectives and compliance obligations are met.

Within Laing O'Rourke's HSEMS and with respect to the context of the business, operational controls are documented in Environmental Primary Standards. Environmental Primary Standards have been developed from aspects and impacts and compliance obligations. They provide the framework for eliminating or minimising risk of environmental harm as well as creating opportunity for innovation and enhancing environmental benefits.

At a project level, specific operational controls to manage environmental issues are defined in either or all of the following:

- ERAPs contained in Appendix 4
- Sub-plans contained in Appendix 4 or standalone documents referenced below and in Appendix 4
- Safe Work Method Statements (SWMS), EWMS, Job Safety and Environment Analysis (JSEA's), Hazard Identification (HAZID), Construction Risk Assessment Workshop (CRAW), Inspection and Test Plans (ITPs)/ check sheets (as appropriate)
- Work instructions (e.g. refuelling and servicing)

Significant environmental issues as identified in the Risk and Opportunity assessment in Appendix 3, will be controlled Environmental Risk Action Plans and issue specific Sub-plans as required.

Additional controls and criteria identified from the project's compliance obligations (conditions of approval, environmental mitigation measures and contract requirements) will be established.

14.2 Hold Points

The activities outlined in Table 6 are not to proceed without objective review and approval by the nominated authority. These activities below are considered hold points. Proceeding past a specified hold point without authorisation is a system non-conformance.

Item	Process held	Acceptance criteria	Approval authority
CEMP	Construction activities	Site-specific CEMP has been developed, reviewed and approved	Project Manager
Dewatering	Dewatering/pumping water off the site	Verification that the water quality criteria have been met	Construction Manager
Sediment and erosion control measures	Construction activities involving ground disturbance	Sediment and Erosion Control Plan has been developed, reviewed, approved and implemented	Construction Manager
Site clearing/ vegetation removal	Start of site clearing or vegetation removal	Clearing limits have been verified against the project approval, limits have been set out and vegetation to be retained has been delineated and/or protected	Project Manager
Construction methodologies – direct delivery and subcontract works	Construction process representing potential medium or high impact to the environment	Construction methodology, SWMS and JSEA have been reviewed by the WHSEQ Manager and addresses the requirements of the ERAPs	Responsible engineer
Dangerous goods	Transport of dangerous goods	Verification that transport vehicles meet the requirements, and all applicable licences are in place and verified, and landfill can lawfully receive the waste	Project Manager/ HSE General Manager
Dangerous goods	Storage of dangerous goods	Verification that bunded storage is provided and offset distances are maintained for the storage area	Construction Manager
Controlled/hazardous waste	Transport of controlled/ hazardous waste from the site	Verification waste has been classified in accordance with the guidelines, transport licensing in place and landfill can lawfully receive the waste	Project Manager/ HSE General Manager
Spoil transport	Removal of spoil from site	Verification that the spoil has been classified and the disposal location can lawfully receive the waste	Project Manager

Table 6: Operational hold points

14.3 Environmental Control Plan

The project Environmental Control Plan is prepared to assist in planning and delivering the project. It is specific to the site or work area and outlines the location of protection measures, monitoring requirements, conditions of approval and environmentally-sensitive areas. It is the practical application of the proposed control measures.

The Environmental Control Plan will be used in project inductions, work site set up, to review ongoing environmental performance, included as information in tender documents to subcontractors where applicable, and in support of ancillary environmental approvals.

The Environmental Control Plan is to be used in project inductions, work site set-up, reviewing ongoing environmental performance, included as information in tender documents to subcontractors were applicable and in support of ancillary environmental approvals.

The project Environmental Control Plan will include but not be limited to:

- Work site layout and boundary including entry/exit points and internal roads and clearing limits
- Location of adjoining land use and nearest noise sensitive receivers
- Location and type of sediment and erosion control measures including size/capacity of detention basins and wheel wash facilities
- Location of site offices

- Location and quantity of spill containment and clean-up equipment
- Location of work site waste management facilities
- Hours of work applicable to the work site including deliveries and any restrictions on high noise generating activities
- Document control and approval details
- Location of environmentally-sensitive areas (for example, threatened species, critical habitat, contaminated areas, heritage zones)
- Vegetation and trees to be protected
- Location of known heritage (indigenous and non-indigenous) items
- Location of stormwater drainage and watercourses leading to and from the work site
- Specific environmental management requirements from licenses, approvals or permit conditions
- Key environmental risk issues and specific mitigation measures.

The plan is in addition to any Erosion and Sediment Control Plans or other documentation that specify the location of environmental controls on-site.

14.4 Design

Environmental design requirements are to be managed in accordance with System Requirement Environmental Design. Where Laing O'Rourke has the responsibility for the completion of design activities, design risk and compliance obligations are to be included in the project environmental risk assessment and the project's risk and opportunity assessment.

The following environmental issues should be considered during the design of the temporary works:

- Minimising any adverse impacts on the environment including energy efficient operation, incorporation of sustainable or recycled materials
- Improving design efficiency to conserve natural resources
- Addressing the requirements of Laing O'Rourke's sustainability agenda
- Meeting environmental codes, regulations and other requirements.
- Conditions of approval and development consent requirements
- Mitigation measures outlined in the environmental assessments
- Contractual environmental design requirements and Scope of Works and Technical Criteria (SWTC)

These issues should be considered while taking into account the practicalities and economic realities of the project and site.

Design Execution plans are to outline the environmental compliance requirements necessary for the project to meet its environmental obligations. In particular, the Design Execution Plan is to describe the project specific design approach to minimising impact of the works on the surrounding ecology, water, flora, fauna and atmosphere, e.g. appointment of specialist consultants, carbon accounting, design environmental assessments.

Design Execution Plans are to outline the environmental design review process and nominate the environmental resources required to ensure environmental compliance obligations are addressed during the design phase. Environmental compliance obligations are to be reviewed and verified at each design stage.

14.5 Procurement

The supply of goods and/or services by suppliers and subcontractors will be managed in accordance with the System Requirement Procurement and Supply Chain and Core Process. In particular:

- During the tender phase, supply chain partners are to be evaluated for their ability to meet the project's environmental obligations. Environmental issues should be taken into account when selecting subcontractors and suppliers and as provided in E-P-3-0410 Procure Evaluate Select and using ET-3-0461e ITT Part 3 Supply chain HSES Evaluation.
- Supply, subcontract and consultancy agreements must address the relevant environmental compliance
- obligations. Agreements will outline the contractual requirements to be delivered by the supply chain through their scope of works and as outlined in the System Requirement Procurement and Supply Chain.
- Suppliers of chemicals and hazardous substances will be required to submit SDS's with delivery or prior to chemicals arriving at site.
- Supply chain partners are to be required to nominate relevant environmental risks and proposed mitigation measures associated with their scope of work within their project specific documentation. As a minimum subcontractors, SWMS must address the environmental risks associated with their site activities.
- The environmental performance of subcontractors will be monitored during site inspections and in accordance with the obligations in their agreements and contracts.

14.6 Handling, Storage, Packaging and Transport

The handling, storage, packaging and transport of goods will be controlled in accordance with the Procurement Swim Lane in the Enabling Process and E-P-3-0410 Procure Evaluate Select.

Dangerous goods/hazardous materials will be stored and handled in accordance with Material SDS and the requirements of the Australian Dangerous Goods Code.

The *Dangerous Goods (Road and Rail Transport) Act* includes specific requirements for the transport of dangerous goods. Where dangerous goods are to be transported as a result of the project, the requirements of the Act must be complied with by Laing O'Rourke and third parties.

Regardless of the quantity, appropriate transport documentation must be included with each load unless a specific exemption exists. Transport documentation must include:

- Project/workplace name, contact number
- Transporter name, contact number
- Transport date, origin and destination
- Product name, classification, container type, quantity.

Form E-T-8-1232 Dangerous Goods Transport Note may be used.

These materials will be stored in a safe area (for example, bunded and store) which will prevent or contain accidental spillage and harm to the environment. SDS must be stored along with or at the point of storage. Further details are provided in Appendix 4 in the ERAP – Delivery and Storage of Chemicals, Fuels and Oils.

SDS's must be stored along with or at the point of storage.

14.7 24hr Contact Details

24 hour contact details during the construction phase of the project are as follows:

Contact	Role	Mobile	Email
Brad Jones	Site Manager	0408 718 186	Brad.jones@jhlorjv.com.au
Joe Thompson	Project Leader	0437 476 581	joethompson@laingorourke.com.au

TBC	H&S Manager (PER)		
Keith Willis	Construction Manager	0437 737 055	kwillis@laingorourke.com.au
24 Hour Complaints Hotline & Enquiries Email		1800 951 161	unisydetp@laingorourke.com.au

Table 7 24hr contact details

14.8 Manufacture, Construction and Fabrication Processes

These processes will be controlled in accordance with the Project Team (Operations/Construction & HSEQ) Swim Lane and the procedures provided in 2237 Plan Workmanship, Quality Inspections and Commissioning.

Environmental requirements, relating to manufacture, construction and fabrication processes, are defined in:

- Construction methodologies, Safe Work Method Statements and JSEAs
- Inspection and Test Plans, Task Complete Checklists and associated documents
- Contract documents
- Environmental control procedures

14.8.1 Life Cycle Perspective

The life cycle approach (or life cycle perspective) means understanding the relevant stages of a product or service system, from raw material acquisition or generation from natural resources to final disposal. Laing O'Rourke's System Requirement Life Cycle Approach outlines the process for ensuing this approach is taken on our projects.

From a project perspective, the life cycle approach applies to the following:

- Work Winning (estimating & cost planning, business development, bids & proposals)
- Commercial (head & sub-contract formation)
- Engineering (feasibility studies, concept design, front-end engineering design, detailed design)
- Procurement (supply and delivery of goods and services)
- Delivery (construction, commissioning)

At each stage of project delivery Laing O'Rourke will determine the aspects and opportunities to influence lifecycle

Outcomes including but not limited to:

- Stage in the life cycle of the product or service
- Degree of control the business has over the life cycle stages
- Degree of influence it has over the life cycle
- Life of the product
- Ability to influence on the supply chain

14.8.2 Planning for High Environmental Risk Activities

Works site planning processes for high environmental risk activities is outlined in the System Requirement Environmental Planning which forms part of the Laing O'Rourke HSEMS. Details of specific activities considered high risk are provided in the system requirement. Additional activities may be identified in the project environmental risk assessment.

For all activities that have the potential to cause high-risk environmental impacts or are nominated as high risk activities as determined by the project environment risk assessment activity specific method statements are to be developed and implemented.

The activity specific method statement to address environmental high risk activities may be combined with existing construction planning documentation. It is to be developed in consultation with the environmental team, engineering team and relevant workplace supervisors.

Prior to the commencement of the activity, the site team shall be instructed on the key environmental risks and the required mitigation measures provided in the activity specific work method statement to address high risk activities.

This also applies to supply chain partners operating on the site. Supply chain partners involved in activities that represent a high risk to the environment are to address the above requirements in their activity methodologies and method statements. Supply chain partners involved in these activities are to complete an environmental risk assessment workshop prior to the commencement of the activity.

14.9 Plant and Equipment

Primary Standard Spill Prevention includes requirements related to the fuelling and servicing of plant and equipment. These requirements represent the minimum requirements within Laing O'Rourke HSEMS. Additional project specific requirements and specific controls may be included in the issue specific sub-plans or ERAPs.

Plant and equipment owned by Laing O'Rourke will be maintained in a safe and serviceable manner in accordance with Project Team (Operations/Construction and HSEQ) swim lane and the procedures provided in 2113 Plant Operational Control. In particular, the following requirements apply:

- Plant will be inspected before operation on-site. In particular fuel lines, hydraulic hoses or other items with the potential to impact the environment will be inspected. Items found to be worn, damaged or otherwise degraded will be replaced before operation.
- Plant will be serviced, re-fuelled and washed down only in approved areas where hydrocarbons can be captured and properly disposed.
- Fuelling will be carried out in appropriately bunded areas when fuelling from bulk tanks.
- Plant and equipment will be maintained to prevent/fix oil leaks.
- Plant will be driven and operated only in approved areas.
- Plant will have effective pollution control and sound attenuation devices fitted.
- External lighting in compliance with AS 4282-1997 Control of the obtrusive effects of outdoor lighting. Landscaped or external circulation lighting will be incorporated in the open spaces to the north and south of the building. The selection of luminaires will be in accordance with Category P7/P8 AS/NZS 1158.3.1, lighting for roads and public spaces, as suitable for safe pedestrian movement. In particular any pole mounted lighting will comprise flat glass luminaires, and any supplementary lighting provided at steps will be of a type that directs light downwards, so as to control obtrusive lighting above the horizontal plane in accordance with the guidelines given in AS 4282-1997.

Further information on environmental controls is contained in Appendix 4.

15. Emergency Preparedness and Response

The types of environmental emergencies which could occur on this site are outlined in Appendix 6. The University and relevant statutory and regulatory authorities such as the EPA will be informed as necessary.

Environmental emergencies will be handled as follows:

- Immediately report all incidents to the Project Manager/Construction Manager who will assess the situation and manage the following steps (also refer to the WHS Emergency Response Plan located in Appendix 6).
- Immediately take all reasonable steps to contain further damage or danger to personnel and the environment.
- Inform relevant authorities in accordance with the regulatory requirements provided in Section 16.3.2.
- Contact emergency service personnel as necessary (for example, fire department, spill clean-up services) and site emergency response team.
- Immediately notify the Environmental Leader – Australia Hub, HSE General Manager and Head of Legal.
- Inform the University's representative as necessary and in accordance with contractual requirements (nominated in Section 16.3.2).
- Complete a detailed report of the incident using Form E-T-8-1222 Environmental Incident Complaint Report and upload to Impact.
- Liaise with the University's representative about corrective and preventive actions required and the timeframes within which these actions must occur.
- The designated personnel will undertake the corrective and preventive actions.

Information on the handling of hazardous materials is contained in the SDS file.

Emergency services contact numbers will be displayed in the main site office.

The emergency response process is to be periodically tested via an environmental emergency drill at intervals not exceeding 12 months.

Specific system requirements related to environmental emergencies are outlined in System Requirement Emergency Planning and Response.

15.1 *Site Shutdown Planning*

Site shutdown periods must be planned and coordinated to ensure the risk of environmental impact is minimised. Shutdown periods are considered to be any period in which construction activities are not planned to take place on the site for more than 3 consecutive days. This includes public holiday and RDO periods. Site shutdown planning must be undertaken in accordance with System Requirement Environmental Planning. Planning activities must ensure that inspections, resources and contingency measures are agreed and implemented for the shutdown period. This is to be document in a specific Shutdown Go Pack.

16. Monitoring and Measurement

Key characteristics of the project operations and activities which have a significant impact on the environment will be regularly monitored and measured. This will include:

- Recording information to track performance.
- Monitoring operational controls.
- Conforming to objectives and targets.

E-T-8-1227 Environmental Inspection Report will be used to monitor environmental issues on-site and be issued to the Project Manager. The report will be completed weekly.

A safety and environmental checklist E-T-8-0905 Management H&S and Environmental Checklist will be completed by the Site Manager weekly to monitor environmental issues on-site and issued to the Project Manager/Construction Manager for review and signing.

Issues identified during environmental inspection requiring further action beyond normal practice or maintenance and are to be logged into Impact via the Assurance Application or retained in Fieldview as defined in the project procedures.

Non-conformance with operational control procedures or the EMS that cannot be rectified immediately will be recorded and addressed via the Assurance application in Impact.

The following environmental issues and non-conformances will be included in Impact as corrective actions:

- Internal inspection outcomes that cannot be rectified immediately – actions nominated on E-T-8-1227 and E-T-8-0905
- Incidents and associated corrective actions
- Internal audit observations and non-compliance
- University audits or other notice of non-compliance
- Notices or action from regulatory authorities.

Where environmental inspection or monitoring outcomes are required to be logged into Impact, a workplace visit will be created and the associated actions generated.

Where deemed necessary by the WHSEQ Manager and as a result of revisions to project scope or changes to project risks, additional ERAPs to control potential impacts will be developed.

16.1 External Monitoring and Compliance

In addition to the above standard Laing O'Rourke monitoring and measurement requirements, this specific project has been conditioned under B44-B47 and C44-C49 to undertake staged project lifecycle monitoring and audits.

16.1.1 Independent Environmental Audit

To fulfil the planning conditions, the environmental audit will be a combination of documentation review (Management plans) as well as completing a site visit to confirm the implementation of relevant management plans and procedures.

In accordance with the *NSW Department of Planning and Environment's Independent Audit Post Approval Requirements, June 2018 (Section 3.3)* the following information is to be reviewed:

1. An assessment of compliance with:
    a. Conditions of consent applicable to the phase of the development that is being audited;

   b. All post approval documents prepared to satisfy the conditions of consent, including an assessment of the implementation of Environmental Management Plans and Sub-Plans;
   c. All environmental licenses and approvals applicable to the development excluding environmental protection licenses issued under the Protection of the Environment Operations Act 1997;
2. An assessment of the environmental performance of the development, including but not necessarily limited to, an assessment of:
   a. Actual impacts compared to predicted impacts documented in the environmental impact assessment
   b. The physical extent of the development in comparison with the approved boundary, and any potential off-site impacts;
   c. Incidents, non-compliances and complaints that occurred or were made during the audit period;
   d. The performance of the development having regard to agency policy and any particular environmental issues identified through consultation carried out when developing the scope of the audit;
   e. Feedback received from the Department, and other agencies and stakeholders, including the community or Community Consultative Committee, on the environmental performance of the project during the audit period;
3. The status of implementation of previous independent Audit findings, recommendations and actions (if any);
4. A high-level review of the project's environmental management system, including assessment of any third-party certification of them, the type, nature and scope of the systems having regard to the nature and scale of the development, and the implementation of the systems. It is not expected that an Independent Audit comprises a management system audit, however any key deficiencies identified in the system should be discussed;
5. A high –level assessment of whether Environmental Management Plans and Sub-plans are adequate; and
6. Any other matters considered relevant by the auditor or the Department taking into account relevant regulatory requirements and legislation and knowledge of the development's past performance.

The assessment of the implementation of each of the main management plans associated with the construction works include:

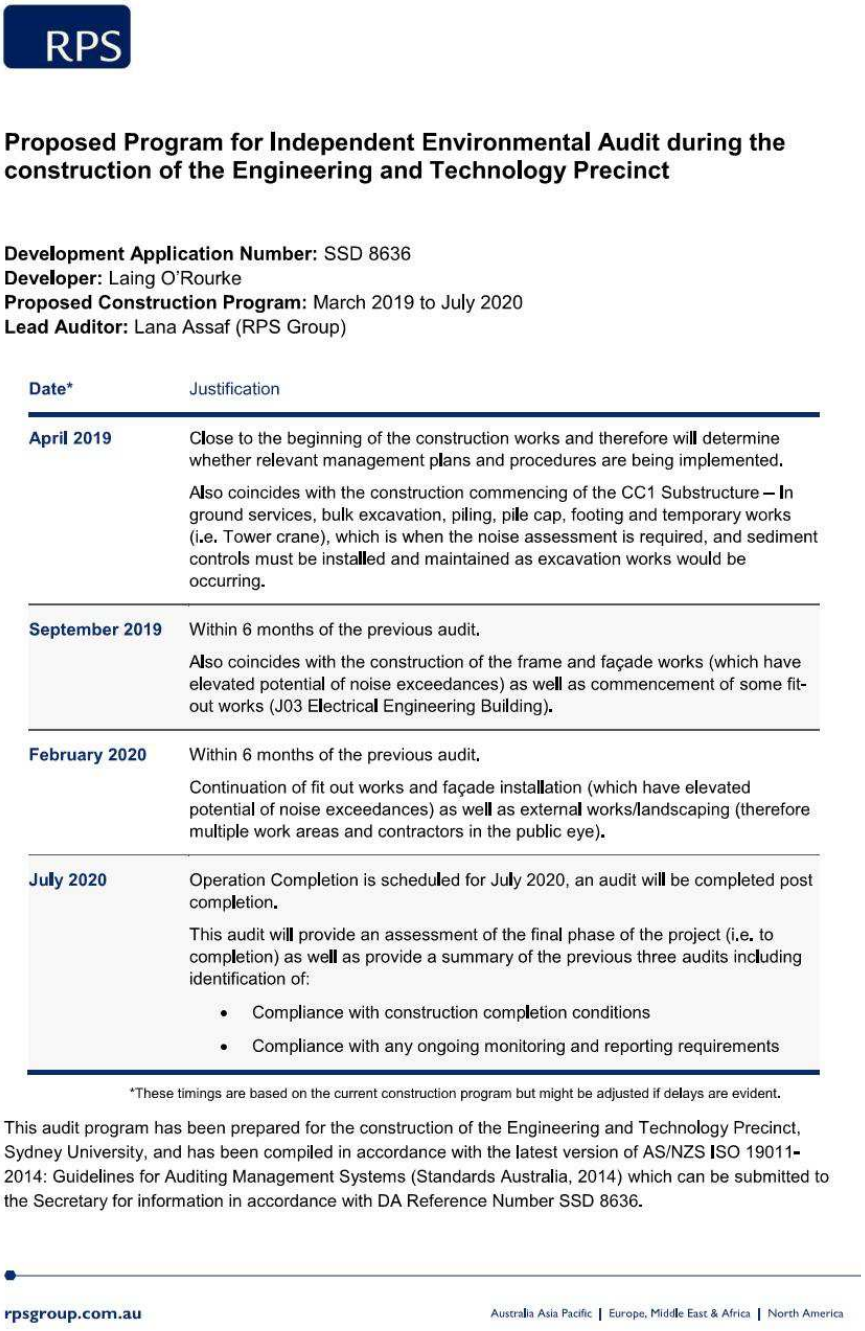
- Construction Environmental Management Plan
- Construction Noise and Vibration Management Plan (including any tested results)
- Dust mitigation measures
- Erosion and sediment control plans (including containment of surface water runoff from site and mitigation of mud tracking off site from vehicles)

The audit will also review Laing O'Rourke's construction management including:

- Monthly environmental reports
- Complaints register and correspondence
- Incident reporting
- Rectification of non-conformances from internal audits and complaints
- Waste receipts for contaminated soil removed from site
- General management of site
- Internal audits

A summary report will be provided within two weeks upon the initial site visit. The report will identify where good environmental practices were observed, as well as identify where non-conformances were identified and improvements can be achieved. The report will include relevant photos and will comply with the scope audit as defined by the planning condition.

Below is the scope of environmental audit program:



RPS

Proposed Program for Independent Environmental Audit during the construction of the Engineering and Technology Precinct

Development Application Number: SSD 8636
Developer: Laing O'Rourke
Proposed Construction Program: March 2019 to July 2020
Lead Auditor: Lana Assaf (RPS Group)

Date*	Justification
April 2019	Close to the beginning of the construction works and therefore will determine whether relevant management plans and procedures are being implemented. Also coincides with the construction commencing of the CC1 Substructure – In ground services, bulk excavation, piling, pile cap, footing and temporary works (i.e. Tower crane), which is when the noise assessment is required, and sediment controls must be installed and maintained as excavation works would be occurring.
September 2019	Within 6 months of the previous audit. Also coincides with the construction of the frame and façade works (which have elevated potential of noise exceedances) as well as commencement of some fit-out works (J03 Electrical Engineering Building).
February 2020	Within 6 months of the previous audit. Continuation of fit out works and façade installation (which have elevated potential of noise exceedances) as well as external works/landscaping (therefore multiple work areas and contractors in the public eye).
July 2020	Operation Completion is scheduled for July 2020, an audit will be completed post completion. This audit will provide an assessment of the final phase of the project (i.e. to completion) as well as provide a summary of the previous three audits including identification of: • Compliance with construction completion conditions • Compliance with any ongoing monitoring and reporting requirements

*These timings are based on the current construction program but might be adjusted if delays are evident.

This audit program has been prepared for the construction of the Engineering and Technology Precinct, Sydney University, and has been compiled in accordance with the latest version of AS/NZS ISO 19011-2014: Guidelines for Auditing Management Systems (Standards Australia, 2014) which can be submitted to the Secretary for information in accordance with DA Reference Number SSD 8636.

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Figure 4 Environmental Audit Program

16.1.2 Independent Compliance Monitoring

To fulfil the planning condition and supplement environmental audits, the Compliance Monitoring and Reporting Program has been proposed for this project in accordance with the *NSW DPE Compliance Reporting Post Approval Requirements, June 2018.*

The Compliance Monitoring and Reporting Program contains a compliance table that:

1. Identifies the requirements in all conditions of consent that must be complied with during each phase of the development;
2. Sets out the compliance monitoring and methodology that will be used to assess compliance with each compliance requirement: and
3. Sets out the type of data or evidence that is to be collected to assess whether compliance has been achieved.

A copy of the proposed Compliance Scope and program is below:

Date*	Justification
March 2019 **Pre-Construction Compliance Report**	Prior to the beginning of the construction works and therefore will determine whether relevant management plans and procedures are being implemented. Prior to construction commencing of the CC1 Substructure – In ground services, bulk excavation, piling, pile cap, footing and temporary works (i.e. Tower crane), which is when the noise assessment is required, and sediment controls must be installed and maintained as excavation works would be occurring.
July 2019 **Construction Compliance Report 1**	Within 26 weeks from the date of commencement of construction.
December 2019 **Construction Compliance Report 2**	Within 26 weeks from the previous compliance report.
May 2020 **Construction Compliance Report 3**	Within 26 weeks from the previous compliance report.
Pre-Operational Compliance Report **September 2020**	Construction Completion is scheduled for July 2020, a report will be completed post completion. This report will provide an assessment of the final phase of the project (i.e. to completion), including identification of compliance with construction completion conditions and compliance with any ongoing operational monitoring and reporting requirements.
Operation Compliance Report **2021- Ongoing (potentially annually in accordance with Condition B47)**	Reporting required for the duration of operation. At intervals, no greater than 52 weeks from the date of commencement of operation. This requirement would be the asset owner's responsibility – Sydney University. *Condition B47 states: Notwithstanding the requirements of the Compliance Reporting Post Approval Requirements (2018), the Planning Secretary may approve a request for ongoing annual operational compliance reports to be ceased, where it has been demonstrated to the Planning Secretary's satisfaction that an operational compliance report has demonstrated operational compliance.*
Post – Decommissioning Compliance Report	Report to be submitted to the Planning Secretary within 12 weeks of completion of decommissioning. This requirement would be the asset owner's responsibility – Sydney University.

Table 8 Compliance Monitoring Program

16.2 Corrective Actions

Corrective actions are differentiated by risk ranking. The nominated timeframes to resolve items on the CAR register are as shown in Table 9.

CAR risk ranking	Timeframe for resolution
1	Action needs to be commenced immediately to resolve the issue
2	Action needs to be resolved within one week
3	Action needs to be resolved within one month

Table 9: Corrective action timeframe

Refer to the Project Team (Delivery) swim lane in Core Process 66 Compliance and C-P-8-0107 Continual Improvement Corrective and Preventative Action for further detail.

Further monitoring and reporting activities against operational objectives and targets are listed in Appendix 4. Monitoring and measuring equipment it will be calibrated, maintained and controlled in accordance with Project Team (Operations/Construction and HSEQ) swim lane and the procedures provided in 2237 Plan Workmanship, Quality Inspections and Commissioning. Records of calibration will be kept in the contract filing system.

16.3 Monthly Environmental Reporting

Laing O'Rourke approach to environmental reporting is outlined in System Requirement – Communication and Reporting. Monthly environmental reporting is to be completed through Laing O'Rourke's Digital Contract Review process. The Project Leader or Workplace Leader is responsible for ensuring environmental performance information is included in each months Digital Contract Review such as the following as necessary:

- Summary discussion on project risks and opportunities – to be read in conjunction with the risk register
- Environmental performance outcomes, improvement initiatives or corrective measures
- Client and stakeholders engagement and interface. In particular, client feedback on project environmental performance.
- Environmental incident and event management including the outcomes from incident investigations and corrective actions
- Content for the environmental project dashboard

Client reporting requirements are to be included in this Construction Environmental Management Plan (CEMP).

Subcontracts and supply chain agreements must include supply chain reporting requirements as necessary. This may include the following:

- Environmental management reporting requirements and key performance indicators
- Waste management reporting
- Project specific conditions of approval or environmental compliance reporting requirements
- Greenhouse gas and life cycle reporting
- Supply chain environmental performance reporting shall be used as necessary to inform project and workplace environmental reporting.

16.3.1 Monthly Project Environmental System Self-check

On a monthly basis, the project will assess the performance and implementation of the project environmental system through the project Environmental System Self-check. Outcomes of the project environmental system self-check are to be retained in the project records.

The table below outlines the requirement and criteria to be revised and the relevant frequency.

System Requirement	Criteria	Frequency
Severe Environmental Risk Program	Program implemented and actions complete	Monthly
Site inspection implementation	Site inspections have been completed in accordance with the environmental management plan requirements.	Monthly
Event management	Environmental incidents have been reviewed, investigations completed and actions closed out.	Monthly
Environmental Monitoring Programme	Environmental monitoring has been completed and reviewed for compliance. Non-compliances have been actioned and closed out	Monthly
Waste management	Project waste management register is up to date including spoil management and disposal	Monthly
Conditions of Approval tracking	Conditions of approval compliance matrix has been reviewed and updated demonstrating compliance with conditions	Quarterly
Environmental Licences	Environmental licence compliance has been reviewed and reporting completed as nominated.	Quarterly

Table 10 Frequency of plan review

16.3.2 Supply Chain Environmental Compliance Obligations Review

Suppliers and subcontractors operating on the project will be subject to environmental performance requirements.

Environmental performance requirements will apply to all suppliers and subcontractors in accordance with the supply or subcontract agreements.

To ensure supply chain environmental performance requirements are being met on the project the following will be implemented:

- Supply chain audits - audits of the implementation of supply chain environmental systems on projects will be undertaken. Supply chain audits will verify implementation of the environmental requirements from their respective agreements.
- Environmental inspections on the project will review supply chain performance.
- Monthly Environmental Reports - as required to report on environmental performance and as outlined in supply chain agreements
- Waste disposal reporting - all supply chain partners operating on site with obligations for waste disposal will maintain waste disposal records and provide reports on a monthly basis
- Environmental Monitoring - where required by their supply chain agreement environmental monitoring to verify environmental performance targets are being met is to be undertaken and reported.

If contractor work on the site is being performed contrary to the contractor's plan and / or applicable legislative requirements, action will be taken immediately. This may include a direction to stop work and issuing a relevant site instruction to address the non-compliance to works procedures and environmental controls.

17. Incidents, Complaints, Corrective and Preventative Action

The management, investigation, reporting and notification process for environmental events, including positive events is to be undertaken in accordance with the System Requirement Event Management and Reporting.

All incidents, potential incidents and complaints must be reported so they can be investigated and prevented from recurring. Form E-T-8-1222 Environmental Incident and Complaint Report will be completed and issued to the Project Manager for all potential or actual Class 1 or Class 2 incidents. The completion of E-T-8-1222 Environmental Incident and Complaint Report for Class 3 incidents is at the discretion of the Project Manager. Notwithstanding, Class 1, Class 2 and Class 3 incidents will be recorded in Impact.

Incident reporting and investigation from the project site will be recorded in Impact which can be accessed from Laing O'Rourke's intranet home page or remotely connected via the internet. Incidents will be logged in Impact within 48 hours of occurring. For Class 1 and Class 2 incidents, an investigation must also be logged in Impact.

Incidents involving failures in hydraulic equipment will have an E-C-8-1426 Hydraulic Incident Notification completed to identify the potential causal factors associated with the incident.

The Environmental Leader – Australia Hub, HSE General Manager and Head of Legal will be notified by telephone as soon as practical after any actual or potential Class 1 and Class 2 incidents with the potential to result in regulatory action.

Environmental incident is classified into three classes, as shown in Table 11.

Class	Description
Class 1	Environmental incidents that create permanent or long-term damage to the environment. This damage will result in the environment taking 12 months or more to return to pre-existing conditions. Major environmental investigation and potential for large prosecution.
Class 2 (including potential)	Environmental incidents that create short to medium-term damage to the environment. This damage will result in the environment taking up to 12 months to return to pre-existing conditions. Potential for prosecution or infringement notice.
Class 3	Environmental incidents that typically cause short-term or nuisance damage. The damage is easily rectified usually within one day. Class 3 incidents do not cause medium or long-term damage.

Table 11: Environmental incident ratings

The classifications are explained in detail with examples in the Laing O'Rourke Environmental Incident Classification Guidelines, available in the System Requirement Event Management and Reporting.

Class 3 Incidents

Where a Class 3 incident has occurred, the Laing O'Rourke Site Manager or immediate supervisor is to be informed. Class 3 incidents must be logged directly into IMPACT.

Actual or Potential Class 2 Incidents

Where an actual or potential Class 2 incident has occurred, Group Management is to be informed via the Project Leader. Class 2 incidents are to be investigated using a recognised investigation protocol.

Class 1 Incidents

Where a Class 1 incident occurs the Environmental Leader – Australia Hub, HSE General Manager and the Head of Legal are to be informed immediately. The requirements of the flow chart in Appendix 1 are to be applied to all actual or potential Class 1 environmental incidents.

Class 1 incidents shall be subject to an ICAM or Tap Root investigation.

Where complaints are received at project sites or workplaces involving the media or where the company image is likely to be affected, they shall be documented on the E-T-8-0951A HSE Internal Incident Notification form as provided below.

All Class 1 & Class 2 incidents will be reported to the relevant State & Federal Authorities as required under relevant Acts & Regulations. Further details are provided in the section External Incident Reporting below.

Complaints will be reported to external authorities in accordance with specific licence/permit or approval requirements.

Refer to the iGATE Environmental External Websites or Legal Compliance Service for the applicable legislation.

E-T-8-0951A HSE Internal Incident Notification shall be completed for all Actual & Potential Class 1 & Class 2 Incidents within 24 hours of the incident occurring and sent (email/fax) to the Distribution List as below:

- Project Environmental Representative
- Project Leader
- Director
- Environmental Leader – Australia Hub
- Area Manager
- HSE General Manager
- Head of Legal

17.1 Incident and Complaints Reporting

Environmental incidents and complaints are to be investigated, documented, actioned and closed out as per the details provided in the investigation process above.

The form E-T-8-1222 Environmental Incident and Complaint Report **shall be completed for all environmental incidents and complaints** within **2 working days** of the incident and forwarded to the Project Leader.

Laing O'Rourke will provide notification of the incident to the Client's Representative as required and in accordance with the contract.
On this project and in accordance with the contract requirements, the Client is to be notified as follows:

Notification type	Contract requirement
Initial verbal notification	Immediately for actual or potential

Notification type	Contract requirement
Environmental Incident Report requirements	Within 24 hours

Table 12: Incident and complaints reporting requirements

Class 1 and Class 2 reportable incidents will be reviewed by the Environmental Leader – Australia Hub, HSE General Manager and Head of Legal before formal correspondence is issued to external parties or regulatory authorities.

Management system non-conformances and recurring environmental incidents will be handled in accordance with the Project Team (Delivery) swim lane in Core Process 66 Compliance and C-P-8-0107 Continual Improvement Corrective and Preventative Action.

Where an environmental non-conformance or incident is identified, corrective and preventive actions will be developed and may include:

- Reviewing and improving existing environmental controls and JSA/work method statements
- Undertaking site rehabilitation
- Increasing site inspections and monitoring
- Modifying construction or installation methods
- Increasing environmental awareness including re-training and toolbox meetings.

Each incident will be sufficiently investigated to allow specific and detailed corrective and preventive actions to be identified, actioned and closed out as outlined on Form E-T-8-1222 Environmental Incident and Complaint Report.

Note: where a Class 1 incident has occurred the HSE General Manager will initiate the investigation and allocate responsibilities, an external consultant may be engaged. Authorities will be notified in accordance with the legislative timeframes in the applicable state.

17.1.1 Senior Leaders Environmental incident review

For all Class 1 & Class 2 incidents, within 3 days the Project Leader will convene a briefing with the relevant Senior Business Leader/Area/Operations Manager to provide an update on the incident investigation and to allow the Area/Operations Manager to be actively involved in the investigation process. The briefing will include discussion on the progress of the investigation and any specific initial findings. A status report on any rectification work or maintenance activities to the relevant environmental controls will also be provided.

The following information relating to the incident investigation shall be forwarded to the Senior Business Leader/Area/Operations Manager and HSE Manager.

- The condition of the environment and the status of any rectification or remediation works,
- The completed incident investigation report, including appropriate causal analysis and corrective actions,
- Program for the implementation of the corrective actions and any maintenance activities,
- A completed HSE Learning Bulletin template to be included in the monthly Learning Bulletin,
- Any other relevant information.

17.2 External Incident Notification

17.2.1 State Matters

The EPA must be notified immediately of all pollution incidents that cause or threaten material harm to the environment.

Harm to the environment is "material" if the effect (or potential effect) from an incident on the health or safety of humans or ecosystems is not trivial and or the results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceed $10,000.

Incidents requiring notification to the EPA must also be immediately notified to the Environmental Leader – Australia Hub and the Head of Legal.

If an incident presents an immediate threat to human health or property, 000 will be called in accordance with the procedures outlined in the Construction Health and Safety Management Plan.

The EPA environment line will be contacted on 131 555. The notification will need to include information on:

- The time, date, nature, duration and location of the incident
- The location of the place where pollution is occurring or is likely to occur
- The nature, the estimated quantity or volume and the concentration of any pollutants involved
- The circumstances in which the incident occurred (including the cause of the incident, if known)
- The action taken or proposed to be taken to deal with the incident and any resulting pollution or threatened pollution
- Other information prescribed by the regulations.

In addition to notifying the EPA of pollution incidents, other authorities must also be notified immediately including:

- The Ministry of Health (via the local Public Health Unit – (02) 9391 9000)
- SafeWork NSW (13 10 50)
- Sydney City Council ((02) 9265 9333)
- Fire and Rescue NSW (000).

Regardless of the actual or potential impact, these authorities must be notified under the amended legislation for all notifiable pollution incidents. Further information about the incident must be provided immediately if it becomes available after the initial notification.

Records of contact with and details of the information provided to external authorities must be maintained in the project records. The Laing O'Rourke form E-T-8-0161 Record of Conversation may be used to record contact with the regulatory authorities.

17.3 Client Complaints

All communications from the University (including CARs and audit reports) expressing concern or dissatisfaction with the implementation or operation of the CEMP will be documented in the Assurance application in Impact. University complaints cannot be rated risk ranking 3.

Public complaints will be handled using Form E-T-8-1222 Environmental Incident and Complaint Report and logged into Impact.

Management system non-conformances and recurring environmental incidents will be handled in accordance with the EMS – Corrective and Preventive which may include:

- Undertaking site remediation and rehabilitation
- Increasing site inspections and monitoring
- Increasing environmental awareness (re-training, toolbox meetings)
- Reviewing and improving existing environmental controls and JSA/work method statements.

18. Environmental Management System Audit

Auditing of the project Environmental Management System will be carried out in accordance with the System Requirement Compliance, Review and Assurance. The audit will evaluate compliance with this CEMP and associated documentation including legal, contractual and other requirements.

It is expected that the project will be audited within 3 months of commencing on site and approximately every 3-6 months thereafter and in accordance with the Laing O'Rourke Audit Schedule. The relevant HSE Leader, in consultation with the project leadership team, will decide on the frequency, scope and timing of project/site audits.

An audit report will be issued to management for action. Actions will be followed up for close-out of actions within 1 month of the issue of the audit report.

Audits shall be captured within the Assurance application in Impact. Actions associated with audits shall also be logged in the Assurance application in Impact.

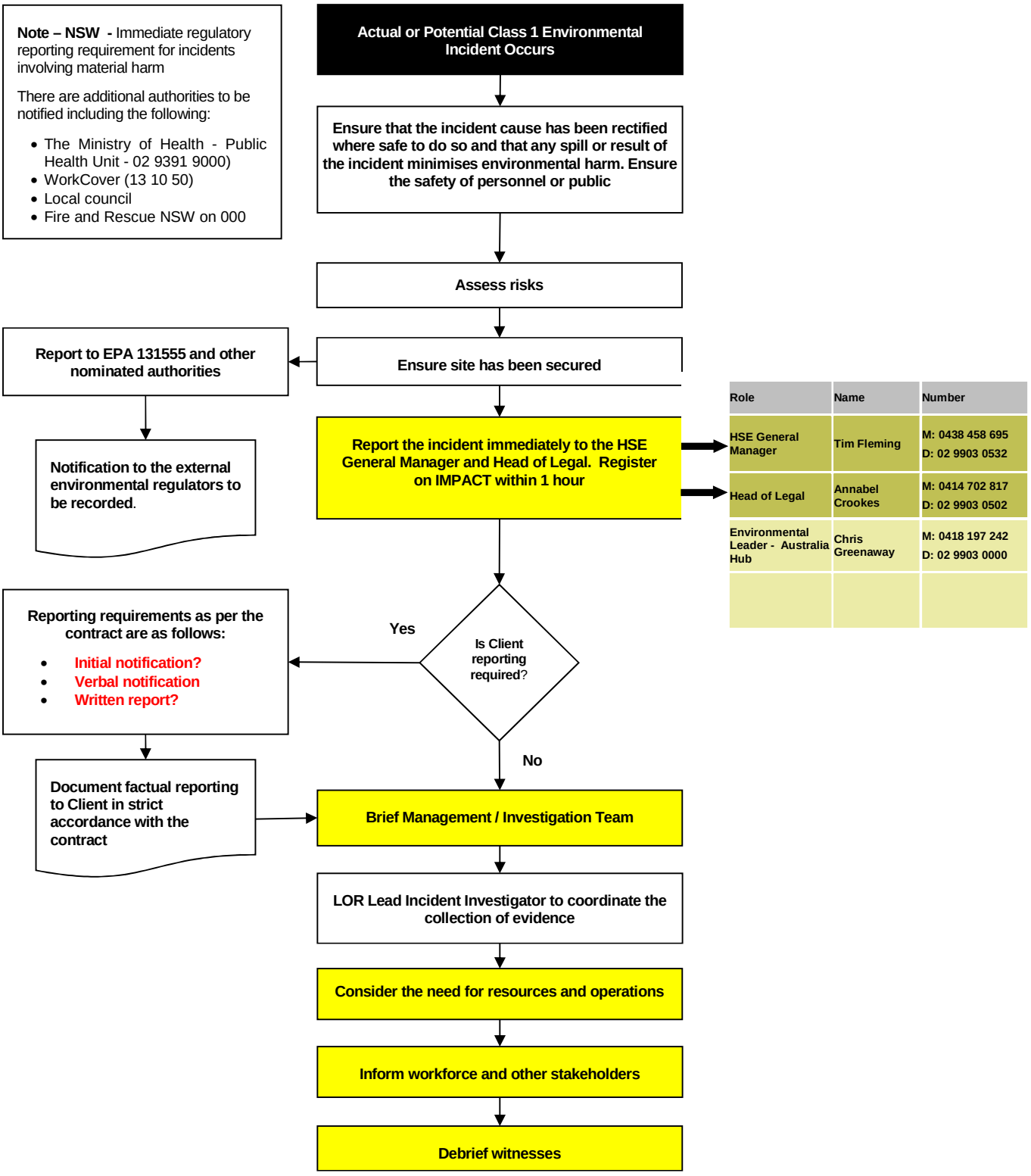
19. Management Review

The Project Manager will check the status and adequacy of this CEMP to ensure it meets current University and Laing O'Rourke requirements, as well as relevant environmental standards. The CEMP will be reviewed as and when required during the course of the contract when the following situations arise:

- University recommendations for changes (particularly following initial review)
- Changes to Laing O'Rourke's standard system
- Opportunities for improvement or deficiencies in the project system are identified
- Following an audit of the system or the occurrence of significant incidents and non-conformances.

The management review may be undertaken at six-monthly intervals.

Appendix 1: Class 1 incident management flow chart



Appendix 2: Legal and other requirements

Relevant legal and other requirements are shown in Table 13. Access to this legislation is available on iGATE at Legal Compliance Service.

Legal and other requirements	Summary of obligations	Relevance to the project/ notes and system
Environmental planning legislation		
Environmental Planning and Assessment Act 1979	This Act establishes a system of environmental planning and assessment of development proposals for the State. This project has been assessed and approved under Section 89E of the *Environmental Planning and Assessment Act 1979*.	High relevance The Development Application conditions and obligations are incorporated into the specification documents and Laing O'Rourke's CEMP.
Local Government Act 1993 *Local Government (General) Regulation 2005*	The Local Government Act and Local Government (General) Regulation provide a legal framework for an environmentally-responsible system of local government including the responsibility to administer various regulatory systems (for example, environmental planning, development consents and conditions of approval).	Medium relevance Sydney City Council (the local government body for this area) has a number of powers to control local issues including development applications. The project is approved by NSW Department of Planning and Environment as a State Significant Development.
Roads Act 1993 *Roads (General) Regulation 2000*	This Act and Regulation primarily provide for the opening and closing of public roads, identification of road boundaries and road widening, road levels, classification of public roads, road work, protection of public road and regulation of traffic, regulation of work, structures and activities.	High relevance This Act applies to activities that impact roads and require temporary/ permanent changes to traffic or infrastructure (Roads and Maritime Services for state and councils for local roads).
Soil Conservation Act 1938	This Act makes provision for the conservation of soil resources, farm water resources and the mitigation of erosion. The Act is binding on the Crown; however, the Crown is not liable for prosecution. The Act provides for notification in the government gazette catchments where erosion is liable to cause degradation of rivers and lakes (i.e. protected land).	No relevance This Act has low relevance as the site is not located within "protected land". Further, such notification has not been given to the owner of the land.
Environment Protection and Biodiversity Conservation Act 1999 (Cwth)	The main purpose of this Act is to provide for the protection of the environment especially those aspects that are of national environmental importance and to promote ecological sustainable development. The Act binds the Crown. Do not take, use, keep or interfere with "nationally significant" cultural and natural resources, protected wildlife and protected plants without approval.	Low relevance This Act is of little relevance to this project as it has been determined not to trigger the provisions of the act.
Native Vegetation Act 2003 *Native Vegetation Regulation 2013*	This Act and Regulation provide for the conservation and management of native vegetation by requiring Development Consent to be obtained for the clearing of native vegetation. Section 12 of the *Native Vegetation Act 2003* excludes the clearing of land carried out in accordance with consent under Division 3 of Part 9 of the *Roads Act 1993*. Clearing of native vegetation required for construction of the work under the contract would be covered by such consent. The *Native Vegetation Regulation 2013* allows for the development of self-assessable codes for clearing of feral species, clearing of invasive species, environmental works, thinning native vegetation, clearing of paddock trees and clearing of mulga.	Low relevance Significant impact to native vegetation is not required for this project.

Legal and other requirements	Summary of obligations	Relevance to the project/ notes and system
Land and Environment Court Act 1979	The Land and Environment Court is constituted under this Act. The jurisdiction of the Court is divided into numerous classes. The relevant classes for the project covers matters such as the prosecution for offences under various environmental legislation and to appeal against conditions of approvals, permits or orders.	Low relevance The relevance of this Act would only apply to work under the contract if Laing O'Rourke was prosecuted for an environmental offence.
Greenhouse Gas Emissions *National Greenhouse and Energy Reporting Act 2007*	Corporations emitting more than 50kT of carbon dioxide equivalent units are required to register and report their Scope 1 and Scope 2 emissions for all facilities in which they have operational control. Facilities emitting more than 25kT of carbon dioxide equivalent units must register and report Scope 1 and Scope 2 emissions.	High relevance Laing O'Rourke is a registered entity under this Act. As such, where Laing O'Rourke has operational control, the Scope 1 and Scope 2 emissions associated with the project must be reported. This includes the collation and reporting of subcontractors site emissions. Laing O'Rourke does have operational control of this project.
Contaminated land legislation		
Contaminated Land Management Act 1997	This Act provides for a process to investigate and remediate land that has been contaminated and presents a significant risk of harm to human health. Section 60 of the Act is a "duty to report contamination". This duty applies to owners of land and persons who become aware their activities have contaminated the land.	Medium relevance The relevance of this Act will be in the event that suspected or potentially contaminated ground is found during construction activities.
Fire control legislation		
Rural Fires Act 1997	This Act is intended to prevent, mitigate and suppress bush and other fires. It places a duty on Laing O'Rourke as the occupier of the site to extinguish fires during bushfire danger periods or if unable to do so, notify appropriate fire fighting authorities of the existence of the fire and its location.	Low relevance This project site and surrounding areas are not prone to bushfires.
Hazardous substances legislation		
Environmentally Hazardous Chemicals Act 1985	This Act prohibits the manufacturing, processing, keeping, distributing, conveying, using, selling or disposing of an environmentally hazardous chemical or waste (prescribed activity) except under the provisions of a chemical control or a licence. The EPA is required to prepare inventories of environmentally hazardous chemicals and declared chemical wastes.	Low relevance It is not anticipated any environmentally hazardous chemicals or declared chemical waste will be used or stored on the site. The Act therefore has little relevance to the site other than being aware of the existence of registers of declared chemical wastes and environmentally hazardous chemicals.
Dangerous Goods (Road and Rail Transport) Act 2008	The purpose of this Act is to regulate the transport of dangerous goods by road and rail to promote public safety and protect property and the environment. The transport of dangerous goods is required to be appropriately licensed (both vehicle and driver). Depending on the quantities being transported, the Act outlines specific requirements for including appropriate placards on the transport vehicle, emergency procedures, personal protective equipment, manifest documentation and fire extinguishers.	High relevance The relevance of the Act is in respect to the transport of dangerous goods to and from the site. The project will require the use of a variety of dangerous goods. Laing O'Rourke will need to review and ensure dangerous goods requirements are addressed where transported by its vehicles, plant and equipment, with appropriate licences to be in place.
General environmental legislation		

Legal and other requirements	Summary of obligations	Relevance to the project/ notes and system
Water Management Act 2000 *Water Management (General) Regulation 2004*	This Act repeals the *Rivers and Foreshores Improvement Act, 1948* and the *Water Act, 1912*. The provisions of both the aforesaid Acts are progressively rescinded as Water Management Plans are prepared and gazetted for catchment areas within the State. This Act and Regulation provide for the protection, conservation and ecologically sustainable development of water sources of the State and in particular to protect, enhance and restore water sources and their associated ecosystems.	Low relevance This Act has no direct relevance at this time to the construction work under this contract. The project approval does not trigger the provisions of this Act.
Coastal Protection Act 1979	This Act requires public authorities to notify the Coastal Council of NSW of any information, proposed activity or work that in the opinion of the public authority is relevant to the exercise of the function of the Coastal Council. It further empowers the Minister for the Department of Commerce to require public authorities to obtain consent prior to carrying out development in the coastal zone or giving consent to a person to occupy or carry out development in the coastal zone.	No relevance The project is not located in areas associated with this Act.
National Parks and Wildlife Act 1974	The relevance of this Act is firstly in respect to the protection and preservation of Aboriginal artefacts. Discovery of material on-site suspected as being of Aboriginal origin must be reported and protected pending assessment and direction by the University's representative. Secondly it is an offence under Part 8A of this Act to pick or harm threatened species. (Refer to the notes under the Threatened Species Conservation Act for more information)	Low relevance No identified Aboriginal artefacts have been identified within the construction area. The only relevance would be if new previously unknown artefacts were discovered during construction.
Threatened Species Conservation Act 1995 *Threatened Species Conservation Regulation 2002* *Threatened Species Conservation (Savings and Transitional) Regulation 1996*	This Act and Regulations provide for obtaining licenses to harm or pick threatened species populations or ecological communities whether plant or animal or to damage any critical habitat. The offence of picking or harming any threatened species is covered under the *National Parks & Wildlife Act* Part 8A. It is a defence under Part 8A of that Act if the offence was essential to carrying out development that is in accordance with a Development Consent within the meaning of the *Environmental Planning and Assessment Act 1979* or an approval within the meaning of Part 5 of the *Environmental Planning and Assessment Act 1979*.	No relevance No threatened species of flora or fauna listed in the schedules of this Act have been identified within the area of the proposed work.
Fisheries Management Act 1994	This Act is applicable to all waters within the State including private and public waters and all permanent and intermittent waters. The Act is most relevant in respect to maintaining water quality and ensuring no polluted water from site works enters streams, creeks and waterways. In addition this Act also has relevance for the removal of marine vegetation.	Low relevance Along with the *Protection of the Environment Operations Act 1997*, water discharging from the site must not pollute the adjacent streams or watercourses.
Marine Pollution Act 1987	This Act creates offences for discharges of oil, oily mixtures and noxious liquid substances from ships into State waters.	No relevance
Noxious Weeds Act 1993	This Act provides for the classification and control of noxious weeds. Declared noxious weeds are classified as Class 1, State prohibited weeds; Class 2, Regionally prohibited weeds; Class 3 Regionally controlled weeds, Locally controlled weeds; Class 4 and Class 5 Restricted plants. The characteristics of each class is given in Section 8 (2) of the *Noxious Weeds Amendment Act 2005*. Class 1, 2 and 5 weeds are referred to in the Act as "notifiable weeds".	Low relevance The Act applies to owners or occupiers of land including public authorities and thus does not apply to Laing O'Rourke.

Legal and other requirements	Summary of obligations	Relevance to the project/ notes and system
Water Act 1912	This Act provides for licences to extract water for construction purposes either from surface or artesian sources. Should construction water be extracted from surface (other than sedimentation ponds) or artesian sources, a licence will be required.	Low relevance It is not proposed that construction water will be obtained from surface (for example, creeks, lakes) or artesian sources.
Heritage Act 1977	This Act provides for the preservation and conservation of heritage items such as building, works, relic, places of historic interest, scientific, cultural, social, archaeological, architectural, natural or aesthetic significance. Under this Act a relic means any deposit, object or material evidence which is 50 or more years old and relates to the settlement of the area (not being an Aboriginal settlement). It is an offence under this Act to wilfully and knowingly damage or destroy items of heritage value. Do not demolish damage, move or develop around any place, building, work, relic, moveable object, precinct, or land that is the subject of an interim heritage order or listing on the State Heritage Register or heritage listing in a Local Environmental Plan without an approval from the Heritage Council (NSW) or local council.	Low relevance Only one item of heritage has been identified in early studies and has been marked to be relocated as part of the project works.
Wilderness Act 1987	An Act to provide for the permanent protection and proper management of wilderness areas and to promote the education of the public in the appreciation, protection and management of wilderness. The Act and associated Regulations provides a mechanism for the identification and declaration of wilderness areas.	No relevance This project is not within or immediately adjacent to a declared wilderness area. This Act has little or no relevance to the project.
Australian Heritage Council (Consequential & Transitional Provisions) Act 2003 *Australian Heritage Council Act 2003 (Cwth)*	The *Australian Heritage Council (Consequential and Transitional Provisions) Act 2003* repealed the *Australian Heritage Commission Act 1975*. The *Australian Heritage Council Act 2003* establishes the Australian Heritage Council. The Council is required to identify places to be included in the National Estate and to maintain a Register of the National Estate of places.	No relevance The site is not on the Register of the National Estate of places.
Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cwth)	This Act provides for the preservation and protection from injury or desecration to areas and objects of particular significance to Aboriginals. Areas and objects can be protected by Ministerial declaration and it is then an offence to contravene such a declaration.	No relevance No areas or objects within the works site have been identified as being subject to such a declaration and this Act is of little relevance to the project.
Ozone Protection Act 1989	This Act provides for a system of controls and to regulate and prohibit the manufacture, sale, distribution, use, emission, re-cycling and disposal of stratospheric ozone-depleting substances and articles that contain these substances. The impact is that appropriately qualified people in accordance with this Act must undertake all servicing and maintenance of this type of equipment.	Low relevance The relevance of this Act will relate to the use of refrigerators and air conditioning units in site buildings and vehicles which still contain CFCs. Such items are unlikely to be found on-site.
Protection of the Environment Operations Act 1997	This Act is of most relevance to work being carried out under this contract. It integrates into one Act all the controls necessary to regulate pollution and reduce degradation of the environment, provides for licensing of scheduled development work, scheduled activities and for offences and prosecution under this Act.	High relevance The Act provides for the issuing of environmental protection notices to control work and activities not covered by licences. Section 148 of the Act requires a pollution incident-causing or threatening material harm to the environment to be notified to the EPA and other authorities immediately.

Legal and other requirements	Summary of obligations	Relevance to the project/ notes and system
Sydney Water Act 1994	This Act establishes the Sydney Water Corporation as a statutory State-owned corporation. The functions of the Sydney Water Corporation is to supply and store water, provide sewerage services, provide stormwater drainage and dispose of wastewater within its area of operations.	Medium relevance Coordination may be required with Sydney Water Corporation during the works.
Sydney Water Catchment Management Act 1999	This Act establishes the Sydney Catchment Authority as a statutory corporation representing the Crown. The role of the Sydney Catchment Authority is to manage and protect the catchment areas and catchment infrastructure works, be a bulk water supplier and to regulate activities within or affecting the catchment areas.	Low relevance This project will not impact on areas regulated by the Sydney Catchment Authority.
Pesticides Act 1999 *Pesticides Regulation 1995*	This Act and Regulation establish a legislative framework to regulate the use of pesticides. They have the objective to promote the protection of human health, the environment, property and trade in relation to pesticides. It is an offence under this Act and Regulation to wilfully or negligently misuse pesticides.	Low relevance It is not envisaged that pesticides will be used on the project by Laing O'Rourke.
Waste Avoidance and Resource Recovery Act 2001	This Act repeals the *Waste Minimisation and Management Act, 1995*.The purpose of the Act is to encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of ecological sustainable development. The Act provides for the making of policies and strategies to achieve these ends. It is an offence under the *Protection of the Environment Operations Act 1997* to wilfully or negligently dispose of waste in a manner that harms or is likely to harm the environment.	Medium relevance The relevance of the Act to this project is to implement the strategies by adopting the hierarchy of avoidance; avoidance of unnecessary resource consumption; resource recovery (including reuse, reprocessing, recycling and energy recovery) and disposal (as a last resort).

Table 13: Environmental planning legislation

Appendix 3: Risk assessment

All environmental issues have been assessed in accordance with Table 14 below.

Risk assessment rankings: >17 = Extreme | 10–16 = High | 5–9 = Medium | 1–4 = Low

Environmental issues which have an initial risk ranking of medium or high will require the development and implementation of ERAPs. Issues which have an initial extreme risk will require the development and implementation of an issue specific sub-plan.

The risks must be reassessed following the consideration of control measures. An owner for the implementation of the management measures must be nominated.

Issues or activities that represent an extreme risk after the application of control measures are not to be undertaken.

Aspect	Potential environmental impact	Initial risk rating P x C = Risk			Control measures	Residual risk rating P x C = Risk			Responsible person
Approvals and licensing									
Not identifying appropriate approvals/ licenses required or proceeding without them	Works delayed, infringements, poor client relations and reputational loss	4	3	12	Check Environmental Assessment/REF/EIS and statutory documentation Check contract documentation Document requirements in CEMP Establish a register of approvals, licenses, permits	2	3	6	Project Manager, WHSEQ Manager
Noise									
Noise from general construction activities resulting in impact to residents	Disturbance to residents or neighbouring businesses Potential for complaints	4	4	16	Develop and implement a Noise and Vibration Management Plan Consult with the community in relation to upcoming activities that may result in concern Establish noise targets and monitor for compliance as the works progress at receiver locations Provide periods of respite for high noise generating activities Apply noise mitigation measures during entire project Noise efficient equipment to be used on-site	2	4	8	Construction Manager
Vibration									
Vibration intensive activities undertaken on the site such as demolition, piling, vibratory rolling/ compaction	Disruption, annoyance and nuisance to residents Potential damage to adjacent residential and commercial residences and structures including the heritage-listed Firehouse Hotel Disruption to businesses as a result of vibration nuisance	4	3	12	Develop and implement a Noise and Vibration Management Plan Establish vibration targets and structure/receiver offset distances Consult with potentially affected parties prior to commencement of works on their upcoming activities that may be impacted by construction vibration Ongoing vibration monitoring during vibration intensive works	3	3	9	Construction Manager

Aspect	Potential environmental impact	Initial risk rating P x C = Risk			Control measures	Residual risk rating P x C = Risk			Responsible person
Water quality, erosion and sedimentation									
Sediment laden runoff from construction works leaving site	Degradation of local watercourses. Increased turbidity in local waterways resulting in impact on aquatic life Fines for sediment escaping site	3	3	9	Develop Erosion Sediment Control Plan Develop and implement sediment and erosion control measures including sediment basins, water collection and dispersal systems Ensure measures are inspected and maintained as the works progress and also prior to and post rainfall events Provide training and awareness on the need to prevent pollution Relevant people to undertake erosion and sediment control training	2	3	6	Construction Manager WHSEQ Manager
Stockpiling of vegetation and topsoil	Wind and water erosion causing weed/seed dispersion offsite Location of stockpiling next to waterways causing weeds/seeds to disperse from construction site	3	3	9	Develop environmental control maps to show stockpile areas Appropriate locations for stockpiling (away from waterways, watercourses, drains) Designated vegetation stockpiling areas Minimise stockpiling/Use temporary stockpiling Cover stockpiles if left for extended periods	2	3	6	Construction Manager
Non-compliant water from construction works discharged from site	Non-compliant water entering stormwater system waterways (i.e. polluting - not compliant with discharge criteria)	3	3	9	Induction and toolbox talks Toolbox training on-site procedures for water discharge Educate site staff on licence conditions and consequences of prosecution WHSEQ Manager/ representative to approve all water discharges from site	2	3	6	Construction Manager WHSEQ Manager
Waste									
Waste disposal during construction	Incorrect disposal of waste, further costs incurred for classifications and disposal, fines may be issued.	3	2	6	Develop CEMP Identify opportunities to incorporate recovered materials into the permanent works Provide facilities on-site for source separation and recycling Ensure accurate waste records are retained Removal of wastes from the site would only be undertaken by a licensed contractor as required by the *Protection of the Environment Operations Act 1997* and with appropriate approvals, if required, for contaminated materials All material to be recovered off-site to be appropriately classified in accordance with the resource recovery exemptions	2	2	4	Construction Manager

Aspect	Potential environmental impact	Initial risk rating P x C = Risk			Control measures	Residual risk rating P x C = Risk			Responsible person
					All material that requires off-site disposal to be appropriately tested and classified against the Waste Classification Guidelines (Department of Environmental Climate Change (DECC) 2008)				
Earthworks spoil disposal	Incorrect classification of waste (spoil) resulting in incorrect/illegal disposal/re-use	3	4	12	Inductions, toolbox talks and training on recycling facilities and waste segregation practices Separation of waste on-site Tracking of disposal processes All contamination hotspots would be clearly marked in the field	1	4	4	Construction Manager
Washout of concrete in undesignated areas	Sediment laden/alkaline water polluting surrounding stormwater system /watercourses	3	4	12	Concrete washout areas clearly marked on environmental control maps and delineated Inductions on designated concrete washout areas Subcontractors agreements to include project compliant waste management principles	1	4	4	Construction Manager Foreman
Contamination									
Management of contaminated or untreated materials	Non-compliant material and contaminated water entering surrounding waterways Decrease in health of nearby ecosystems	4	3	12	Develop contamination management procedures and protocols Identify any contamination hotspots and incorporate procedures for these locations into construction documentation Develop unexpected finds procedures	1	3	3	Construction Manager WHSEQ Manager
Potential for discovery of unexpected contaminated spoil during demolition	Health effects resulting from airborne contamination (for example, asbestos) Complaints received from odours released during excavations Classification of spoil is changed and disposal options altered, costs incurred associated with disposal of higher classification of waste	4	2	8	If contaminated soil is encountered, all works are to stop in the vicinity of the find and investigations commence Induct personnel on location, type, nature, concentration of contaminants on-site if found	2	2	4	Construction Manager Project/site engineers Foreman
Encountering asbestos/ contaminated material on-site	Transfer of material into previously uncontaminated area (outside work site) causing new contamination	3	4	12	Fibrous and synthetic minerals fibres identified in five different locations Specialist licenced contracts to be engaged to remove and dispose of asbestos-containing materials Contaminated soils would not be stockpiled on the structural fill layer or formation layers to avoid cross contamination	1	4	4	Construction Manager Foreman

Aspect	Potential environmental impact	Initial risk rating P x C = Risk			Control measures	Residual risk rating P x C = Risk			Responsible person
Hazardous materials									
Storage of hazardous substances, leaking plant and equipment and spillage from refuelling	Localised ground contamination/ pollution of stormwater and requiring clean-up and/or receiving fines Risk of igniting volatile substances Unauthorised access to site/ potential vandalism/damage leading to pollution	4	3	12	Induction, toolbox talks and training on appropriate handling and storage of liquids All stormwater drains should be identified prior to works Storage areas to be away from sensitive areas and appropriately bunded SDS approved prior to bringing hazardous substances on-site including risk assessment Plans showing storage locations and associated controls (for example, spill kits). (environmental control maps) Training in use of spill kits Contingency plans would be developed to deal with any spills which might occur during construction Clearly label containers Regular auditing and inspection of storage areas and materials Make storage areas restricted access areas Reduce/eliminate need for hazardous substances Ensure all work sites are secure before leaving the site All liquids (i.e. fuels, paint) are to be securely locked away at the end of each day	2	3	6	Foreman
Fuel contaminated runoff from construction works leaving site	Fuel contaminated runoff entering stormwater or waterways (i.e. polluting – not compliant with discharge criteria)	3	4	12	All stormwater drains should be identified prior to works and controls implemented Refuelling of vehicles away from culverts, water courses Appropriate bunding/storage of substances Toolbox on-site procedures for sediment controls and chemical storage Educate site staff on project conditions and consequences of prosecution	1	4	4	Construction Manager Foreman
Biodiversity									
Vegetation trimming/clearing required outside approved work area	Unauthorised works/removal of vegetation outside defined work area, possibility of removing threatened species, fines incurred	3	5	15	Induction and toolbox training on clearance zones and required protection measures Inspections during clearing activities Fencing in place/clear marking of trees to be retained and cleared/demarcation areas/ plans	1	5	5	Construction Manager Foreman

Aspect	Potential environmental impact	Initial risk rating P x C = Risk			Control measures	Residual risk rating P x C = Risk			Responsible person
					showing clearing areas Pre-clearing checklist to be completed before any clearing of vegetation Arboriculture report/arborist supervision				
Clearing and grubbing of vegetation within work site	Erosion of soils, uncontrolled runoff, sediment deposited into surrounding vegetated areas and water courses, and invasion of weeds Wrong vegetation removed Potential for injury to native fauna	4	5	20	Inductions and toolbox training on erosion and sediment controls Where possible works to be staged so environmental controls can be implemented after clearance works Approved Erosion and Sediment Control Plans in place prior to starting works Where applicable, mature trees and other native vegetation to be retained would be clearly delineated, with all construction activities excluded from these areas Pre-clearing checklist to be completed before any clearing of vegetation	1	5	5	Construction Manager Project/site engineers Foreman
Pest/rodent disturbance from site establishment	Potential to relocate into residential areas/cause of community complaint Health associated risks with increased rodents	3	3	9	Ensure site establishment has pest controls such as wire mesh around building bases to ensure pests do not use them for shelter If issue is problematic during construction activities, pest control services to be implemented as soon as possible	2	3	6	Construction Manager Foreman
Air quality									
General construction works; site establishment, demolition, earthworks	High dust activity in close proximity to live campus operations, dust deposition at sensitive receivers, repairs and clean-up needed, complaints received	4	2	8	Inductions and toolbox training on dust and air quality management Include provision for air quality monitoring during the works Provide dust mitigation measures through water sprays/misting when demolition is taking place Use of water carts during dry weather on haulage roads and excavations/batters Install dust controls immediately and continually through the project Erosion and Sediment Control Plans approved before works commence. Controls are then reviewed for maintenance. Physical barriers to be erected at right angles to the prevailing wind direction or placed around or over dust sources to prevent wind or activity from generating dust emissions Earthworks and scheduling activities	2	2	4	Construction Manager Project/site engineers Foreman

Aspect	Potential environmental impact	Initial risk rating P x C = Risk			Control measures	Residual risk rating P x C = Risk			Responsible person
					will be managed to coincide with the next stage of development to minimise the amount of time the site is left cut or exposed The surface should be dampened slightly to prevent dust from becoming airborne but should not be wet to the extent that runoff occurs All vehicles carrying spoil or rubble to or from the site will at all times be covered to prevent the escape of dust or other material All equipment wheels to be washed before exiting the site using manual or automated sprayers and drive-through washing bays Gates to be closed between vehicle movements and fitted with shade cloth Cleaning of footpaths and roadways will be carried out regularly Materials must not be burnt on the site Vehicles entering and leaving the site with soil or fill material must be covered				
Dust created during demolition activities	High dust activity in close proximity to residential and commercial premises, dust deposition at sensitive receivers, repairs and clean-up needed, complaints received	4	3	12	Outline air quality management/mitigations in Demolition Plan Ensure water application is used to mitigate fugitive dust emissions at the source when hammering Shade cloth to be installed surrounding demolition works Dust suppression measures must be carried out to minimise wind-borne emissions in accordance with the NSW Department of Housing's 1998 guidelines	2	2	4	Construction Manager Project/site engineers Foreman
Exhaust from plant and equipment	Emissions resulting in air pollution	3	2	6	Inductions and toolbox training on dust and air quality management Well maintained plant/ equipment and pre-start checks and servicing Non-complaint vehicles removed from site/repaired	2	2	4	Foreman
Heritage									
Unexpected heritage items encountered	Work delays, additional studies, approvals required, damage to heritage item	3	4	12	General inductions toolbox training on heritage management protocols Label any known heritage items on environmental control maps If suspected heritage item encountered, works to stop immediately and WHSEQ Manager	2	4	8	Construction Manager Project/site engineers

Aspect	Potential environmental impact	Initial risk rating P x C = Risk			Control measures	Residual risk rating P x C = Risk			Responsible person
					contacted Engaging with Campus Infrastructure Services Heritage Manager to identify any items of significance and developing a Heritage Impact Assessment				
Traffic									
Loss of parking in adjacent areas to campus during construction	Loss of parking availability to adjacent commercial properties could result in complaints	3	2	6	Community notifications Develop Traffic Management Plan/traffic control procedures	2	2	4	Construction Manager Project/site engineers Stakeholder Manager
General construction traffic disturbing public access between local roads	Disturbance to local residents resulting in complaints being made, limited access, potential for delays at local road access points resulting in complaints	2	2	4	Approved traffic management plans in consultation with relevant authorities. Detour routes to be advertised/ notified Approved access routes, detailed traffic control plans Clear notifications/signage	2	2	4	Construction Manager Project/site engineers Stakeholder Manager
Management of heavy vehicles/ haulage routes	Complaints from sensitive receivers due to increased level and frequency of noise	3	2	6	Designated haulage routes Approved traffic management plans Community notifications Pedestrian management with traffic controller in place where required	2	2	4	Construction Manager Stakeholder Manager
Truck deliveries out of normal working hours (unapproved)	Non-conformance with project requirements Noise impact to community/potential complaints	3	3	9	Personnel training of noise awareness to community included in induction and toolboxes Induction on construction hours for deliveries Communication of delivery times to suppliers Community notifications on project activities occurring locally Code of conduct/selection criteria in place for subcontractors Out of hours works approval required Approved traffic/haulage routes Planning and staging of works in approved hours as much as practical	2	3	6	Project Manager Construction Manager Project/site engineers Stakeholder Manager
Resources and energy use									
Energy consumption by construction plant and operation of site compound facilities	Inappropriate energy use, waste of energy recourses, energy wastage costs, increased greenhouse gas emissions	3	3	9	Inductions and toolbox training on waste management and energy saving practices in construction plant and equipment and during site office work No idling of plant equipment where possible onsite Equipment/plant equipment inspections must be undertaken prior	3	2	6	Construction Manager Project/site engineers Foreman

Aspect	Potential environmental impact	Initial risk rating P x C = Risk			Control measures	Residual risk rating P x C = Risk			Responsible person
					to use on-site				
Water usage during construction activities	Excess usage of potable water for construction activities leading to a decline in the amount of potable water for residents	3	2	6	Include water conservation measures and verifiable targets Capture and reuse rainfall and runoff for site activities	2	2	4	Construction Manager Foreman
Resource usage (for example, building materials, water, fuels, packaging), waste generation and disposal	Depletion of resources due to wastage (for example, waste water/no recycling, poor management of procurement, ineffective removal of offcuts, waste/i.e. no recycling)	2	4	8	Inductions and toolbox talks on recycling facilities and waste segregation, training/education on how to recycle Procurement of materials (selection of materials) to be considered Subcontractors agreements to include project-compliant waste management principles Waste management undertaken in accordance with the *Waste Avoidance and Resource Recovery Act 2001* Recycling of materials in accordance with the University's Sustainability Framework Managing urban stormwater: soils and construction. Odour suppression measures must also be carried out where appropriate so as to prevent nuisance occurring at adjoining properties	2	2	4	Construction Manager Project/site engineers Foreman

Table 14: Risk assessment

Environmental risk assessment rankings

Table 15 may be used as a guide in determining the level of risk for each environmental issue. For each identified issue, consider the 'maximum credible' (not absolute worst case) risk that could result with minimal or no controls other than existing and using normal construction practices.

Note: Any one of the listed consequences must result in the use of the applicable consequence grading.

Probability:			Consequence:		
5 = Certain | 4 = Likely | 3 = Possible | 2 = Unlikely | 1 = Rare			5 = Severe | 4 = Major | 3 = Moderate | 2 = Minor | 1= Incidental		
1–4 Acceptable 5–9 Acceptable with control measures 10–16 Requires the implementation of best practice 17 and above = Unacceptable					
Likelihood (Probability and frequency of occurrence)			Consequence (Outcome or severity of occurrence)		
5	Certain	Common or repeating occurrence Consequence can reasonably be expected to occur in life of project	5	Severe	Major pollution incident causing significant and widespread damage or potential to health or the environment Persistent reduction in ecosystem function and value Ongoing disruption and loss of protected species Major prosecution likely, outcome in excess of $500,000
4	Likely	Known to have occurred/ "has happened" Conditions may allow the consequence to occur on the project during its lifetime The event has occurred within the Business Unit within the previous five years	4	Major	Significant widespread and persistent changes to habitat, species or environmental media Significant pollution incident causing damage or potential damage to health or the environment external to the site Potential for prosecution Potential outcome between $50,000 - $500,000 Numerous substantial complaints Actual material environmental harm
3	Possible	Could occur/"heard of it happening" Exceptional conditions may allow consequences to occur on the project, or has occurred nationally within the Australian business	3	Moderate	Localised irreversible habitat loss or effects on habitat, species or environmental media Reportable incident to the relevant environmental regulator or other authority Demonstrated breach of legislative, licence or guideline requirements Likely infringement notice or fine Potential for prosecution up to $50,000 Will cause complaints
2	Unlikely	Not likely to occur Reasonable to expect that the consequence will not occur on the project Has occurred in industry but not in Business Unit	2	Minor	Localised degradation of habitat or short-term impacts to habitat, species or environmental media Pollution incident that marginally exceeds licence conditions or guidelines for acceptable pollution Fine unlikely Potential for complaints
1	Rare	Practically impossible Not known to have occurred in industry or unheard of	1	Incidental	Localised or short-term effects on habitat, species or environmental media Fully contained on-site and can be fully remediated Little potential for fine or complaints Insignificant or trivial incident

Probability ► ▼Consequence	CERTAIN 5	LIKELY 4	POSSIBLE 3	UNLIKELY 2	RARE 1
5 – Severe	25	20	15	10	5
4 – Major	20	16	12	8	4
3 – Moderate	15	12	9	6	3
2 – Minor	10	8	6	4	2
1 – Incidental	5	4	3	2	1

Table 15: Risk assessment ratings

Appendix 4: Operational control procedures

ERAPs will be developed for each environmental issue which has a risk ranking of medium or high. Significant environmental issues will be managed according to the ERAPS in Table 16.

Noise and vibration (also refer to Project Specific Construction Noise and Vibration Management Plan submitted under Condition B20)	
Objective	To comply with contractual requirements and ensure that noise and vibration from construction activities does not cause environmental nuisance.
Targets	• No valid noise/vibration complaints resulting from construction works • No unreasonable noise or vibration • No noise and vibration impacts on external receptors.
Legal, contractual and other requirements	• Contract specification clause • Construction activities that are inaudible/external to the site may be undertaken outside of these hours where approved • Development Consent • *Protection of the Environment Operations Act 1997* • *Protection of the Environment Operations (Noise Control) Regulation 2000* • *Local Government Act 1993* • AS2436 Guide to Noise Control on Construction, Maintenance and Demolition Sites. • Development Consent SSD 8636
Site-specific planning/ approval conditions/ licence conditions	Construction works to be restricted to within the hours of 7.00am to 6.00pm Monday to Friday and on Saturday within the hours of 7.30am to 3.30pm inclusive, with no work on Sundays and public holidays. Rock breaking, rock hammering, sheet piling, pile driving and similar activities may only be carried out between 9am to 12pm and 2pm to 5pm Monday to Friday, and 9am to 12pm Saturday. Where it is necessary for works to occur outside those hours allowed by these conditions, approval will be subject to issue of a permit on each occasion from Council's Customer Services Centre.

Controls (means and resources)	• No work will be undertaken outside of the agreed hours without prior approval
	• Where work outside the hours nominated above is required, approval will be gained prior to the commencement of works
	• Where construction vibration is found to be causing a disturbance, the construction methods will be reviewed to reduce the impact where possible
	• Site offices, compounds and sheds will be located so as to have no negative impact on the noise amenity of nearby sensitive receptors
	• Delivery operations or other noise generating activities at compound and storage areas will take place during the designated construction hours nominated above, unless specifically required by Police or Roads and Maritime Services requirements
	• Where practical, substitution of excessively noise processes with alternative processes
	• Avoiding where practical the use of noisy plant simultaneously close together or adjacent to sensitive receptors
	• High efficiency mufflers must be fitted to all plant and equipment to minimise the generation of noise
	• All plant will be maintained in accordance with the manufacturer's requirements
	• Noise-generating equipment to be orientated away from sensitive areas
	• Undertaking loading and unloading activities away from sensitive areas and during designated construction hours
	• Select the most appropriate plant and equipment to minimise noise generation and include where necessary screening and enclosures
	• On-site generators and auxiliary power sources used during construction should be positioned away from existing buildings to buffer noise/vibration
	• Regular checks are to be undertaken to ensure all equipment and vehicles are in good working order and are operated correctly. Checking should include:
	  • Engine covers
	  • Defective silencing equipment
	  • Rattling components

	• Leakages in compressed air lines • Awareness training and information will be provided to project personnel in relation to the vibration requirements on the project and the need to minimise vibration when in close proximity to operational areas • Plant, equipment and processes will be selected so as to limit construction-related vibration • Restrict or modify working hours to minimise impact if required. Include periods of respite where possible when vibration-generating activities are being undertaken.
Responsibilities	• The Construction Manager will ensure construction activities comply with these requirements and implement the control measures. • The Construction Manager/Project Manager will obtain approval to work outside approved hours.
Timeframe	• Duration of site works
Monitoring and reporting	• Weekly inspections to be recorded on Form E-T-8-1227 • Complaints to be recorded on form Environmental Incident and Complaint Report (E-T-8-1222 Environmental Incident and Complaint Report) • Daily inspection (pre-start) checks and regular servicing of equipment • Daily/weekly check sheets to be kept for engine-driven or other 'noisy' equipment.

Tree protection (also refer to Arborist Impact Assessment Tree Protection Specification)	
Objective	To comply with contractual and Development Consent requirements and ensure that on-site trees are protected, where required from construction activities.
Targets	• Compliance with Development Consent requirements in relation to protected trees from Local Council • No damage/death to trees marked as protected on the project • All Laing O'Rourke staff and subcontractors are informed of the requirements of protected trees.
Legal, contractual and other requirements	• Contract specification clause • Planning consent conditions – approval number • *Heritage Act 1977* • *Local Government Act 1993* • *Local Government (General) Regulation 2005.* • Development Consent SSD 8636
Site-specific planning/approval conditions/licence conditions	No trees on public property (footpaths, roads, reserves), unless specifically approved by the planning consent, will be removed or damaged during construction including for the erection of any fences, hoardings or other temporary works. Prior to the issue of a final Occupation Certificate, a report prepared by an appropriately qualified person (being an arborist or the like) will be submitted to the Principal Certifying Authority, detailing the health of the street trees to be retained. A specialist arborist with AQF Level 5 qualifications in arboriculture must be engaged prior to the detailed design stage to provide information and specialist advice to the consultant team in the protection of existing trees.
Controls (means and resources)	• Ensure approval is provided to remove trees • Appropriately trained and qualified tree removal contractors to be used • Awareness training in the need to preserve vegetation to be retained • Provide tree protection measures and tree protection zones for trees to be retained.
Responsibilities	Project Manager, Construction Manager and Laing O'Rourke staff to ensure all targets are met.
Timeframe	Duration of works by Laing O'Rourke.
Monitoring and reporting	E-T-8-1227

Dust and air quality	
Objective	To comply with contractual requirements and ensure that dust and other air emissions from construction activities do not cause impacts on sensitive receivers and equipment.

Dust and air quality	
Targets	• No valid dust complaints from construction works • No dust impacting on offsite activities or surrounding residences • No release of contaminants (for example, odour, smoke) into the air • Comply with construction contract conditions.
Legal, contractual and other requirements	• Contract specification • Planning consent conditions – approval number • *Protection of the Environment Operations Act 1997* • *Protection of the Environment Operations (Clean Air) Reg 2002* • *Local Government Act 1993.* • Development Consent SSD 8636
Site-specific planning/ approval conditions/licence conditions	• Physical barriers to be erected at right angles to the prevailing wind direction or placed around or over dust sources to prevent wind or activity from generating dust emissions • All demotion works will be subject to air monitoring and water suppression at times of breaking and crushing • Earthworks and scheduling activities will be managed to coincide with the next stage of development to minimise the amount of time the site is left cut or exposed • All materials stored or stockpiled at the best locations and identified in the environmental control plans • The surface should be dampened slightly to prevent dust from becoming airborne but should not be wet to the extent that runoff occurs • All vehicles carrying spoil or rubble to or from the site will at all times be covered to prevent the escape of dust or other material • All vehicles will be clean prior to leaving site • Gates to be closed between vehicle movements and fitted with shade cloth • Cleaning of footpaths and roadways will be carried out regularly • Materials must not be burnt on the site • Vehicles entering and leaving the site with soil or fill material must be covered • Dust suppression measures must be carried out to minimise windborne emissions in accordance with the NSW Department of Housing's 1998 guidelines – Managing Urban Stormwater: Soils and Construction. Odour suppression measures must also be carried out where appropriate so as to prevent nuisance occurring at adjoining properties.
Controls (means and resources)	• Spraying formations and exposed work areas to suppress dust using water carts, tankers and other suitable equipment • Minimise traffic on exposed areas – create designated haul roads • Cover haul vehicles loads and ensure tail gates are closed when operating on public roads • Provide shaker grids or rumble strip at site egress points. Note where aggregate is used, minimum size is 150mm • Remove mud from haul vehicles prior to entering public roads • Remove spilt mud by construction equipment or vehicles on public roads • Reprogram dust-generating work during periods of high wind • Provide awareness training in the need to minimise dust during site inductions and toolbox talks • Regular visual monitoring of dust generation • Maintenance of plant and equipment as per manufacturer's requirements.
Responsibilities	• The Construction Manager/Project Manager to implement the requirements of this ERAP • Construction Manager to inspect the works at regular intervals to identify areas of dust generation.
Timeframe	• Shaker grids to be installed prior to commencement of works • Water tankers and other measures available at the commencement of earthworks • Spilt mud and sediment to be removed from public roads prior to the end of each shift • Duration of site works.
Monitoring and	• Weekly inspections to be recorded on Form F1227

Dust and air quality	
reporting	• Complaints to be recorded on form Environmental Incident and Complaint Report (E-T-8-1222 Environmental Incident and Complaint Report).

Waste (also refer to Project Specific Construction Waste Management Plan submitted under Condition B21)	
Objective	To comply with contractual and legislative requirements and ensure that waste from construction activities does not have the potential to escape from the site and cause an environmental nuisance/harm.
Targets	• No incidences where waste is stored in a position where it has the potential to move off site • All off site movements of waste will be tracked • The principles of the waste management hierarchy will be adopted, where practicable • Target to reuse or recycle 85% by weight of construction waste • Waste will be minimised wherever possible.
Legal, contractual and other requirements	• Contract Specification Clause • *Protection of the Environment Operations Act 1997* • *Protection of the Environment Operations (Waste) Regulation 2005* • *Waste Avoidance and Resource Recovery Act 2001* • *Local Government Act 1993* • *Local Government (General) Regulation 2005* • Safework NSW code of practice, How to manage and control asbestos in the workplace • Safework NSW code of practice How to safely remove asbestos. • Development Consent SSD 8636
Site-specific planning/ approval conditions/licence conditions	A Waste Management Plan is to be submitted with the relevant construction certificate or licence to undertake the work. The plan should include, but not be limited to: • The estimated volume of waste and type, method of disposal for the construction and operation phases of the development • The allocated locations for on-site waste storage and segregation of hazardous materials and recycling area • Administrative arrangements for waste and recycling management during the construction process. An appropriate area will be provided within the premises for the storage of garbage bins and recycling containers and all waste and recyclable material generated by the premises. The following requirements will be met: • All internal walls of the storage area to be rendered to a smooth surface, coved at the floor/wall intersection, graded and appropriately drained with a tap in close proximity to facilitate cleaning • Include provision for the separation and storage in appropriate categories of material suitable for recycling • The storage area will be adequately screened from the street, with the entrance to the enclosures no more than 2m from the street boundary of the property • If a storage facility is to be provided at another suitable location within the building, a complementary garbage bin holding bay will be provided no more than 2m from the street boundary of the property • Garbage enclosures serving residential units are not to be located within areas designated for non-residential uses • Garbage enclosures serving non-residential uses are not to be located within areas designated for dining purposes • The Principal Certifying Authority must ensure that the building plans and specifications submitted by Laing O'Rourke, referenced in and accompanying the issued construction certificate, fully satisfy the requirements of this condition. NOTE: Laing O'Rourke may wish to discuss bin storage requirements and location with Council prior to finalisation of the required detail, and obtain a copy of Council's Waste Handling Guide for reference purposes. All hazardous materials will be removed from the site and disposed at an approved waste disposal facility in accordance with the requirements of the relevant legislation, codes, standards and guidelines, prior to the commencement of any building works. Details demonstrating compliance with the relevant legislative requirements, particularly the method of containment and control of emission of fibres to the air, are to be submitted to the satisfaction of the Principal Certifying Authority (Philip Chun; as appointed by the University) prior to the removal of any hazardous materials.

Waste (also refer to Project Specific Construction Waste Management Plan submitted under Condition B21)	
Controls (means and resources)	• Licensed waste contractors will be used to remove waste • All waste is to be disposed of at a lawful facility. A lawful facility includes one that has the appropriate Development Consent, Environment Protection Licence or is complying with EPA approved conditions and requirements • Use a licensed contractor to remove waste from site and apply Laing O'Rourke asbestos removal permit where applicable • Waste must be classified prior to disposal – refer to NSW EPA Waste Classification Guidelines • All spoil material removed from the site will be classified as per the NSW EPA Waste Classification Guidelines. Only a suitable licensed or approved facility or approved site may receive the waste • Records of the quantity and final location of the spoil material will be retained • Use skip bins and ensure there are an adequate number of bins on-site to hold all waste generated • Use designated concrete wash outs/trays – lined/contained • Provide bins to enable waste segregation • Provide recycling services (for example, paper, concrete, steel, cardboard, timber) • Ensure housekeeping is maintained and waste is disposed of to the appropriate bin • Retain waste disposal permits and figures on the amount of waste that has been removed from site. • Materials identified as contaminated must be disposed off-site, with the disposal location and results of testing submitted to the Planning Secretary, prior to its removal from site.
Responsibilities	• The Construction Manager will ensure waste is correctly stored, classified, recorded, tracked and minimised at all times • The Project Manager is accountable for ensuring lawful waste disposal • All personnel are responsible for ensuring waste is placed in the bins provided.
Timeframe	Duration of site works.
Monitoring and reporting	• Skips monitored visually by the Foreman on a daily basis • Environmental Checklist E-T-8-1227 to be used to verify site waste practices • Waste disposal records to be recorded in waste tracker through Impact.

Water quality, site drainage and erosion and sediment control (also refer to Project specific Construction Soil and Water Management Plan submitted under Condition B22)	
Objective	To comply with contractual and legislative requirements and ensure that water discharged off-site from construction and erosion and sediment control (ESC) activities does not cause environmental nuisance/harm.
Targets	• No sediment impacts to the surrounding environment and waterways as a result of the works • Prevent water quality impacts off site as a result of erosion and sedimentation.
Legal, contractual and other requirements	• Planning consent conditions • *Protection of the Environment Operations Act 1997* • *Water Management Act 2000* • *Local Government Act 1993.* • Development Consent SSD 8636
Site-specific planning/ approval conditions/licence conditions	All erosion and sediment control measures are to 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 has been stabilised and rehabilitated so that it no longer acts as a source of sediment. A durable sign will be erected during building works in a prominent location on-site, warning of penalties should appropriate ESC devices not be maintained. During construction, stormwater runoff must be disposed in a controlled manner that is compatible with the ESC on the site. Immediately upon completion of any impervious areas on the site (including roofs, driveways, paving) and where the final drainage system is incomplete, the necessary temporary drainage systems must be installed to reasonably manage and control runoff as far as the approved point of stormwater discharge. Ongoing measures will be to the satisfaction of the Principal Certifying Authority.

Water quality, site drainage and erosion and sediment control (also refer to Project specific Construction Soil and Water Management Plan submitted under Condition B22)	

Controls (means and resources)	• Erosion and Sediment Control Plans will be developed and implemented prior to the commencement of topsoil stripping and earthworks
	• Development of Erosion and Sediment Control Plans will be guided by the "Blue Boo" and other guidelines where required
	• Particular attention will be paid to the design criteria for sediment fences, straw bales, catch drains, diversion drains, sandbags and similar controls
	• Permanent drainage to be installed as early in the program as possible
	• All water discharged in accordance with legislation and only after Laing O'Rourke approval
	• Discharge quality must comply with:
	  • TSS: ≤ 50mg/L (~Turbidy 30NTU). If this cannot be achieved through natural settling, then the trapped sediment laden water is to be flocculated with gypsum applied at a rate of approx. 40kg/100m^3
	  • pH: Between 6.5 and 8.
	• Provide stabilised site egress points. Note where aggregate is used, minimum size is 150mm
	• Top soil/mulch stockpiles to be not greater than 2.0m in height. All stockpiles will be located clear of watercourses and drainage works
	• Wastewater management facilities to only be provided through connection to existing sewer or proprietary storage and pump out systems are permitted
	• Wastewater storage and pump out systems will be procured, installed and operated in accordance with SR04 planning, including the provision of automatic cut-off valves for inflows and high level alarms
	• All disturbed surfaces will be revegetated within one month of final land forming and in compliance with the landscaping plans
	• ESC devices are to be maintained when their capacity has been reduced by 25%
	• Under no circumstances will temporary stockpiles be placed within 5m of the site boundary or in a position where it could impact adjacent property
	• Toolbox talks will be conducted for employees and subcontractors on the requirements of the Erosion and Sediment Control Plan
	• The Erosion and Sediment Control Plan is to be maintained and up-to-date for the current site conditions
	• Use sand bag check dams to protect stormwater drains as required
	• All ESC works will be removed immediately prior to final completion and all surfaces will be returned to pre-existing condition.

Responsibilities	• All staff to ensure adequate ESC devices are installed and maintained • PER will undertake "at least weekly" inspections of on-site ESC devices, plus prior to expected rainfall and after rainfall • Construction Manager responsible for the repair/management of any damage or additional ESC devices, as required.
Timeframe	Duration of site works.
Monitoring and reporting	• Visually monitored daily by site supervision • Weekly inspections to be documented on the weekly Environmental Inspection Checklist Form E-T-8-1227 • Maintenance activities for Erosion and Sediment Control Plans will be documented – items that cannot be immediately repaired are to be documented on the project CAR register • All water quality data including quantity, quality and dates of water release will be maintained in the project records.

Traffic management (also refer to Project specific Construction Traffic and Pedestrian Management Plan submitted under Condition B19)	
Objective	To comply with contractual requirements and ensure that noise and additional traffic from construction activities does not cause an environmental nuisance.
Targets	• No valid complaints resulting from congestion from construction traffic outside the approved Works Traffic Management Plan • Transport Management Plan to be implemented and project personnel assign roles under Chain of Responsibility

Traffic management (also refer to Project specific Construction Traffic and Pedestrian Management Plan submitted under Condition B19)	
	(CoR) • Comply with traffic management standards • No visible cueing in streets surrounding the site.
Legal, contractual and other requirements	• Planning consent conditions • *Protection of the Environment Operations Act 1997* • *Roads Act 1993* • *Road and Maritime Services (RMS) Traffic Control at Work sites* • *Roads (General) Regulation 2000* • *Local Government Act 1993* • *National Heavy Vehicle Law 2014.* • Development Consent SSD 8636
Site-specific planning/ approval conditions/licence conditions	A detailed heavy vehicle access route map through the Council area to arterial roads. Provision is to be made to ensure through traffic is maintained at all times. A Works Transport Management Plan for service, delivery and garbage vehicles accessing the site will be submitted and approved in writing by Sydney City Council traffic committee prior to the issue of any construction certificate and will include details of a management strategy for the operation of the truck hoist to minimise queuing of delivery vehicles/trucks in the local road network. Prior to the issue of a construction certificate, a Works Traffic Management Plan prepared by a suitably qualified person will be submitted to and approved by the Principal Certifying Authority.

Controls (means and resources)	• A Works Traffic Management Plan will be developed detailing the route to the site, times of activity, types of machinery, signage, traffic control measures
	• An approved Traffic Control Plan is required for any activity on/or immediately adjacent to public roads
	• The Works Traffic Management Plan will detail the monitoring and inspection requirements and roles included in the CoR for consignment, dispatching, loading and unloading
	• There will be no cueing of vehicles on any roads adjacent to the site
	• There will be no construction parking in non-approved zones or parking areas
	• Ensure pedestrian access ways are clearly defined and maintained
	• Regular checks are to be undertaken to ensure all equipment and vehicles are in good working order and are operated correctly. Checking should include:
	  • Defective silencing equipment
	  • Rattling components.

Responsibilities	The Construction Manager is responsible for ensuring traffic management plans and traffic control plans are developed, approved and implemented.
Timeframe	Duration of site works.
Monitoring and reporting	E-T-8-1222 to be used to document complaints. Daily inspection, checks and regular maintenance to be completed for traffic control measures.
Hazardous/contaminated material (also refer to Project specific Asbestos Works Management Plan submitted under Condition B24)	
Objective	To comply with contractual and legislative requirements and ensure that hazardous/contaminated material from construction activities does not cause an environmental nuisance/harm and is disposed of in accordance with legislative requirements.
Targets	• No environmental incidences involving contaminated/hazardous materials • No pollution events of the surrounding environmental and waterways by contaminated material • All off-site movement of any found contaminated material will be tracked.
Legal, contractual and other requirements	• Contract specification clause • *Dangerous Goods Safety Management Act 2001* • *Dangerous Goods Safety Management Regulation 2001*

Hazardous/contaminated material (also refer to Project specific Asbestos Works Management Plan submitted under Condition B24)	
	• AS/NZS 1940: 2004 - The Storage and Handling of Flammable and Combustible Liquids • Australian Dangerous Goods Code, 5th Edition. • Development Consent SSD 8636
Site-specific planning/ approval conditions/licence conditions	All hazardous materials will be removed from the site and disposed at an approved waste disposal facility in accordance with the requirements of the relevant legislation, codes, standards, guidelines and licences, prior to the commencement of any building works. Details demonstrating compliance with the relevant legislative requirements, particularly the method of containment and control of emission of fibres to the air, are to be submitted to the satisfaction of the Principal Certifying Authority prior to the removal of any hazardous materials. Prior to issuing any Occupation Certificate for building works where asbestos-based products have been removed or altered, an asbestos clearance certificate signed by an appropriately qualified person (being an Occupational Hygienist or Environmental Consultant) must be submitted to the Principal Certifying Authority (and a copy forwarded to Council) for the building work.
Controls (means and resources)	If previously unidentified contamination (asbestos or contamination other than asbestos such as material visibly different to surrounding material, fibrous in nature, exhibits hydrocarbon odours or other unexpected characteristics, unknown containers, piping, underground storage tanks, or similar structures) is discovered, the following unexpected finds procedure is to be implemented: • Immediately cease work and contact the Site Manager and Project Leader (Project Leader to contact the client representative) • Demarcate the 'unexpected/suspected contamination' to prevent access and install appropriate environmental and safety controls. • A suitably qualified contamination specialist to assess and prepare a report detailing the degree, nature and extent of contamination and if contamination is to be reported in accordance with relevant environmental and safety legislation, regulations and guidelines (including advice on whether there is a Duty to Report under section 60 of the Contaminated Land Management Act 1997, and notify the EPA in accordance with the EPA's Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997 (2009) • Works may only recommence upon receipt of clearance / validation report from a suitably qualified occupational hygienist/ contamination specialist (as relevant to contamination discovered) that the remediation activities have been undertaken in accordance with the investigation report and remediation methodology. • Prior to disposal of asbestos and contaminated material offsite, the material should be tested against the *Waste Classification Guidelines* and disposed as per classification status, using an EPA licensed transporter and to an EPA licensed waste facility that can accept the waste.The disposal location and results of testing must be submitted to the Planning Secretary, prior to its removal from site. Refer to "Waste ERAP", for further waste assessment, classification, tracking, disposal and record keeping requirements. The management, removal, handling and disposal of any asbestos or asbestos containing materials would be undertaken by an appropriately qualified/ licenced Occupational Hygienist and removalist and in accordance with applicable notifications/ permits and safety legislation/regulations, Codes of Practice for the Safe Removal and Management and Control of Asbestos in Work Places. Refer Appendix 14.If substance is assessed as not presenting an unacceptable risk to human health, the Foreman will remove the controls and continue work. In addition, the following controls will be incorporated: • Manage any contaminated material as per legislative/EPA requirements including the testing and assessment at the direction of the University's representative • Protect the environment by implementing control measures to divert surface runoff away from the potentially contaminated ground • Capture and manage any surface runoff contaminated by exposure to contaminated ground • Environmental awareness training relating to the identification and management of acid sulphate soils to be provided to all site personnel involved in earthworks, excavation or drainage construction activities. • The Client's Representative shall be notified upon discovery of suspected ASS or PASS. • Implementation of a specific runoff control plan to prevent acid runoff from contaminating site areas and watercourses. • Suspected ASS/PASS stockpiles to be covered with plastic overnight. DO NOT re-use/recycle, dispose or illegally dump contaminated materials on-site or off-site; to be disposed to a lawful waste facility such as a

Hazardous/contaminated material (also refer to Project specific Asbestos Works Management Plan submitted under Condition B24)	
	licensed landfill.
Responsibilities	Site Manager, Project Manager and Laing O'Rourke staff to ensure all targets are met.
Timeframe	• Contaminated material: Duration of any contaminated material removal • Hazardous material: Duration of site works.
Monitoring and reporting	Receipts for the disposal of any found hazardous material will be filed on-site by the WHSEQ Manager. The finding of any contaminated material on-site will be reported monthly by the WHSEQ Manager using E-T-8-0908.
Trade waste	
Objective	To comply with contractual and legislative requirements and ensure that trade waste from construction activities does not cause an environmental nuisance/harm.
Targets	• All trade waste to be discharged in accordance with legislation and approvals • Educate Laing O'Rourke staff and subcontractors on the relevant legislation, the correct use of the washout system and the Laing O'Rourke Trade Waste Permit where required • Reduced impacts to the surrounding environment and waterways.
Legal, contractual and other requirements	• Contract specification clause • *Sydney Water Act 1994* • *Sydney Water Catchment Management Act 1999.* • Development Consent SSD 8636
Controls (means and resources)	• Provide a washout system on-site which complies with all relevant legislation and contract conditions • Any paint washout required will only be undertaken in the designated areas with appropriate bunding and control measures • Ensure the washout system is in a location which is away from stormwater drains and water courses • Trade waste or other prohibited substances will not be discharged into infrastructure (stormwater drains or sewerage system) without the approval • Note: Laing O'Rourke staff and subcontractors may be prosecuted if they are found illegally dumping trade waste and could be responsible for paying sewerage system repair costs • Toolbox talks will be conducted for Laing O'Rourke staff and subcontractors in the correct use of the washout system and legislation • Ensure the washout system is monitored and cleaned on a regular basis.
Responsibilities	The Project Manager will ensure a permit has been obtained prior to discharging trade waste. The PER will ensure all relevant subcontractors undertake toolbox talks in relation to washout legislation and use.
Timeframe	At all times when there is site connection to sewage facilities.
Monitoring and reporting	• Visually monitored daily by the PER • Inspection report F1227 detailing any trade waste issues will be completed by the PER

Concrete Washout	
Objective	To comply with contractual and legislative requirements in relation to the washing out of concrete on the project.
Targets	• Zero spills or uncontrolled release of concrete • No instances of uncontrolled concrete washout.
Legal, contractual and other requirements	• Contract specification • *Protection of the Environment Operations Act 1997.* • Development Consent SSD 8636
Site-specific planning/ approval conditions/licence conditions	Any existing concrete of suitable volume, which is not used as fill, will be taken to a concrete recycling works and evidence that this has occurred will be provided to the Principal Certifying Authority.
Controls (means and resources)	• Concrete washout to be constructed with geo-fabric lining and bunded • Location of washout to be at least 20m away from any drainage line or stormwater system, if able • Washout to be constructed prior to commencement of concrete works • Washout to be barricaded off on all sides when not in use to prevent unauthorised entry • Washout area is to be inspected daily by the Foreman to ensure residual water levels don't exceed 75% of capacity • Record of daily inspection to be kept in Foreman's diary when concrete washout is being undertaken • Washout area to be cleaned when the capacity has been reduced below 50% • Cleaning of washout to involve, removal of spoiled geo-fabric material and disposed to a licensed facility. Records to be retained. • Where possible waste concrete to be returned to the batch plant or concrete recycler • Concrete truck drivers are to be advised of the location of the washout area prior to arrival on-site • The requirements relating to concrete washout on-site are to be provided to the supplier prior to the works.
Responsibilities	• The Construction Manager to ensure an approved and prepared area for concrete washout is available • All personnel required to ensure the requirements of this ERAP are implemented for their operations • Construction Manager and Project Manager required to advise Laing O'Rourke of any concrete spills • Construction Manager responsible for confirming these requirements with the concrete supplier prior to the works.
Timeframe	Duration of site works.
Monitoring and reporting	• Weekly inspections to be recorded on Form E-T-8-1227 • Incidents or spills of concrete to be recorded on form Environmental Incident and Complaint Report (E-T-8-1222 Environmental Incident and Complaint Report).

Delivery and storage of chemicals, fuels and oils, including dangerous goods requirements	
Objective	• To comply with contractual and legislative requirements in relations to the transport of dangerous goods • To comply with contractual and legislative requirements in relation to the storage of chemicals, fuels and oils on the site • To ensure contractual and legislative requirements in relation to hazardous substances and dangerous goods are adequately addressed for all operations – there are specific additional requirements relating to the storage and transport of dangerous goods.
Targets	• Zero spills or uncontrolled release of fuel, oils or chemicals associated with Laing O'Rourke's operations • Compliance with relevant transport and storage requirements • All vehicles transporting dangerous goods have appropriate placards, licenses and emergency equipment and procedures.
Legal, contractual and other requirements	• AS/NZS 1940: 2004 – The Storage and Handling of Flammable and Combustible Liquids • *Dangerous goods (Road and Rail Transport) Act 2008* • *Dangerous goods (Road and Rail Transport) Regulation 2008*

Delivery and storage of chemicals, fuels and oils, including dangerous goods requirements	
	• Australian Dangerous Goods Code, 7th Edition • Contract specification. • Development Consent SSD 8636
Controls (means and resources)	The following are the minimum general control measures to be implemented on the project; however, additional control measures may be required following the completion of the construction process procedure/work method statement for the proposed activity: • Minimise storage of fuel, oil, chemicals or other dangerous goods on-site, though efficient and timely ordering • The SDS and material risk assessment including any specific control externaasdaasdaaaa are to be submitted where required to the University's representative for each and every substance to be brought onto site • A risk assessment relating to the use of these materials is to be completed in accordance with the Work Health and Safety Management Plan prior to the arrival of these goods to site • SDS and associated documentation for each material to be reviewed prior to the completion of the risk assessment for the relevant construction process. A copy to be included with the SWMS. • Ensure SDS are available on-site for all fuels, oils, chemicals and dangerous goods. Suppliers are to provide SDS prior to dispatch of the material. • Chemicals, fuels and oils to be stored in a securely bunded area with appropriate signage, at all times when not specifically in use • Chemicals, fuels, oils and chemicals to be stored inside impervious bunds of sufficient capacity to contain 110% of the stored volume. Bunded areas must have sufficient cover to prevent ingress of rain. • Materials removed from the bunded storage area for use are to be returned to the bund at the end of each shift • Storage sites are to be > 20m away from operational facilities, drainage lines, areas prone to flooding or on slopes > 1V:10H • Driver or Foreman to be in attendance at all times when unloading of fuel, oil or chemicals takes place on-site • No water to be discharged from bunded areas into site drainage system. Contaminated water to be removed by appropriately licensed contractor and discharged to a suitably licensed waste facility. • Delivery drivers are to be provided with specific drop off and storage instructions • Spill kits and absorbent material to be located adjacent to storage bunds • Training is to be provided to the workforce in the application of this ERAP and the use of spill kits • Absorbent material used to clean-up spills to be disposed of in accordance with the EPA Waste Classification Guidelines • A register of chemicals, fuels/oils and hazardous materials is to be kept onsite and maintained for the duration of the project • Each construction method statement will identify the use of chemicals, fuels, oils and hazardous materials • SWMS to address the specific requirements relevant to the work to be undertaken and document relevant site control measures.

	Dangerous goods
	• Ensure transporters of these materials are appropriately licensed. This includes relevant licenses for vehicles and drivers
	• Dangerous goods that are to be transported in receptacles greater than 500lt/kg may require specific licenses and will not be transported by Laing O'Rourke without the Project Manager/Construction Manager's approval
	• Where dangerous goods are transported by Laing O'Rourke, a SWMS must be developed and include dangerous goods requirements
	• Transport information/manifest is required to be included with any quantity of dangerous goods transported by Laing O'Rourke – Form 1232 Dangerous Goods Transport Note is to be used unless it can be demonstrated that the activity is exempt
	• The SWMS statement must address the requirement for licensing, placards or other specific regulatory requirements
	• Transport activities in quantities that trigger the requirements of a "Placard Load" under the regulations require the following:
	  • Transport vehicle to have appropriate dangerous goods placard
	  • Transport documents including manifests

Delivery and storage of chemicals, fuels and oils, including dangerous goods requirements

- Emergency procedures and information in an appropriate holder
- 30B fire extinguisher
- Double-sided reflectors
- Driver safety equipment and personal protective equipment
- Goods must be secured and where required segregated from incompatible goods
- Dangerous goods must be appropriately marked in accordance with the Australian Dangerous Goods Code.

Typical dangerous goods associated with our operations include:

Type of goods	DG class	Type of goods	DG class	Type of goods	DG class
LPG gas	2.1	Epoxy paint including hardener	8	Plumbing adhesive	3
Open gear lubricant	2.1	Chemical anchor – parts A and B	8	Diesel	3
Marker paint	2.1	Chemical anchor	8	Joint/gap sealant	3
Silicone lubricant	2.1	Chemical anchor	8	Dry film lubricating paint	3
Fuel gas for welding/cutting	2.1	Adhesive mortar	8	Joint/gap sealant	5.2
Fuel gas for welding/cutting	2.2	Acid	8	Sealant	6.1
Air operated tool lubrication	3	Degreaser (pile rigs)	9	Flocculant	8
Zinc primer paint	3	Engine coolant	9	Rail welding consumables	1.4 S
Air tool lubricant workshop	3	Antifreeze	9	Adhesive	3
Petrol-unleaded	3	Grout	9		
Sealant	3	Form oil	9		

Dangerous goods storage

Dangerous goods storage on-site must comply with the requirements of AS1940:2004 including maintaining separation distances for incompatible materials.

The proposed materials need to be assessed for compatibility and required separation distances or control measures implemented.

Flammable materials storage is to be >15m from site facilities, offices, amenities or protected places.

Quantities to be stored must be assessed to determine if they are considered manifest quantities; manifest quantities will require notification to WorkCover.

A storage location plan is required and needs to include internal layout, location of registers/manifests for the storage location.

Bunding is to be impervious and of sufficient capacity to contain 110% of the stored volume.

Appropriate spill containment material and fire extinguishers are also required.

Responsibilities

- Engineering personnel responsible for identification of requirement to transport dangerous goods
- Relevant Project Manager or Construction Manager responsible for ensuring all vehicles carry appropriate placards, licenses, emergency equipment and procedures
- Construction Manager to ensure that sufficient bunds are available and material stored appropriately
- Engineering personnel responsible to ensure SDS and other relevant documentation are obtained and where required submitted to the University's representative prior to the material arriving on-site. Relevant documentation also includes appropriate risk assessment
- The Project Safety Advisor responsible for ensuring the chemicals, fuels/oils and hazardous substances register maintained.

Timeframe

Duration of operations. The requirements apply to goods transported by Laing O'Rourke and third parties.

Delivery and storage of chemicals, fuels and oils, including dangerous goods requirements	
Monitoring and reporting	• Plant/project risk assessments • Weekly inspections to be recorded on Form E-T-8-1227 • Form E-T-8-1232 Dangerous Goods Transport Note • Register of chemicals, fuels/oils and hazardous materials • Incidents or spills to be recorded on form Environmental Incident and Complaint Report (E-T-8-1222 Environmental Incident and Complaint Report) • Storage areas are to be inspected by the Foreman weekly.

Flora and fauna	
Objective	To comply with contractual and legislative requirements and ensure that native fauna and flora are protected from construction activities.
Targets	• No death or injury to fauna • No unapproved destruction of flora.
Legal, contractual and other requirements	• *Environmental Protection and Biodiversity Conservation Act* • *Threatened Species Conservation Act 1995*. • Development Consent SSD 8636
Controls (means and resources)	• If native fauna is identified within the disturbance footprint, the person taking the action must take all necessary steps to minimise harm and mortality to those animals. • Open excavations and storage areas will be inspected regularly for the presence of fauna species. • No clearing or vegetation removal to occur without the University's approval • All vegetation to be retained will be protected. • Works will only be undertaken in designated areas. • The clearing limits and protected vegetation is to be clearly communicated to site personnel during site inductions and toolbox talks. • Plant and equipment brought onto site must be cleaned and free of deleterious material, mud and other material that may harbour weed seeds. • Identification of noxious weeds is to be notified to the University's representative for action. • Construction plant, equipment and materials are not to be stored within the drip-line of any trees or vegetation to be retained. • No personnel on-site are permitted to hunt, fish, feed, capture, extract, or otherwise disturb aquatic, animal, or vegetative species while performing any tasks in performance of the work.
Responsibilities	All personnel are responsible for ensuring that the clearing limits are addressed and native flora and fauna species are protected. All site personnel to undertake toolbox talks in relation to the reporting process for injury/death to fauna or clearing of flora occurring beyond the required limits for construction.
Timeframe	Duration of the works.
Monitoring and reporting	• Visually monitored daily • Weekly environmental inspection report E-T-8-1227 detailing any flora and fauna.

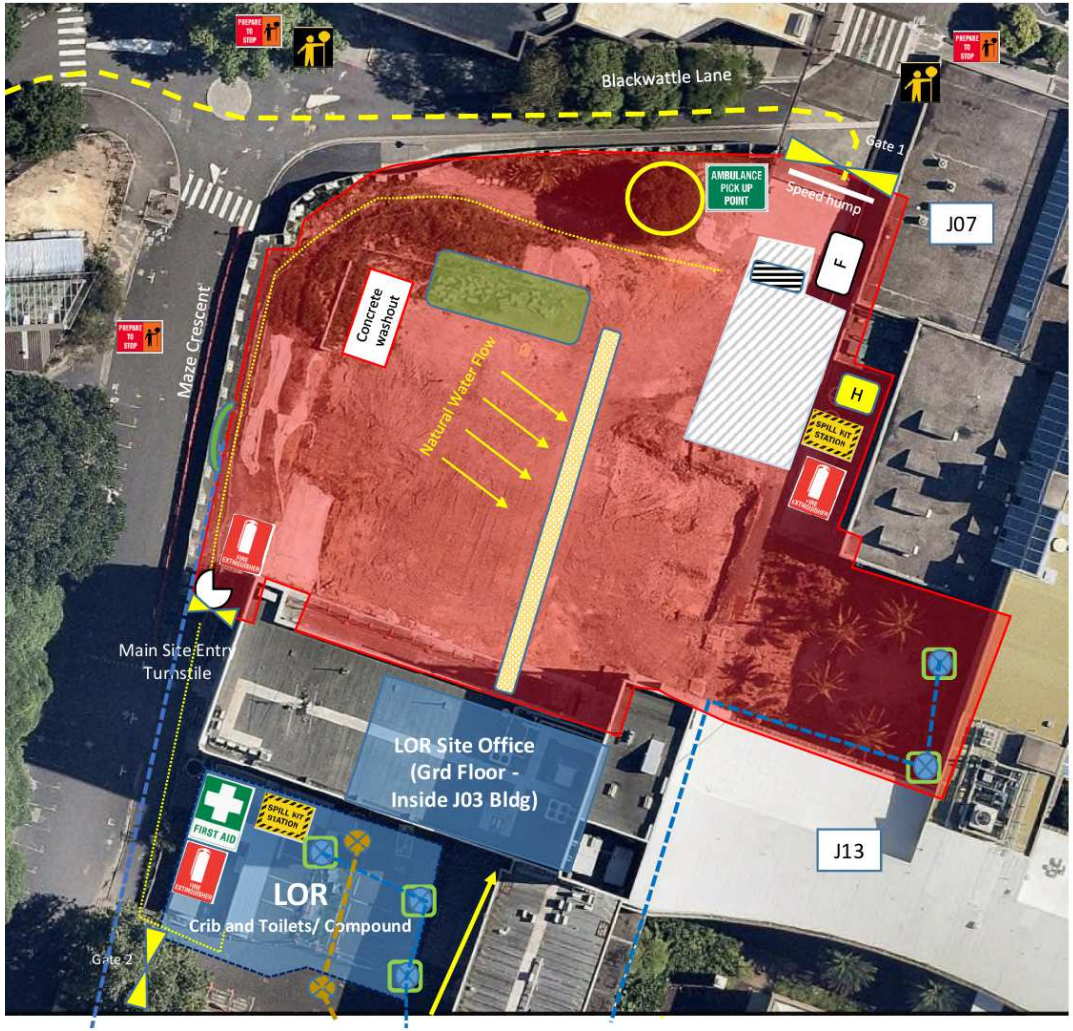
Archaeology and heritage (also refer to Project Specific Aboriginal Cultural Heritage Management Plan and Aboriginal Heritage Impact Assessment)	
Objective	To comply with contractual and legislative requirements and ensure that existing and undiscovered heritage and archaeological items are protected from construction activities.
Legal, contractual and other requirements	• *Heritage Act 1977* • Contract requirement.
Targets	• No disturbance or damage to existing known heritage sites or items –Firehouse Hotel • Unknown or undocumented heritage sites not knowingly destroyed, defaced or damaged

Archaeology and heritage (also refer to Project Specific Aboriginal Cultural Heritage Management Plan and Aboriginal Heritage Impact Assessment)	
	• Identify and protect new artefacts or heritage sites before any harm can take place • Any relics found on-site will be kept safe for consideration of incorporation into site fixtures.
Controls (means and resources)	• Awareness training on the need for the preservation of artefacts and items of heritage value to be provided during the site induction • Location of currently identified archaeological and heritage items nominated on the Environmental Control Plan • Exclusion fencing provided around the perimeter of any identified heritage or archaeological items • Awareness training on the need to stop work and report on new sites, artefacts or items of heritage value. Should any new items be discovered that are suspected of being of heritage significance, whether Indigenous or European, work in the specific area would cease and Laing O'Rourke is to be notified immediately. Should suspected heritage or archaeological items including human remains be found during the works, the following procedure will apply: • Work is to cease in the area immediately and Laing O'Rourke notified • The matter is to be referred to the client • The object is to be left in place • GPS coordinates of the item are to be noted • Photographic records of the item and its location are to be made.
Responsibilities	• All personnel on-site are to ensure that archaeological and heritage items are protected from damage or disturbance • The PER will ensure all site personnel undertake toolbox talks in relation to protection of nominated items that were previously unknown.
Timeframe	Throughout construction activities.
Monitoring and reporting	• Visual monitoring weekly of any existing items • Completion of weekly environmental inspection report E-T-8-1227.

Table 16: ERAPs

Appendix 5: Environmental control plan

This is a progressive plan and will be regularly updated to reflect the current stage of the project.



LAING O'ROURKE

Version 1
Date: 25/02/19

USYD ETP Stage 1

Erosion and Sediment Control Plan Map

Legend

- Sediment Controls to Kerb drainage
- Wheel Shaker / Wash
- F — Refuelling Area
- H — Hazardous Substance Storage Area
- Heavy Vehicle Route
- Loading and Unloading Zone
- SW Pit Sediment Controls – Sed socks, geo fab and silt fence
- Spill Kit
- Temp Berm (Storm Control)
- Existing SW pits/line
- Existing Sewer pits/line
- Site Gates
- Stockpile (Covered with Geo Fabric)
- Pedestrian Access
- First Aid
- Tree Protection

N

Scale in Meters
0 10 20 30 40 50

Environmental Control Plan				
Key Project Contacts	Project Leader	Joe Thompson	0437 476 581	
	Site Manager	Brad Jones	0408 718 186	
	Construction Manager	Keith Willis	0437 737 055	
	Safety Manager (Project Enviro Rep)	TBC		
	Complaints Hotline		1800 95 11 61	
Pre-starts/toolbox	• All personnel to be briefed on this Environmental Control Plan's requirements. • Daily pre-start/toolbox meetings to address specific site conditions/requirements regarding environmental issues, where applicable.			
Approved Hours of Work	• 7.00am – 6pm Mon to Fri • 7.30am – 3.30pm Sat • No work Sundays and public holidays • Rock breaking, rock hammering, sheet piling and similar activities will only be carried out between 9am to 12pm, and 2pm to 5pm Monday to Friday, and 9am to 12pm Saturday.			
Erosion & Sediment Control (Soil and Water Management)	• Erosion and sediment controls must be implemented, inspected & maintained regularly (e.g. removal of sediment build up, replacing damaged controls, strengthening controls for effectiveness) – measures to be in line with the 'Blue Book'. • No tracking (sediment/mud or any other materials) on to roads external to the site – clean up immediately in case of any tracking. • Material stockpiles (with potential to run-off) to be covered with geofabric/plastic tarps and sand/gravel bags established at base (for e.g. prior to wet weather, windy conditions, prolonged inactive periods on-site). • Stockpiles, fuels or chemicals not to be located adjacent to stormwater drains/network. • Stormwater drains to be protected – typical controls geofabric/sandbags/steel plates or plywood/hay bales wrapped in geofabric etc. • DISCHARGE OF WATER HOLD POINT – water must not be pumped on or off-site without LORAC approval (testing, treating and dewatering permit from LORAC is required) – note: Prior approval of dewatering and discharge procedure must first be obtained by the Project Team from LORAC Environmental Leader – Australia Hub.			
Flora & Fauna (including tree protection)	• VEGETATION REMOVAL HOLD POINT – No vegetation removal is permitted on-site unless approved by relevant authorities. • Tree protection measures installed for trees to be retained to remain for duration of works (e.g. fencing, hoarding, delineation). • No storage of plant, equipment, materials within tree drip lines or established tree protection zones. • Inspect vegetation for fauna, prior to removal. • If fauna is found, injured or at risk of injury during works, STOP WORK and notify Site Manager immediately and contact WIRES 1300 094 737			

Environmental Control Plan	
Noise & Vibration Management	• Machinery and vehicles to be turned off when not in use (NO IDLING). • Non-tonal reversing beepers fitted on plant/equipment. • No swearing, shouting, dropping tools, loud music, unnecessary revving – be mindful of our neighbours/sensitive receivers. • Schedule respite periods for high noise/annoying activities for e.g. Break for lunch between 12 and 2pm. • If high noise/vibration complaints are received during works, notify the Site Manager immediately. Works will be assessed to determine any alternatives/additional controls.
Dust & Air Quality	• Stockpiles/exposed surfaces to be compacted, wetted down or covered to prevent fugitive dust emissions. • All loads to be covered and tailgates fixed securely prior to leaving site (to prevent spillage or escape of dust, waste, spoil). • Ensure plant and machinery is regularly checked and maintained in proper and efficient condition. • Plant should not show visible exhaust emissions for >10 seconds. Report such observations to Site Manager immediately. • In high wind conditions – Site Manager to assess and stop works until adverse conditions subside/implement any additional controls.
Unexpected Finds	• If any unexpected finds are encountered on-site for e.g. contamination (asbestos/hazardous materials), heritage finds (aboriginal artefacts/archaeological deposits/relics) STOP WORK, isolate/secure area immediately, DO NOT TOUCH MATERIAL and notify Site Manager Immediately. • Follow unexpected finds protocols on-site.
Access, Traffic and Parking	• Follow designated site access points, haulage routes and parking as detailed within the CTMP.
Waste Management	• Construction waste to be separated into material types – use the "Right Bin or Skip" on-site • Concrete waste washout/rinse water to be disposed in designated washout areas or mobile trays (lined/contained) – do not set-up/store near stormwater drains. • Any waste generated to be removed from site to be in accordance with its waste classification status and to a licensed waste facility. • Retain records – Waste dockets, waste classification reports. • Site to be left tidy and litter free.
Contamination/Hazardous Materials	• Fuels, chemicals and oils must be stored in bunded/storage containers when not in use & away from stormwater drainage. • Safety Data Sheets (SDSs) must be made available for all substances brought onto site. • No refuelling to occur near stormwater drains/network. Any refuelling to occur in designated areas (e.g. hardstand/bunded area), appropriate funnels/nozzle attachments and drip tray utilized and spill kit located in close proximity. • Spill kits to be fully stocked, made available and accessible within the specific work areas. In case of a spill, where safe to do – CONTROL, CONTAIN, ISOLATE AREA, NOTIFY the Site Manager immediately and clean up the spill.

Environmental Control Plan	
Incident & Non-compliance reporting	• Any environmental incidents (e.g. spills, leaks, unauthorised clearing of vegetation, emissions, discharges)/non-compliances to be immediately reported to the Site Manager and Project Leader.
Document Control	**Environmental Control Map – ETP, Version 1, Date: 19th Feb 2019** Note this map is progressive, must be updated to reflect changing site controls with effective control measures and is to be read in conjunction with the Project CEMP.

Appendix 6: Emergency preparedness and response

The types of environmental emergencies that could occur on this site are listed in Table 17.

Note: This plan is designed to supplement the University's site emergency response plan/s where available. In case of conflict, the University's plan will apply.

Emergency	Preparation	Response	Responsibility
Significant adverse dust event due to weather conditions: High winds	Monitor meteorological conditions for the area – develop contingency for wind speeds in excess of 16m/s (55km/h) High wind 'stop works' protocols in place Establish contingency strategy for additional dust control measures, additional water carts, dust suppressants, stockpile covers	Dust-generating activities will cease under direction of the PER or Foreman until adverse conditions subsides Deploy additional mitigation measures to exposed areas stockpiles and other dust generating items will be water sprayed or covered	Site Manager/ PER
Discovery of friable asbestos	Review previous land uses, environmental reports for potential for friable asbestos Include asbestos awareness in the site induction where the potential exists Include contingency in relevant work procedures and SWMS Identify potential service providers for asbestos control and removal	Implement a 'stop work' protocol Quarantine suspected area Cover or provide dust mitigation strategy Engage licensed/approved removal and disposal organisation Complete post removal verification	Project Manager Site Manager PER/Safety Advisor
Flooding	Monitor meteorological conditions – develop contingency strategy for rainfall > 100mm in 24 hours or potential for > 1in 5 ARI All chemicals, fuels and other hazardous substances to be in secured containers and stored within a sealable shipping container Remove plant and equipment from low lying areas Secure plant that cannot be removed Review site drainage flow paths Redirect site drainage to prevent flooding of residential/business premises Ensure site drainage does not concentrate surface flow Review and address the potential for excess water entering the site Review and maintain erosion and sedimentation controls	Recover materials washed from site including sediment and other waste Check effectiveness of erosion and sedimentation devices and other flood controls, maintain where required and safe to do so	Site Manager/ PER
Temporary erosion and sediment controls are	Plan controls to be suitable for expected conditions	A review of the site to be undertaken by WHSEQ Manager	Site Manager/

Emergency	Preparation	Response	Responsibility
damaged during rainfall	Ensure sufficient materials, labour and plant are available for additional controls	and Foreman. Controls to be repaired or replaced within 24 hours of detection, immediately if inclement weather current	PER
Spill of hazardous or toxic substance (< 20L)	Awareness training of appropriate response and procedures to be incorporated into project induction SDS on-site for all materials and kept up-to-date Adequate supply of absorbent materials available in the site compound and on vehicles at work location	Report spills immediately to Construction Manager and/or the WHSEQ Manager Attempts to be made to limit or contain the spill using sand bags to construct a bund wall, use of absorbent material, temporary sealing of cracks or leaks in containers, use of geotextile or silt fencing to contain the spill Construction Manager and Foreman to coordinate the response, clean-up and disposal of the material Material to be disposed of in accordance with the manufacturers' recommendations and applicable legislation	Site Manager/ PER
Major spill of hazardous or toxic substance off site or to environmentally sensitive area (> 20L)	Awareness training of appropriate response and procedures to be incorporated into environmental and safety induction SDS on-site for all materials and kept up-to-date Adequate supply of absorbent materials available in the site compound and on vehicles in work location Emergency telephone numbers for emergency response organisations/fire brigade prominently displayed around office and issued to Foreman Initial contact to be made with relevant organisations at project commencement	Report spill immediately to Project Manager and/or Construction Manager who will notify the University Attempts to be made to limit or contain the spill using sand bags to construct a bund wall, use of absorbent material, temporary sealing of cracks or leaks in containers, use of geotextile or silt fencing to contain the spill, transferring remaining material Implement procedures to notify the relevant authorities Construction Manager to coordinate the response, clean-up Fire brigade or emergency organisations should be called if spill cannot be controlled by site resources Evacuation procedures are to be implemented to remove non-essential personnel from the affected area On-site client personnel are informed of the incident, internal reporting as per potential Class 1 matter Access and egress to the area is established to ensure the appropriate vehicles have effective access and congestion is minimised Senior Officer from fire brigade/emergency organisation assumes control of the operation with Laing O'Rourke	Project Manager Site Manager PER

Emergency	Preparation	Response	Responsibility
		personnel assisting as required Commence data gathering and investigation once emergency is contained	
Fire	Awareness training of appropriate response and procedures to be incorporated into environmental and safety induction Fire extinguishers maintained, clearly labelled and distributed around site compound and vehicles Training in the use of fire extinguishers and which one to use for each type of fire First Aid supplies are stocked and adequate Emergency telephone numbers for emergency response organisations/fire brigade prominently displayed around office and issued to Foreman Initial contact to be made with relevant organisations at project commencement	For small fires, attempts to be made to extinguish the fire or limit its spread with available fire extinguishers or water hoses if appropriate Foreman is to be informed immediately Foreman to contact University and external services where necessary (fire, ambulance) as a precautionary measure All personnel in the vicinity to be assembled in the Evacuation Assembly Area and a head count performed Any resulting fuel or chemical spill to be handled as detailed above Foreman to coordinate with emergency services and provide assistance as required	Site Manager/ PER
Vibration causing structural damage	Choose correct plant when working near structures; minimise size and impact Use safe working distances during planning phase Implement vibration monitoring at commencement of vibration-generating works to ensure compliance with standards Monitor vibration intensive works in proximity to the Firehouse Hotel	Activities causing vibration would cease under direction of the WHSEQ Manager or Foreman. Any occupants of buildings may be evacuated with due consideration to safety, and the area secured to prevent unauthorised access. A structural assessment to be undertaken and if any damage is associated with construction, rectification work would be agreed. Agree acceptable vibration limits with the Principal Certifying Authority	Construction Manager Site Manager PER
Unapproved clearing/ damage to protected vegetation – threatened/endangered species	Clearly demarcate site boundaries Clearly demarcate clearing areas and brief site personnel Identify/mark vegetation to be retained or protected Identify species that may be impacted, include material within the project induction Included requirements within construction planning documentation	Immediately cease activities Engage consultant to assess damage to vegetation and presence of any endangered or threatened communities	Site Manager/ PER

Emergency	Preparation	Response	Responsibility
Injury/death to protected/endangered/ threatened fauna	Identify potentially impacted species prior to commencement on-site Identify species that may be impacted, include material within the project induction Review/inspect vegetation to be cleared prior to clearing – use ecologist/spotter where there is the potential for endangered/threatened species Engage with local vet/Wildlife Information Rescue and Education Service (WIRES) representative on the appropriate contact/procedure Site procedure for the short-term management of injured fauna	Immediately cease activities upon discovery of injured fauna Implement procedure for short-term stabilisation and transport to vet or WIRES Undertake additional vegetation inspection to identify any remaining fauna prior to recommencement	Site Manager/ PER
Damage/destruction of indigenous heritage item	Ensure site investigations detail any heritage items on or in proximity to the site Include awareness material within the project induction Develop a 'stop works' protocol for any heritage find on-site	Cease works and stabilise the area, under the direction of the WHSEQ Manager or Foreman. The WHSEQ Manager is to report the remnants to the University and regulatory authority Request an archaeologist to assess the significance and archaeological potential of the uncovered feature	PER
Damage/destruction of European heritage	Ensure site investigations detail any heritage items on or in proximity to the site Develop a 'stop works' protocol for any heritage find on-site	Cease works and stabilise the area, under the direction of the WHSEQ Manager or Foreman. Contact an archaeologist to assess the significance and archaeological potential of the uncovered feature	Site Manager/ PER

Table 17: Emergency Preparation and Response Plan

Appendix 7: Project permits and licenses register

Project permit and approvals register	Applicable to the project (yes/no)	Permit/ licence/ approval number/ registration certificate	Commencement date	Expiry date	Surrender requirements	Project custodian	Project briefing date
Environmental Planning and Assessment Act 1979	Yes	SSD6123	2014	2020		University	
Protection of the Environment Operations Act 1997	No						
Water Act 1912							
Section 10 Surface Water Licence	No						
Part 5 Section 112 Groundwater Licence	No						
Part 8 Division 3 Approval of controlled work	No						
Water Management Act 2000							
Section 56 Access Licences	No						
Section 89 Water use approvals	No						
Section 90 Water management work approvals	No						
Section 91 Activity Approvals	No						
Fisheries Management Act 1994							
Division 3 (Sections 199, 200, 201) Dredging and Reclamation	No						
Section 205 Marine vegetation – regulation of harm Permit to Harm Marine Vegetation	No						
Section 220ZW Licence to harm threatened species, population or ecological community or damage habitat	No						
Sydney Water Act 1994							
Section 49 Offence to discharge into works – Trade Waste Permit	No						
Section 73 Certificate Grant of Compliance Certificates	No						
Permit to use approved metered standpipes on Sydney Water hydrants	Yes, potentially	To be updated, when required					
Dangerous Goods (Road and Rail) Transport Act							

Project permit and approvals register	Applicable to the project (yes/no)	Permit/ licence/ approval number/ registration certificate	Commencement date	Expiry date	Surrender requirements	Project custodian	Project briefing date
Section 6 Licensing of vehicles transporting dangerous goods	No						
Section 7 Licensing of drivers transporting dangerous goods	No						
Local Government Act							
Section 68 – What activities, general, require the approval of council	No						
Section 68A – Operation of a system of sewage management	Yes, potentially	To be updated, when required					
Roads Act 1993							
Section 138 Works and structures – permit to undertake works to roads	No						
Work Health Safety Regulation 2011							
Section – Notification to Safe Work NSW	Yes	When asbestos is discovered/requires removal/disposal					
Section – Major hazard facility must be registered or provisionally registered	No						
National Parks and Wildlife Act 1974							
Section 90 Aboriginal heritage impact permit	No						
Heritage Act 1977							
Division 3 Applications for approval	No						
Section 139 Excavation permit	No						
Marine Safety Act							
Section 29 Types of marine safety licences	No						
Management of Waters and Waterside Lands Regulations							
Division 3 Occupation of Waters	No						
Rural Fires Act 1997							
Section 89 Issue of permits (includes "hot works" which would constitute lighting a fire)	No						

Project permit and approvals register	Applicable to the project (yes/no)	Permit/ licence/ approval number/ registration certificate	Commencement date	Expiry date	Surrender requirements	Project custodian	Project briefing date
Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)							
Include details of approvals under this Act where applicable	No						
Other							
List other relevant legislation here							

Table 18: Permits register

Appendix 8: Environmental incident investigation guidelines

Class 1 incidents will be subject to an ICAM or tap root investigation. The following section outlines the environmental incident and complaint investigation. The actual detail required will vary depending on the class of the incident. In any case, Form E-T-8-1222 Environmental Incident and Complaint Report will be used to document the incident.

Step 1 – Identify the class of incident and obtain the incident or complaint details

Step 2 – Observation and information gathering

- The first priority is to understand the incident and how the incident occurred.
- Take samples or obtain results (required for Class 1 and 2) – laboratory results or in situ samples (Note: for Class 1 and 2 incidents NATA-certified laboratories may be required).
- Interview people involved where required including witnesses, foreman and experts.
- Inspect the incident scene – take measurements (do not guess), photos, videos, drawings, diagrams and sketches.
- Collect related documentation – attach additional material as appropriate such as work method statements, JSEAs, ERAPs, Erosion and Sediment Control Plans, risk assessments, induction records, toolbox talks, pre-start meetings, environmental training records, subcontractor or client incident report, relevant design documentation, maintenance records.

Step 3 – Give a detailed description of the incident

Outlined exactly what happened and give the following details as applicable:

- Area or people affected and pollutant type as appropriate
- Time, date and weather conditions
- Plant, equipment, organisations involved
- Potential stakeholders involved
- Describe the nature of the incident including:
    - Breach of licence condition, Act or regulation
    - Discovery of cultural heritage item, artefact
    - Unauthorised release of harmful substance to environment
    - Penalty or fine imposed or protection order or notice issued
    - Performance of the environmental controls
- Describe the immediate remedial actions undertaken
- Notify relevant parties
- Contain pollution or clean-up affected area
- Repair to environmental controls
- Rectify damage and remediate the affected area.

Step 4 – Undertake basic level incident analysis

- List the elements involved including people, equipment and environment (weather conditions), procedures, organisational elements involved in the incident
- List the essential and contributing factors for the items above.

Step 5 – Identify the corrective and preventative actions

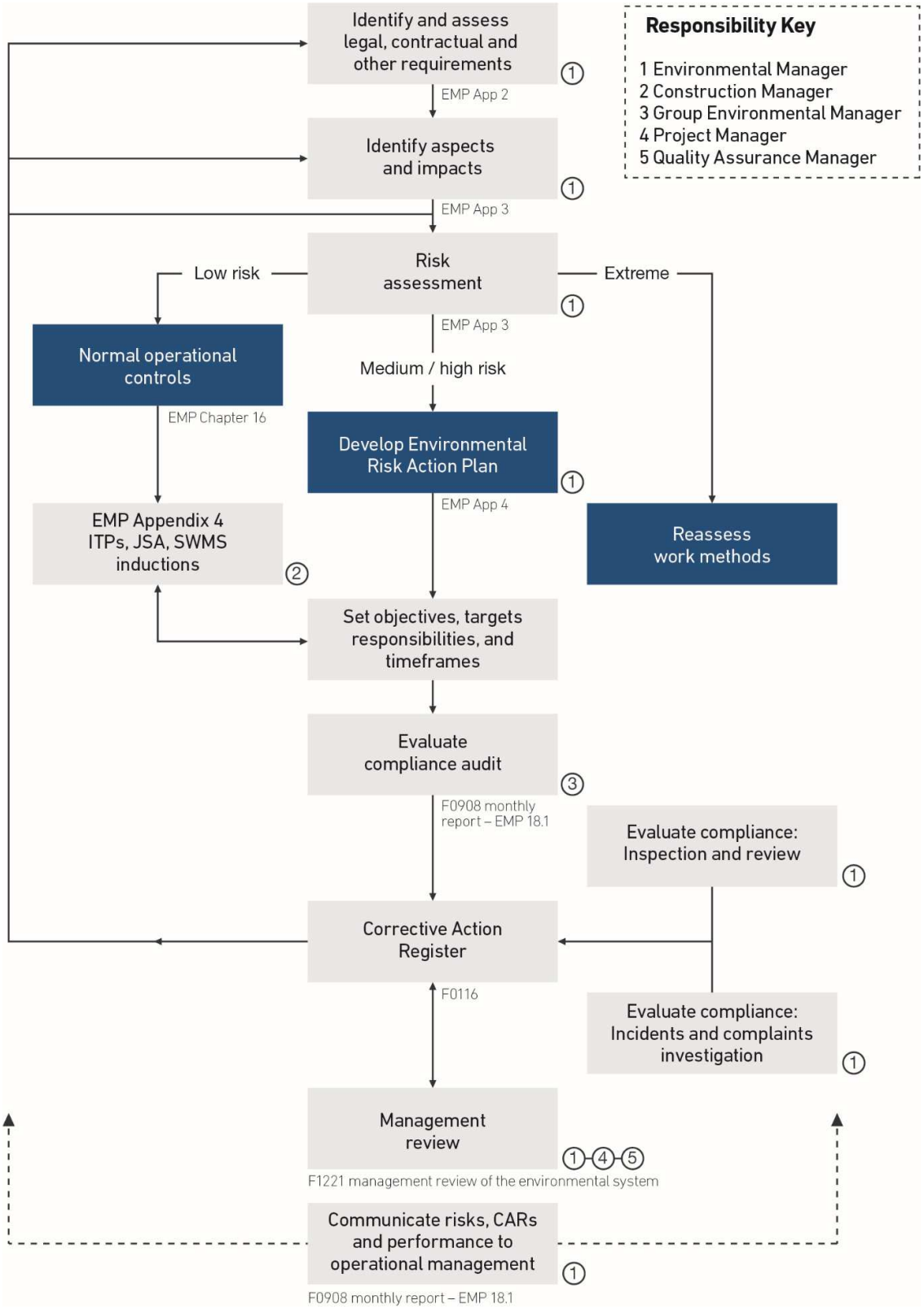
- Change to equipment/machinery design/maintenance
- Improve environmental control measures
- Implement additional resources
- Change to work methods, procedures or processes
- Change or additional induction training
- Address organisational issues.

Step 6 – Implement the corrective and preventative actions outlined above

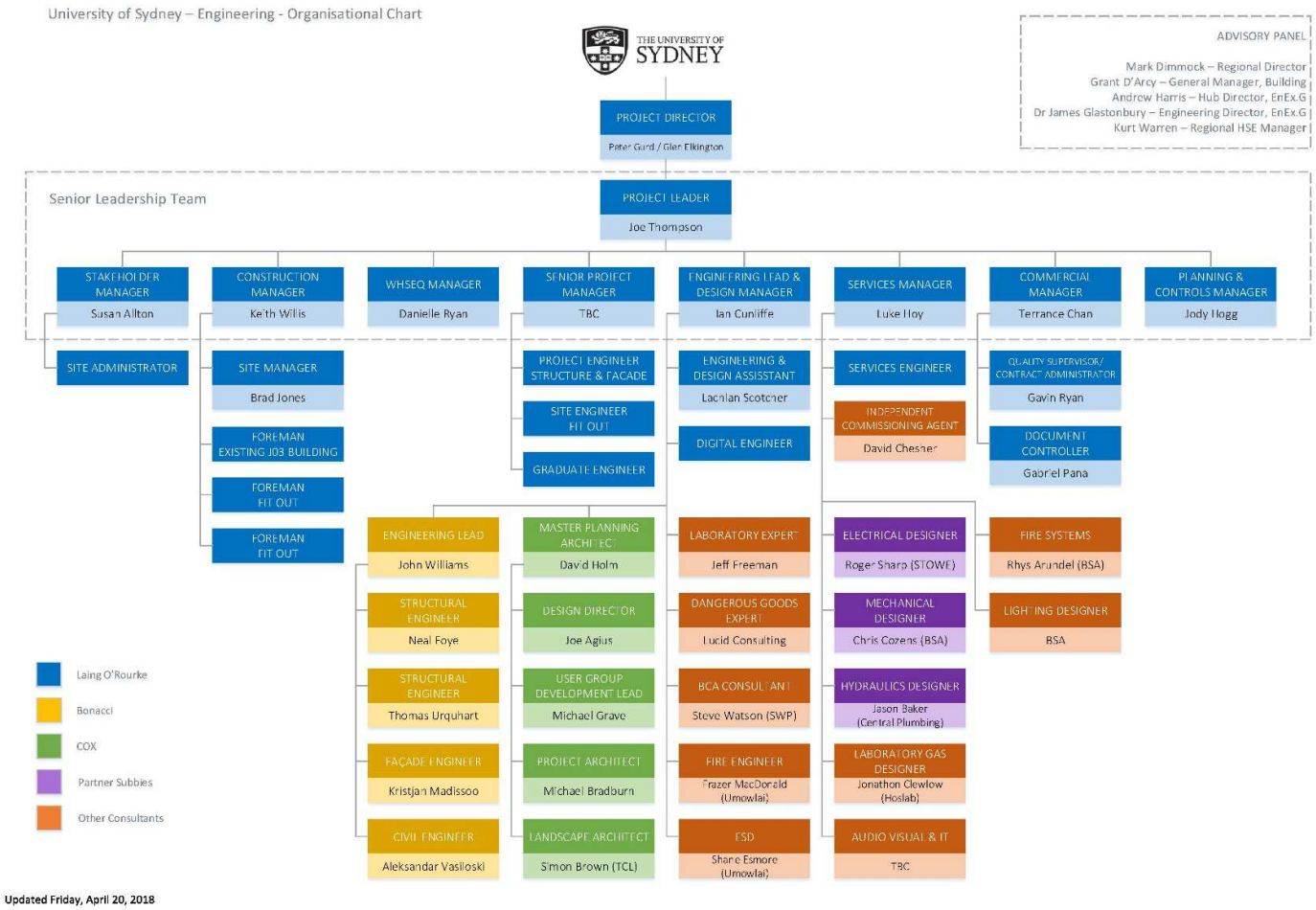
- Outline responsibilities and accountabilities
- Obtain relevant approvals for the corrective and preventative actions (i.e. Regulatory Authority or University requirement)
- Provide proposed completion dates for the approved actions
- Document actions implemented and close out.

Note: where a Class 1 incident has occurred the HSE Manager will initiate the investigation and allocate responsibilities, an external consultant may be engaged. Authorities are to be notified in accordance with the legislative timeframes within NSW or the applicable state.

Appendix 9: EMP flowchart



Appendix 10: Organisational chart



Appendix 11: Staff acknowledgement register

EWMP acknowledgment register			
Name	Position	Signature	Date

Appendix 12: Relevant Management Plans

The following documents listed in the table below were used/are referred to by this CEMP.

Document Name	Dated	Author
Construction Traffic and Pedestrian Management Plan	1/03/2019	GTA Consulting
Construction Noise and Vibration Management Plan	1/03/2019	Resonate
Construction Waste Management Plan	18/02/2019	Laing O'Rourke
Construction Soil and Water Management Plan	20/02/2019	Laing O'Rourke
Asbestos Works Management Plan	1/03/2019	Douglas Partners
Community Communication Strategy Management Plan	12/02/2019	Laing O'Rourke
Complaints and Enquiries Management System and Procedure	22/02/2019	Laing O'Rourke
Aboriginal Heritage Impact Assessment	24/02/2016	Archaeological & Heritage Management Solutions
Aboriginal Cultural Heritage Management Plan	17/09/2018	Extent
Arborist Impact Assessment Tree Protection Specification	5/12/2018	TreeiQ