



ENVIRONMENTAL RISK ASSESSMENT AND MITIGATION MEASURES

The following section provides recommendation for mitigation measures in response to potential impacts identified in **Section 6** of the EIS. The structure of mitigation measures is based on the DPHI's hierarchy of approaches for managing impacts identified in the *Draft Environmental Impact Assessment Guidance Series* released by DPE in June 2017, as:

- **Performance based measure** – identify performance criteria that must be complied with to achieve an appropriate environmental outcome but do not specify how the outcome is to be achieved.
- **Prescriptive measure** – require action to be taken or specify something that must not be done.
- **Management based measure** – identify one or more management objectives that must be achieved through the implementation of a management plan.

Following the implementation of appropriate mitigation measures as recommended, it is determined that the proposal will not result in any significant adverse impacts on the surrounding environment. The following table illustrates how the matters raised within the SEARs will be addressed.

This analysis comprises a qualitative assessment consistent with AS/NZS ISO 31000:2009 *Risk Management–Principles and Guidelines* (Standards Australia 2009). The level of risk was assessed by considering the potential impacts of the proposed development prior to application of any mitigation or management measures. In accordance with the SEARs, the Environmental Risk Assessment (ERA) addresses the following significant risk issues:

- The adequacy of baseline data;
- The potential cumulative impacts arising from other developments in the vicinity of the site; and
- Measures to avoid, minimise, offset the predicted impacts where necessary involving the preparation of detailed contingency plans for managing any significant risk to the environment.

Risk comprises the likelihood of an event occurring and the consequences of that event. For the proposal, the following descriptors were adopted for 'likelihood' and 'consequence'.

Likelihood		Consequence	
A	Almost certain	1	Widespread and/or irreversible impact
B	Likely	2	Extensive but reversible (within 2 years) impact or irreversible local impact
C	Possible	3	Local, acceptable or reversible impact

Likelihood		Consequence	
D	Unlikely	4	Local, reversible, short term (<3 months) impact
E	Rare	5	Local, reversible, short term (<1 month) impact

The risk levels for likely and potential impacts were derived using the following risk matrix.

		LIKELIHOOD				
		A	B	C	D	E
CONSEQUENCE	1	High	High	Medium	Low	Very low
	2	High	High	Medium	Low	Very low
	3	Medium	Medium	Medium	Low	Very low
	4	Low	Low	Low	Low	Very low
	5	Very low	Very low	Very low	Very low	Very low

The results of the environmental risk assessment for the proposed development are presented in the below table and are based upon the range of technical and specialist consultant reports appended to the EIS. The table has directly related mitigation measures responding to each impact also based upon the range of technical and specialist consultant reports appended to the EIS.

N.B. 'O' – Operational; 'C' – Construction

'Pe' – Performance based mitigation measure; 'Pr' – Prescriptive based mitigation measure 'Ma' – Management based mitigation measure

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
Traffic, Transport and Accessibility	Impacts of the construction activities on the	C	C	3	Medium	▪ Site inspections and Record Keeping: The construction work will be monitored to ensure it follows the CTMP provided by the appointed	Ma	Low

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	surrounding road network.					contractor. A daily inspection will occur before construction activities begin to confirm that conditions align with the plan and that there are no potential hazards. Any possible adverse impacts will be documented and addressed if they arise. - Site Inductions: All construction staff shall undergo a site induction where all requirements for working within the site will be instructed to reduce creating traffic impacts where possible by avoiding on street parking, utilising active and public transport. - Consultation: Consultation with key stakeholders will be undertaken on a regular basis to ensure that all stakeholders affected by the construction works are considered. Stakeholders include local residents as well as government agencies.		
	Impacts of construction parking within the Campus.	C	A	4	Low	- Encourage staff and construction workers to utilise active and public transport methods, as well as car pooling, to minimise demand for parking and the impacts caused by a temporary shortfall of parking. Methods to achieve this include circulation of PLC's Travel Access Guide. - Encourage construction workers to avoid utilising on street parking outside of the Campus. - Provide space to store construction material and equipment on site to reduce the need for daily private car usage to transport materials to site.		
	Safety	O	D	2	Low	The College will implement physical separation along the kerb at the SIP frontage. The final design of this will be investigated and confirmed during the detailed design stage.	Ma	Low
Noise and Vibration	Potential noise impacts on sensitive receivers from the following: PA systems	O	D	4	Low	Auditorium measures - Operational parameters to be incorporated into the School Noise Management Plan. - The auditorium audio system is be limited to 85dB(A)LAeq (sound pressure level). - Public Address systems will not exceed RBL + 5db(A)	Ma & Pe	Low

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	- Construction and demolition works - Construction traffic	C&O	D	4	Low	Outdoor noise mitigation measures - Maximise the offset distance between plant items and nearby noise sensitive receivers. - Noise monitoring, if required, will be performed by an acoustical consultant directly engaged by the contractor. Vibration mitigation measures - Conduct attended measurements of vibration generating plant at commencement of works. - Vibration monitoring, if required, should be undertaken continuously at the nearest most affected structures. Communication mitigations - The contractor is to establish a communication register for recording incoming complaints. The registration of a particular item will remain open until the complaint has been appropriately dealt with. All complaints should be investigated by the Contractor in accordance with the procedures outlined in Australia Standard 2436-2010. - Contingency plans will be prepared and established to address noise and vibration problems if exceedance levels are measured at surrounding sensitive receivers and/or justified complaints occur. General Mitigation Measures + Universal Work Practices - Regular reinforcement (such as at toolbox talks) of the need to minimise noise and vibration. - Regular identification of noisy activities and adoption of improvement techniques. - Avoid the use of portable radios, public address systems or other methods of site communication that may unnecessarily impact upon nearby sensitive receivers. - Where possible, avoiding the use of equipment that generates impulsive noise.	Ma & Pe	Low

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						- Use of broadband audible alarms on vehicles and elevated work platforms used on site. - Choose quieter plant and equipment based on the optimal power and size to most efficiently perform the required tasks. - Select plant and equipment with low vibration generation characteristics. - Operate plant and equipment in the quietest and most efficient manner. - Maximise the distance between noise activities and noise sensitive land uses. - Schedule work to coincide with non-sensitive periods. - Optimise the number of deliveries to the site by amalgamating loads where possible and scheduling arrivals within designated hours. - Where reasonably practical, noisy plant or processes should be replaced by less noisy alternatives. - Undertake regular and effective maintenance.		
Hazard and Risk	Impacts on users	O	E	5	Low	- Conduct an assessment to determine laboratory areas and/or chemical storage areas for the laboratory design are in compliance against AS/NZS 2982:2010 – Laboratory design and construction and any other storage Australian Standard, e.g. AS 1940, AS 4332, AS 1894, etc. - Review areas of gas usage or chemical odours/vapour generation and determine appropriate gas sensors to be used for the hazards which are identified. - Undertake yearly audits of all chemicals onsite to ensure chemicals volumes by Chemical Class and Packing group remain below threshold limits.	Ma	Low
Contamination and Remediation	Disturbance of existing contaminants and potential sources of contamination	C	D	4	Medium	The following recommendations are warranted within the nominated Isabel Harrison, Dorothy Knox, John Vicars and Robert Vicars buildings structures, to be demolished as part of the proposed development, and their related building footprint areas, within the proposed Campus Commons development area:	Pr & Ma	Low

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	onsite required remediation					- An addendum sampling and analysis program, is to be implemented, after the controlled demolition of the nominated Isabel Harrison, Dorothy Knox, John Vicars and Robert Vicars Buildings structures and their related building footprint areas, focusing on the identified CoPCs outlined in section 8.1 of the ECON PSI (March 2025) report, within building footprint areas, using a residential HIL-A criteria; - If potential contaminants of concern are identified within the nominated demolished building footprint areas, an appropriate remedial / management strategy is to be developed, culminating in preparation of a Remedial Action Plan (RAP) in accordance with EPA guidelines. The RAP must be prepared by a suitable qualified and experienced environmental consultant detailing the remediation and validation processes to be undertaken for any contaminants identified within the building footprint areas onsite, to ensure the site is made suitable for its current existing development and land use; - Any identified Hazardous/Asbestos Containing Materials need to be removed in accordance with guidelines and with the CETEC HAZMAT (2025) report, and a Clearance Inspection be issued by a qualified environmental consultant, or equivalent, prior to any demolition work being undertaken; - If any proposed soil is to be excavated, as part of the proposed development, and requires offsite disposal as waste, it will require a waste classification in accordance with NSW EPA's Waste Classification Guidelines Part 1-4: Classifying Waste 2014; and - In the event of unexpected finds being excavated or exposed onsite during site works, such as discovering buried asbestos-containing materials, underground storage tanks, or odorous and/or stained soil uncovered during works, all site works must cease, and ECON Environmental must be		

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						notified immediately for further investigation and appropriate action.		
Biodiversity	Impact on PCT Blue Gum High Forest	C	A	3	Medium	- Three (3) ecosystem credits are required to offset the biodiversity impacts of the proposed development. - The proposed landscape design will incorporate endemic plant species that will enhance the ecological profile of the site. - Mitigation measures to minimise impacts on the Blue Gum High Forest north of Avon Road are outlined in Section 6.2 of the revised Biodiversity Development Assessment Report and Sections 2 and 3 of the revised Vegetation Management Plan. Mitigation measures include: - Pre-clearing survey assessing trees and shrubs for fauna habitat (including hollows, fissures, nests, fallen timber) will be conducted before vegetation removal and any hollows, large logs and root balls will be recovered and reused within VMP management zones. - Native vegetation to be cleared for construction will be inspected for viable seeds for propagation and revegetation within the College grounds. - Microbat surveys in accordance with DCCEE guidelines will be undertaken prior to tree removal and demolition works. Microbat nest-boxes are to be installed prior to construction works.	PR/MA	Medium
Trees and Landscaping	Tree removal and impacts to retained trees, including tree protection zone encroachments. Removal of 126 Trees.	C	A	3	Medium	68 trees within the development site are to be retained. 61 replacement trees will be planted within the development site. - Tree Protection measures are to be implemented during construction as set out within Section 06 of the revised Arborist Report prepared by Tree Survey Pty Ltd for the proposed development and attached at Appendix F. Mitigation measures will	Pe/Ma	Low

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						include tree protection fencing, tree collars, and supervision of works by the project arborist. Vegetation Management Plan: A vegetation management plan has been prepared as a compensatory measure for the tree loss. The performance criteria and implementation schedule and detailed management actions are to be undertaken in accordance with section 2 and 3 of the Vegetation Management Plan.		
Ground Conditions	Vibration damage to nearby buildings.	Impacts to subsurface (Fill, Residual and Bedrock)	C	D	Low	Carry out vibration monitoring during percussive excavation. Inspect shoring piles Proof loading of any anchors to at least 1.3 times the working load. Geotechnical engineer to inspect all footings to confirm that the design bearing pressures are achieved. Where bearing pressures of 3,500kPa are adopted, spoon tests will be required in a third of all footing excavations evenly spread across the site. Obtain further advice on subgrade improvement if necessary. An experience geotechnical engineer or geotechnician is to witness the proof rolling of the subgrade and the placement and insitu testing of engineered fill, where necessary.	Ma, Pr	Low
Hazardous Material	Exposure to hazardous materials during building demolition.	C	C	3	Medium	Implement Appendix A of the CETEC Hazardous Materials Survey for details on how to safely remove the hazardous materials located on site.	Pr & Ma	Low
Aboriginal Cultural Heritage	Impacts to Aboriginal heritage	C	E	5	Very Low	Any additions made to the project area will be assessed by an archaeologist in consultation with the RAPs. Any changes that may impact on Aboriginal sites not assessed as part of the project may warrant further investigation and result in	Pr	Very low

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						changes to the recommended management and mitigation measures. An unexpected finds policy outlining the protocols to be followed in the event that unexpected Aboriginal objects are encountered during the works must be prepared and presented to project personnel during site inductions.		
Environmental Heritage	Impacts due to removal of existing buildings.	C	E	5	Very Low	Photographic Archival Recording: - A Photographic Archival Recording report will be prepared for the site to document the appearance of the study area prior to commencement of the works. - A copy of the Archival Recording report to be provided to Ku-ring-gai Council for their records and to inform them of the assessment of impacts to heritage items in the vicinity of the study area listed on the Ku-ring-gai Local Environmental Plan 2015.	Pr, Ma	Very low
Archaeology	Impacts to archaeological resources.	C	E	5	Very Low	Unexpected finds procedure: - If potential archaeological resources are identified during any stage of the project, works in the area must cease, the area adequately protected, and a suitably qualified archaeologist notified so as to carry out more detailed investigation and assessment. - If the archaeological assessment determines that the remains are 'relics' in the meaning of the Heritage Act, the Department of Climate Change, Energy, the Environment and Water must be notified about the discovery of relics in accordance with Section 146 of the NSW <i>Heritage Act 1977</i>. Further approval/s may be required to allow the works to proceed. General: - Any additions or design modifications to the proposal, outside the scope of this assessment, will require additional heritage assessment to ensure consistency with this assessment.	Pr, Ma	Very low

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						Recording: A Photographic Archival Recording report will be prepared for the site to document the appearance of the study area prior to commencement of the works.		
Social Impacts	Impact of the proposal on the social fabric of the school and the broader community.	C & O	D	4	Low	The following mitigation measures that are suggested by the SIA have been adopted by the project team: - The design of the proposal has incorporated feedback and inputs received through the Connecting with Country process and will incorporate several elements in the architectural and landscape design to recognise and reflect Aboriginal culture and heritage. - The Heritage Impact Assessment proposed preparing a photographic archival recording and adopting an unexpected finds procedure. - The design and landscape report outline several enhancement measures including integrating the building into the surrounding landscape through its form and design and plantings. - The Engagement Outcomes Report proposes continuing engagement throughout the approval process. - The Noise Impact Assessment outlines measures that will be implemented to reduce potential impacts to surrounding localities. During construction: A Construction Management Plan (CMP) will be implemented and will align with environmental management requirements in relation to noise and vibration, dust, odour control and vegetation protection. - Standard mitigation measures will be implemented including stakeholder consultation, restricted access, aligning construction hours to standard working hours, and implementation of a Construction Traffic Management Plan (CTMP). - The College will implement a regular internal communication plan that will be issued to staff regarding any noisy activities, to assist decisions relating to relocating classes. Construction	Ma	Low

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						tenderers will also be issued the school diary so the construction schedule can be designed around sensitive periods. ▪ Parking options will be communicated to workers and a Traffic Guidance Scheme and Green Travel Plan will be developed and implemented as part of the CTMP. ▪ A TAG for school travel options will be developed, implemented and promoted to students and families.		
Flooding	Minor impact from potential rainfall runoff may occur.	O	E	4	Very Low	▪ Manage rainfall runoff by grading pavements away from building entrances (southern entrance and loading dock) ▪ Include on-site stormwater detention tanks (visible on Civil Plans)	PR	Low
Ecologically Sustainable Development Report	Compromised energy efficiency and increased emissions.	O	E	4	Very Low	The College has committed to investigating incorporating the following ESD strategies into the proposal: ▪ Where possible, Solar PV will be implemented. ▪ Review material datasheets for in-service temperature range and allow for a nominal tolerance on peak temperatures based on today's values. The project team will select materials which have a higher temperature tolerance if required. ▪ Check the design includes overflow outlets in parapet. Add to design if required. ▪ Check whether capacity of overflow slots and drainage system is sufficient to allow for increased rainfall intensity. Increase either/both if required. ▪ Ensure secondary overflow system provided and check if systems can manage increased flows. Implement further measures if required. ▪ Primary storm water drainage system to be designed to cater for a minimum of a 100- year storm. System to also have full backup of either piped overflow or overland flow designed to a higher storm intensity.	PR	Low

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						- Consider other feasible mitigation measures as required. - Consider options for protecting the mechanical plant in design. Implement if required. - Screen outlets with hail guards. Check wind load thresholds in engineering for façade and glazing. Adopt heat treated glazing for greater impact strength if required. Consider in design and highlight risk for building managers. Include wet weather management plan in facilities management contract.		