Appendix C – Mitigation Measures
SSD-84220206 – 39 Barker Street, Kensington

Consultant	Mitigation Measure
Design and Operation	
Wind Impacts	
Arup	• Vertical barriers are to be installed around any proposed seating areas at ground level in the north-south through-site links between Buildings A/B and B/C to at least seated head-height (for immediately adjacent seated protection) or higher for protection beyond/standing. Barriers can take the form of screens and/or landscaping (recommend at least 70% solidity). • There are a number of ground floor internal volumes with entries on opposite sides, which has the potential for internal flow issues if concurrently open, depending on pedestrian traffic. Arup recommends that consideration is given to separating the volume with additional internal doors and/or ensure operational management strategies are put in place to manage, depending on the wind conditions. • Building A Dining Hall swing doors (west façade, ground level) are recommended to open inwards due to likelihood of horizontal flow in this zone catching door edges. • Any opportunities to add additional vertical barriers (screens/planters) along Building A Dining Hall façade close to seating areas would be beneficial to continue to interrupt and slow the flow. It is recommended to maximise the width and height of the proposed planter. • Incorporate increased balustrade height / screen to meet the awning height at the east of Building A, Level 4 terrace and west of Building C, Level 3 terrace. This would assist with providing more protection for winds from the north-east and north-west having the potential to cut across these terraces. • A quantitative wind model is to be undertaken at detailed design stage.
Reflectivity	
Bates Smart	• Reflectivity has been considered in the design of the built form to contribute to the retention of a safe and comfortable environment. The northern and southern façade design features a combination of vertical and horizontal fins, which serve a dual purpose of providing shading to each room whilst also minimising glare. The development will also incorporate high performance glazing design to comply with the relevant guidelines and to ensure reflectivity remains below 20%.
Flooding	
Arup	• All habitable floors will comply with the Randwick DCP requirement of 1% AEP +0.5m (inclusive of the climate change for year 2100, SSP 4.5 scenario). •
Stormwater	

Consultant	Mitigation Measure
Arup	• The design maintains the two existing sub-catchment and discharge locations, preserving current flow distribution across the campus. • The civil system has capacity for the 5% AEP + CC event and includes sealed puts and a flap valve in areas affected by high tailwater to prevent surcharge. Overland flow paths are contained safely within rood corridors where necessary. • Roof catchments are treated through infiltration via the percolation tank, reducing peak discharge and supporting water quality outcomes. • A gross pollutant trap is provided upstream of the percolation tank and is supplemented by passive irrigation of landscaped areas, to filter pollution • Tailwater conditions and pipe capacities have been informed by the flood risk assessment to ensure no adverse off-site flooding
Wastewater	
Arup	• The existing sewer system can likely support the proposed development. This will be confirmed upon receipt of the Section 73 application from Sydney Water.
Waste Management	
MRA Consulting Group	• Waste storage requirements have been calculated based on estimations of bin type and collection frequency. Building management will observe the bin fullness levels once the site is fully occupied and adjust the number of collections accordingly. • Waste disposal areas have been provided in convenient locations across the buildings, including within a bin-cupboard on each residential floor. • Collection points have been designed to allow safe waste collection and loading by providing: - Adequate clearance and manoeuvring space. - Sufficient clearance for the safe handling of materials and equipment; and - A sectioned loading bay which does not impede upon traffic and pedestrian safety. • Vehicle manoeuvring and loading spaces have been designed to allow truck space with adequate lift clearance, manoeuvring and operation for a contractor collection. • The loading bay has been designed to appropriate dimensions to not impeded lift clearance. • Loading bay has been designed to accommodate forward movement only. • Collection times will be arranged during off-peak times to ensure minimal disturbance to pedestrians and visitors. • Signage that promotes resource recovery, waste minimisation, safety and amenity in accordance with the Australian standards will be placed in visible locations and designed to consider non-English speaking backgrounds, vision impairment and accessibility.
Social Impact	
Beam Planning	• The proposal will deliver largely positive social benefits. • Negative social impact are primarily related to construction impacts which will be temporary and can be managed in accordance with the mitigation measures outlined in this table.
Aviation	

Consultant	Mitigation Measure
Avlaw Aviation	• Once operational, the buildings will intrude above the OLS. Controlled activity approvals will be sought as part of this development application • The buildings have been designed to respect the PANS- OPS limit at the site. None of the buildings will intrude above these surfaces.
Sustainability	
Atelier Ten	• The proposed development has been designed to exceed industry recognised building sustainability standards and environmental performance standards. • Key ESD initiatives have been implemented to allow the development to achieve performance targets, including: - Achieve at least 20% upfront carbon reduction through material selection, material efficiency and hybrid structures; - Solar PV panels will be installed to provide renewable energy that further reduces greenhouse gas emissions; - Achieve at least 90% construction and demolition waste diversion; - Energy efficient lighting and mechanical plant will be designed to reduce the peak demand for electricity; - Facades have been designed to reduce reliance on mechanical heating and cooling systems through rationalised window to wall ratios, high performance glazing and rationalised shading to facades; and - Future proofing to enable net-zero carbon operations through 100% energy and electricity via renewable sources.
Environmental Amenity	
Bates Smart	• The buildings have been designed to minimise overshadowing impacts to surrounding developments through building articulation and a stepped form. • Visual impacts have been reduced through the staggered built form which provides appropriate transition to the surrounding residences. Podiums have been designed to a scale that is compatible with surrounding developments.
Construction Management	
Noise and Vibration	
Arup	**Construction traffic noise** • To minimise disturbance to the neighbouring community, truck arrivals and departures should be scheduled outside peak traffic hours and, wherever possible, during times that are less sensitive to noise • All contractors and subcontractors will be informed about the importance of noise-conscious driving when traveling to and from the construction site. To manage noise from construction traffic, the following measures should be implemented: - Staging truck arrivals to prevent queuing and idling on public streets. - Directing vehicles to arrive and depart via designated routes that minimize the use of local roads. - Reducing the need for reversing to limit the use of reversing alarms (“beepers”) and/or using quieter alarms (e.g., quacker alarms). - Minimising engine braking and avoiding unnecessary noise from slamming doors, loud radios, shouting, or the use of truck horns for signalling.
	Construction noise management

Consultant	Mitigation Measure
	• Construction work hours are to be undertaken within the following hours: - Monday to Friday 7am to 6pm - Saturdays 8am to 1pm - Sundays or Public Holidays no construction • construction works are temporary in nature therefore potential noise impact on the community, and the surrounding environment will not be permanent or continuous. Where the predicted LAeq(15min) noise level is greater than the noise management levels all feasible and reasonable work practices should be applied as discussed in the following section. • Preparation of a detailed Construction Noise and Vibration Management Plan
Arup	**Construction vibration management** • A detailed Construction Noise and Vibration Management Plan will be required to document agreed procedures. • The following should also be implemented: - An open line of communication should be maintained with UNSW to provide feedback regarding construction impacts, including meetings with stakeholders and the builder. - The contractor should submit regular records to enable UNSW to coordinate precinct and campus management. - Notification should be provided to the university well in advance of any anticipated periods of extensive vibration-intensive work. The notification period should be agreed upon in consultation with the university. - Vibration-intensive construction activities, such as the use of compactors, should not be conducted near vibration-sensitive receivers to ensure that the vibration criteria are not exceeded in those areas. - Wherever feasible, relocation of vibration sensitive equipment should be explored. In lieu of this being possible, the use of sensitive equipment should be scheduled outside of intensive construction vibration activities. - Vibration monitors should be installed within buildings housing vibration sensitive equipment for the duration of construction stages containing vibration intensive works.
Aboriginal Cultural Heritage	
Urbis	• A copy of the ACHAR should be submitted with the SSDA (refer to **Appendix AA**); • Further archaeological investigation should be undertaken at the commencement of the proposed works, prior to construction, comprising a subsurface Aboriginal archaeological excavation program; and • Implement an Unexpected Finds Protocol for archaeological matter and human remains.
Trees	
Canopy Consulting	• Retention of nine high-value trees through “generic plus” protection measures, including non-destructive excavation, pier-and-beam supports, controlled pruning and enhanced root protection. • Detailed root investigations are to occur to refine construction methods near Trees 853, 854 and 864–867.

Consultant	Mitigation Measure
	• Crown conflict analysis using point-cloud modelling to avoid unnecessary pruning and confirm scaffold and crane clearance. • Specific protection requirements such as static bracing, aerial-root promotion and adjusted hardscape methodologies for trees 853, 854 and 865. • Tree 851 (Ficus rubiginosa) has been assessed as a viable transplant candidate and will be relocated to Physics Lawn by a specialist contractor. This approach will ensure the retention of a high-value specimen that would otherwise be impacted by the development footprint. • For trees that will remain, the TPMP specifies protection measures consistent with AS4970, including: - Establishment of Tree Protection Zones (TPZs) and Structural Root Zones (SRZs); - Fencing and ground protection during construction; - Non-destructive excavation within the TPZ; - Supervision by a qualified Project Arborist for all works within or near TPZs; and - Controlled pruning under AS4373. • To offset the removal of the 44 trees, replacement planting will be provided throughout the site which prioritises locally appropriate species such as Angophora, Banksia, Corymbia and Eucalyptus species. All replacement stock will comply with AS2303 Tree Stock for Landscape Use and be planted to industry-standard installation specifications.
Geotechnical	
Douglas and Partners	Overall ground conditions are considered suitable for the proposed development, with standard excavation, dewatering contingency measures and footing design approaches readily addressing anticipated geotechnical constraints.
Contamination	
Douglas and Partners	• A data gap assessment of the current building footprints will occur following demolition, primarily for asbestos waste classification purposes; • If required, an asbestos removal control plan (ARCP) will be implemented for any soils excavated / disposed from BH102 where asbestos was detected. The plan will include procedures to validate the removal of asbestos (if removed); • An Unexpected Finds Protocol (UFP) outlining the procedures that would be undertaken in the event unexpected contamination is encountered during excavation works will be prepared. • All waste to be disposed off-site must be assessed, managed and disposed of in accordance with the POEO Act and associated regulations. Further testing and assessment are required to classify soils at the site for off-site disposal; • A hazardous building material survey has been prepared to assess the presence of hazardous building material prior to demolition and to inform management requirements. • If the asbestos impacted soils detected in soil at BH102 are retained, its presence should be recorded on an asbestos register to document the presence of asbestos in the fill at that location.
Waste Management	

Consultant	Mitigation Measure
MRA Consulting	**Demolition and construction** • Appropriate contractors and facilities have been proposed based on their location and service offerings. • The WMP will be retained on-site during the construction phases of the development, along with other waste management documentation (e.g. contracts with waste service providers) • Responsibility for the WMP, waste documentation and processes during the excavation and construction phases will be with the site manager or builder. • A logbook that records waste management and collection will be maintained on site, with entries including: - Time and date of collections; - Description of waste and quantity; - Waste/processing facility that will receive the waste; and - Vehicle registration and company name. • Waste management documentation, the logbook and associated dockets and receipts will be made available for inspection by an authorised Council Officer at any time during site works
Aviation	
Avlaw Aviation	• During construction, one of the cranes will protrude above the OLS. Controlled activity approvals will be sought as part of this development application. • The construction method has considered the PANS- OPS limit at the site. None of the proposed construction activities will intrude above these surfaces.