

APPENDIX D

MITIGATION MEASURES

SEARS	Potential Impact	Mitigation Measure	Reference
Traffic, Transport and Accessibility	Impacts on road network from construction and operational phase.	<p><u>Construction:</u></p> <ul style="list-style-type: none"> ▪ A draft CTMP outlines measures to manage traffic during demolition, excavation, and construction phases, including: <ul style="list-style-type: none"> – Truck Routes: Designated routes via major roads (e.g., Talavera Road, Lane Cove Road, M2 Motorway) to minimise disruption on local streets. – On-Site Operations: Loading and unloading of construction materials will occur within an on-site construction compound to avoid street congestion. – Traffic Control: Qualified traffic controllers will manage vehicle movements to ensure safety and minimise disruptions. – Work Zones and Hours: Specific work zones will be used, and construction activities will occur during regulated hours to reduce impacts on traffic flow. <p>To mitigate construction-phase impacts:</p> <ul style="list-style-type: none"> ▪ Scheduling Deliveries: Deliveries will be scheduled during off-peak hours. ▪ Community Consultation: Engaging with nearby residents and businesses to provide advance notice of construction activities. ▪ Monitoring and Adjustments: Regular monitoring of traffic conditions and flexibility to adjust measures as needed. <p><u>Access Management:</u></p> <ul style="list-style-type: none"> ▪ Separate driveways for parking and loading will minimise conflict between vehicles and pedestrians. ▪ All vehicle entry and exit points will comply with Australian Standards (AS2890) for safe design, ensuring sightlines and circulation are adequate. <p><u>Green Travel Plan:</u></p> <ul style="list-style-type: none"> ▪ Promotes public transport usage and carpooling. ▪ Provides end-of-trip facilities (e.g., showers, lockers, bicycle parking) to encourage walking and cycling. ▪ Public transport information and travel planning resources for staff and visitors to reduce reliance on private vehicles. 	Section 6.1 Appendix S
Trees and Landscaping	Tree removal and impacts to retained trees	<p>The AIA recommends the following mitigation measures to protect the retained trees during the construction phase as summarised below:</p> <ul style="list-style-type: none"> ▪ Establish Tree Protection Zones (TPZs) for all trees to be retained, following the guidelines in AS4970-2009. ▪ Protective fencing will be installed around TPZs to prevent unauthorized access and physical damage during construction. ▪ Signage will be placed on fences to inform workers of tree protection requirements. ▪ Regular arborist inspections during construction to monitor the health and stability of retained trees. ▪ Excavation within TPZs will use non-destructive methods, such as Air Spades or vacuum excavation, to avoid damaging critical roots. ▪ Structural roots larger than 25mm in diameter will not be cut unless deemed unavoidable, and any necessary cuts will be made under the supervision of a qualified arborist. 	Section 6.1 Appendix P

SEARS	Potential Impact	Mitigation Measure	Reference
		<ul style="list-style-type: none"> ▪ A total of 32 new trees must be planted to offset the removal of 64 existing trees. ▪ Species selection will focus on native and endemic varieties to enhance biodiversity, restore canopy cover, and align with the site's landscaping goals. ▪ Use mulching and watering to maintain soil health and moisture levels within TPZs during construction. ▪ Site access and construction storage areas will be located away from TPZs to prevent soil compaction and contamination. ▪ Employ directional under boring for stormwater and utility installations near retained trees to minimise root disturbance. ▪ Protect tree roots from damage by using root barriers where necessary. ▪ Implement a post-construction maintenance plan, including regular inspections, mulching, and watering for both retained and newly planted trees. ▪ Fertilisation and pest management will be applied as needed to ensure tree health and growth. ▪ Retained trees along Talavera Road and other landscaped areas will be integrated into a cohesive landscaping plan. 	
Noise and Vibration	Impacts on surrounding buildings from construction and operational phase	<p>To mitigate the potential noise and vibration impacts, the NVIA has recommended the following:</p> <p><u>Construction Noise and Vibration</u></p> <ul style="list-style-type: none"> ▪ Preparation of a Construction Noise and Vibration Management Plan (CNVMP) prior to the commencement of any works on site. ▪ The CNVMP must identify all potentially impacted receivers, assess the potential noise and vibration impacts from the project and provide details regarding how the impacts would be minimised through use of all feasible and reasonable mitigation measures. It must also contain procedures for handling complaints and compliance monitoring requirements. <p>In addition to the requirement to prepare a CNVMP, the following general mitigation measures should be adopted to reduce construction noise impacts:</p> <ul style="list-style-type: none"> ▪ Limit noisy activities to standard construction hours (7:00am – 6:00pm on weekdays, 8:00am – 1:00pm on Saturdays). ▪ Use noise barriers, acoustic enclosures, and quieter equipment where feasible. ▪ Maintain community engagement by notifying affected stakeholders in advance of noisy activities. ▪ Maintain minimum safe distances between vibration-intensive equipment and sensitive structures. ▪ Use low-vibration methods where possible, such as pre-drilling for piling. ▪ Monitor vibration levels at nearby sensitive receivers to ensure compliance with guidelines. ▪ Schedule deliveries and movements of construction vehicles during off-peak hours. ▪ Implement traffic controllers to manage site access and reduce queuing noise near sensitive areas. <p><u>Operational Noise</u></p> <ul style="list-style-type: none"> ▪ Use low-noise cooling towers with speed reduction during low ambient conditions (e.g., at night). ▪ Install acoustic enclosures and attenuators for generators, AHUs, and other rooftop equipment. ▪ Use mufflers and lined discharge ducts for generator exhaust systems. ▪ Utilize concrete walls and building envelope materials to effectively contain internal noise from data halls and plant rooms. ▪ Conduct generator testing during daytime hours only to minimise noise disturbance. ▪ Limit testing to one generator at a time to reduce cumulative noise impacts. 	Section 6.1 Appendix K

SEARS	Potential Impact	Mitigation Measure	Reference
		<ul style="list-style-type: none"> ▪ Reduce cooling tower fan speeds at night to meet stricter nighttime noise criteria. ▪ Optimise placement of rooftop equipment to minimise noise propagation to sensitive receivers. ▪ Implement a noise monitoring program to ensure ongoing compliance with regulatory thresholds. ▪ Conduct regular maintenance of noise control equipment to maintain effectiveness. 	
Air Quality	Impacts of construction activities in relation to dust and human health at sensitive receptors	<p>To mitigate the potential air quality impacts, the AQIA has recommended the following:</p> <p><u>Construction Air Quality</u></p> <ul style="list-style-type: none"> ▪ The project employs several strategies to minimise air quality impacts during construction, including: ▪ Dust suppression techniques, such as water spraying and covering stockpiles. ▪ Use of low-emission construction equipment and machinery. ▪ Limiting vehicle idling and ensuring regular maintenance of construction equipment. ▪ Scheduling construction activities during favourable weather conditions to reduce dust dispersion. ▪ Monitoring and implementing a complaints management system to address air quality concerns promptly. <p><u>Operational Air Quality</u></p> <ul style="list-style-type: none"> ▪ Use of advanced emission control technologies, such as low-NO_x generator models and selective catalytic reduction (SCR) systems. ▪ Vertical exhaust stacks positioned to optimise pollutant dispersion. ▪ Total generator testing time is limited to 72 hours per year across all units to minimise emissions. ▪ Limit testing to daytime hours (7am – 6pm) when atmospheric dispersion conditions are favourable. ▪ Provide clear information to the community about generator testing schedules and the measures taken to manage air quality impacts. ▪ Conduct testing of one generator at a time to minimise cumulative impacts. ▪ Maintenance schedules for the proposed data centre are coordinated with adjacent data centres to prevent simultaneous testing of multiple generators, reducing cumulative impacts on air quality. ▪ Design in compliance with Australian Standard AS 1940, minimizing evaporative losses. ▪ Operations will adhere to the NSW Protection of the Environment Operations (Clean Air) Regulation 2022, ensuring all emissions are within permissible limits. ▪ Regular maintenance to prevent leaks and emissions. ▪ Implement air quality monitoring at sensitive receptor locations. ▪ Conduct regular compliance checks during operation and testing. 	Section 6.1 Appendix J
Flooding	Potential Flood Impacts on the site and its surrounds	<p>As outlined in the FIRA, the proposed mitigation measures to address flood impacts at the MPark Talavera Road Data Centre include the following:</p> <ul style="list-style-type: none"> ▪ A flood-resistant façade wall must be constructed along the eastern boundary of the site to prevent floodwaters from entering the building during events up to and including the PMF. ▪ A dedicated drainage swale must be implemented along the eastern boundary to safely manage and redirect overland flows away from the site and neighbouring properties. 	Section 6.2 Appendix BB

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		<ul style="list-style-type: none"> ▪ The building's Finished Floor Levels must exceed the 1% AEP flood level by a minimum of 300mm, complying with and surpassing the requirements of the City of Ryde Council's Stormwater Technical Manual. ▪ On-site detention systems and dedicated stormwater infrastructure must manage runoff and maintain pre-development flow conditions, minimizing downstream impacts. ▪ A Flood Emergency Response Plan (FERP) must be prepared to provide guidance for building occupants during extreme flood events, ensuring safety and minimizing potential disruptions. ▪ Critical infrastructure, such as electrical and mechanical systems, must be located above flood-prone levels. ▪ Landscaped areas and permeable surfaces must be included to reduce surface runoff and assist with infiltration where possible. 	
Hazard and Risk	Combustion of dangerous goods	<p>To ensure compliance with the requirements for the Work Health and Safety Regulation 2017 (WHS Regulation), the following mitigation measures must be adopted:</p> <ul style="list-style-type: none"> ▪ An outer warning placard shall be prominently displayed at workplace entrances where emergency services may enter in accordance with Regulation 349. The placard shall be clearly legible, separate from other signs and otherwise compliant with Schedule 13. ▪ Placards shall be prominently displayed on or near the diesel storage tanks in accordance with Regulation 350. The placards shall be clearly legible, separate from other signs and otherwise compliant with Schedule 13. ▪ A manifest of all Schedule 11 chemicals shall be prepared in accordance with Regulation 347 and Schedule 12 of the WHS Regulation. ▪ SafeWork NSW shall be notified of diesel storage exceeding manifest quantities in accordance with Regulation 348 of the WHS Regulation. ▪ An emergency plan shall be prepared for the site and provided to Fire and Rescue NSW as per the requirements of Regulation 361 and Division 4 of Part 3.2 of the WHS Regulation. 	Section 6.1 Appendix DD
Aboriginal Heritage	Impacts on cultural heritage	<p>To mitigate potential impacts related to Aboriginal cultural heritage, the ACHAR recommended the following be implemented during the construction phase of the project:</p> <ul style="list-style-type: none"> ▪ As the proposed works are unlikely to cause harm to Aboriginal objects, it is recommended that no further investigation is required for the present development and that the proposed development can proceed in line with the Archaeological Unexpected Finds Procedure and Human Remains Procedure outlined below. <ul style="list-style-type: none"> – All works within the vicinity of the find must immediately stop. The find must not be moved 'out of the way' without assessment. The find must be cordoned-off and signage installed to avoid accidental impact. – The site supervisor or another nominated site representative must contact either the Project archaeologist (if relevant) or Heritage NSW (Enviroline 131 555) to contact a suitably qualified archaeologist. – The nominated archaeologist must examine the find, provide a preliminary assessment of significance, record the item and decide on appropriate management measures. Such management may require further consultation with Heritage NSW, preparation of a research design and archaeological investigation/salvage methodology and registration of the find with the Aboriginal Heritage Information Management System (AHIMS). – Depending on the significance of the find, reassessment of the archaeological potential of the subject area may be required and further archaeological investigation undertaken. – Reporting may need to be prepared regarding the find and approved management strategies. – Works in the vicinity of the find can only recommence upon receipt of approval from Heritage NSW. ▪ In the unlikely event that human remains are uncovered during any site works, the following protocols must be undertaken: 	Section 6.1 Appendix P

SEARS	Potential Impact	Mitigation Measure	Reference
		<ul style="list-style-type: none"> – All works within the vicinity of the find must immediately stop. The find must be cordoned-off and signage installed to avoid accidental impact. – The site supervisor or other nominated manager must notify the NSW Police and Heritage NSW (Enviroline 131 555). – The find must be assessed by the NSW Police, which may include the assistance of a qualified forensic anthropologist. – Management recommendations are to be formulated by the NSW Police, Heritage NSW and site representatives. – Works are not to recommence until the find has been appropriately managed. 	
Social Impact	Potential positive and negative social impacts associated with the proposal	<p>A number of mitigation measures are suggested within the SIA. Many of the mitigation measures are detailed in the respective technical reports. Further mitigation measures below are proposed in the SIA:</p> <p>Construction Phase:</p> <ul style="list-style-type: none"> ▪ Implement a Construction Traffic Management Plan (CTMP) to minimise traffic disruptions, including the scheduling of heavy vehicle movements during off-peak hours. ▪ Use dust suppression techniques and ensure compliance with noise regulations to minimize environmental impacts on neighbouring properties. ▪ Maintain open communication with stakeholders through regular updates, newsletters, and contact points to address concerns promptly. <p>Operational Phase:</p> <ul style="list-style-type: none"> ▪ Landscaping Enhancements: Incorporate landscaping, including native plant species and tree planting, to improve visual amenity, soften the built form, and maintain ecological value. ▪ Pedestrian-Friendly Design: Provide wide pedestrian pathways and landscaped setbacks to create a welcoming streetscape that enhances public access and usability. ▪ Visual Integration: Use high-quality materials, architectural articulation, and façade treatments to reduce the perception of bulk and height. <p>Community Engagement:</p> <ul style="list-style-type: none"> ▪ Ongoing engagement with local stakeholders, businesses, and residents to ensure that feedback is addressed during construction and operational phases. ▪ Provide transparency and regular communication about project timelines, traffic management, and operational impacts. 	Section 6.1 Appendix M
Infrastructure Requirements and Utilities	High usage of water and electricity	<p>To mitigate the potential impacts related to electricity and water usage, the Infrastructure Requirements Report recommends the following:</p> <p>Electrical Infrastructure:</p> <ul style="list-style-type: none"> ▪ High Demand: Use dedicated 33kV feeders with N-1 redundancy to meet power needs and reduce strain on the local grid. ▪ Back-Up Generators: <ul style="list-style-type: none"> – Install acoustic treatments to minimise noise. – Use bunded areas and spill kits to manage fuel spills. – Comply with AS1940 standards for fire safety and emissions control during operation. ▪ Fire Risks: Design high-voltage switching rooms and generator systems per Australian Standards to minimise fire and explosion risks. <p>Water Supply:</p> <ul style="list-style-type: none"> ▪ High Demand: Install rainwater harvesting and storage tanks to supplement potable water use. 	Section 6.1 Appendix L

SEARS	Potential Impact	Mitigation Measure	Reference
		<ul style="list-style-type: none"> ▪ Pressure Management: Coordinate with Sydney Water to upgrade infrastructure, ensuring adequate flow and pressure. <p>Sewerage:</p> <ul style="list-style-type: none"> ▪ Capacity Management: Separate industrial and soil waste systems, with recirculation and pre-treatment to minimise wastewater discharge. ▪ Containment: Install a firewater containment tank to prevent contaminated water from entering the sewer system during fire events. <p>Stormwater:</p> <ul style="list-style-type: none"> ▪ Runoff Control: Use on-site detention tanks and water-sensitive urban design (WSUD) measures to manage runoff and improve water quality. ▪ Infrastructure Protection: Protect and integrate existing stormwater infrastructure into the development. <p>Telecommunications:</p> <ul style="list-style-type: none"> ▪ Redundancy: Design four separate telecommunications entry points with a minimum 20m separation or fire segregation. ▪ Path Diversity: Ensure multiple pathways minimise risks of concurrent damage to connectivity. <p>Gas:</p> <ul style="list-style-type: none"> ▪ Decommissioning: Disconnect and cap existing gas lines during demolition. ▪ Alternative Energy: Rely entirely on electricity and diesel generators, eliminating operational impacts on gas infrastructure 	
Greenhouse Gas Emissions	Impacts to greenhouse gas emissions	<p>The GHG Assessment recommends a series of mitigation measures.</p> <p>During construction:</p> <ul style="list-style-type: none"> ▪ Use low-carbon materials, such as green concrete and recycled steel, to reduce embodied emissions from construction. ▪ Preference for locally sourced materials to minimise transport emissions. ▪ Implement efficient site operations, including minimizing idling times for machinery and optimising construction schedules to reduce energy use. ▪ Utilize modern, fuel-efficient machinery to limit emissions from diesel use. ▪ Develop and implement a Construction Waste Management Plan to maximise material reuse and recycling, reducing emissions associated with landfill disposal. ▪ Incorporate temporary renewable energy solutions, such as solar-powered equipment, where feasible, to reduce reliance on diesel generators <p>During operations:</p> <ul style="list-style-type: none"> ▪ Design the facility to achieve a 5-star NABERS Energy rating for the office component, incorporating advanced energy-efficient systems for lighting, heating, ventilation, and cooling. ▪ Utilise high-performance insulation and energy-efficient glazing to reduce heating and cooling loads. ▪ Install on-site solar photovoltaic systems to offset operational energy demand and reduce reliance on grid electricity. ▪ Limit diesel generator operation to emergency scenarios and routine maintenance, ensuring emissions are minimised and comply with environmental regulations. ▪ Regularly monitor and report greenhouse gas emissions to ensure ongoing compliance with sustainability targets. ▪ Adopt energy management systems to track and optimise energy use in real-time. 	Section 6.1 Appendix HH

SEARS	Potential Impact	Mitigation Measure	Reference
Contamination	Disturbance of contaminated soil and impacts on land, air, water, and users and occupants of the site.	<p>Douglas Partners recommends that the following be completed prior to the commencement of demolition and construction:</p> <ul style="list-style-type: none"> ▪ Based on the identified potential sources of contamination and data gaps between test locations an unexpected finds protocol should be prepared to manage potential finds during demolition, excavation and construction (such as asbestos); ▪ Formal waste classification of the fill and natural soils (following demolition) is completed. Consideration should also be given to preparation of an ENM assessment of the fill (particularly below the surface layer, top 0.3 to 0.5m); and ▪ A supplementary round of groundwater well development and sampling be undertaken to enable further testing of heavy metals and PFAS to confirm the concentrations and to determine the level of treatment which may be required during dewatering. 	Section 6.2 Appendix N
Ecologically Sustainable Development	Achieving a high level of ESD	<p>The following initiatives have been provided in the ESD Report:</p> <p>Energy:</p> <ul style="list-style-type: none"> ▪ Minimum 5-star NABERS Energy rating. ▪ Cooling towers, using heat exchangers on the water side that use cooling directly from cooling tower to reduce use of chillers and using economiser on the air side. ▪ Envelope design using insulation, high performance selective glazing and external shading on appropriate elevations to achieve Section J envelope minimum compliance, balanced with allowing daylight into office spaces to reduce the reliance on artificial lighting. ▪ Efficient LED lighting throughout. ▪ Solar photovoltaic generation across rooftop areas where are is available. ▪ A battery energy storage system for peak energy shifting of PV generated power. ▪ Mixed mode ventilation to office spaces to reduce the reliance on mechanical heating and cooling. ▪ Provision of EV charging stations. ▪ Metering and monitoring of energy consumption. ▪ High albedo materials to reduce Heat Island Effect, including high 'Solar Reflectance Index' 'cool roof' cladding materials and paving. <p>Water:</p> <ul style="list-style-type: none"> ▪ Extensive use of native and indigenous planting with low water requirements. ▪ Rainwater collection, for cooling tower water top-up and irrigation. ▪ Recirculation and capture of fire testing water. ▪ Efficient fixtures and fittings with high WELS ratings. ▪ Prioritising permeable finishes and paving. ▪ Efficient air-side HVAC systems to reduce heat rejection requirements. ▪ Water treatment measures to improve the number of cycles, thereby reducing cooling tower discharge. <p><u>Material Resources and Waste</u></p> <ul style="list-style-type: none"> ▪ A materials and waste recovery audit will be conducted on the existing building prior to demolition. This aims to identify opportunities to minimise waste to landfill and optimise circular reuse of materials back into the economy. ▪ Development of a construction and demolition waste management plan, detailing all major waste streams generated, including disposal and diversion rates. 	Section 6.2 Appendix CC

SEARS	Potential Impact	Mitigation Measure	Reference
		<ul style="list-style-type: none"> ▪ Consideration of low carbon, high Portland cement replacement concrete, arc furnace produced steel, high recycled content lower embodied carbon aluminium for glazing systems. ▪ Cradle-to-gate life cycle assessment of embodied carbon and other materials impacts. ▪ Provision of on-site separation of waste streams to maximise diversion from landfill. 	
Waste	Waste associated with the construction of the data centre	<p>The CDWMP and OWMP provides the following mitigation measures:</p> <ul style="list-style-type: none"> ▪ Implement recycling programs to recover valuable materials from waste during demolition and construction stages. ▪ Encourage practices that reduce waste generation at the source, such as using fewer materials or opting for less packaging. ▪ Implement recycling programs to recover valuable materials from ongoing operational waste. ▪ Conduct campaigns to inform the community about proper waste disposal and the benefits of reducing waste. ▪ Ensure proper management and disposal of all waste streams. ▪ Implement data collection and reporting systems for waste management activities. ▪ Regularly review and update waste management plans to comply with environmental regulations. ▪ In terms of potentially hazardous waste: <ul style="list-style-type: none"> – Contaminated material stockpiled on site will be minimised as far as possible and should be stored on HDPE liner, in a bunded location which is protected from inclement weather. – Sediment fences should be installed around the base of stockpiles and the stockpiles should be covered. Where excavated material requires validations, samples should be taken for NATA laboratory testing as per the requirements of the contamination assessment prior to restoration works, backfilling exercises and disposal. – Any trucks carrying contaminated materials should be securely and completely covered immediately after loading the materials (to prevent windblown emissions and spillage) and must be licensed by the NSW Environmental Protection Authority (EPA). – Decontamination of all equipment prior to demobilisation from the site is important so that contaminated materials are not spread off-site. 	<p>Section 6.2</p> <p>Appendix T</p> <p>Appendix U</p>
Geotechnical	Impacts of construction stormwater, sediment and site run-off	<p>The Geotechnical Investigation recommends the following:</p> <ul style="list-style-type: none"> ▪ Use of shoring systems such as soldier piles with shotcrete panels to stabilize excavations. ▪ Installation of granular working platforms for heavy equipment in soft soil zones. ▪ Preparation of a detailed Dewatering Management Plan (DMP) following additional monitoring. 	<p>Section 6.2</p> <p>Appendix O</p>
Water Management	Potential impacts of stormwater on site and surrounding sites	<p>The Water Management Plan recommends the following:</p> <ul style="list-style-type: none"> ▪ Incorporation of Water Sensitive Urban Design (WSUD) elements, including bio-retention systems, to improve water quality by filtering pollutants. ▪ Installation of Gross Pollutant Traps (GPTs) to capture litter, sediment, and debris before stormwater is discharged into the municipal drainage system. ▪ Sediment and erosion control measures, including silt fences and sediment basins, will be implemented to prevent pollution during construction activities. ▪ Regular monitoring ensures the effectiveness of temporary systems and compliance with environmental standards. 	<p>Section 6.2</p> <p>Appendix V</p>