



ENVIRONMENTAL RISK ASSESSMENT AND MITIGATION MEASURES – PROJECT MARS DATA CENTRE

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 DPIE’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 mitigation measures have also been allocated to the construction (‘C’) and/or operational (‘O’) phase.

SEARS	Potential Area	Stage of Project	Approach	Mitigation Measure (Pe/Pr/Ma)
Traffic, Transport and Accessibility	Impact of the proposed development on traffic and the surrounding highway network	C and O	<ul style="list-style-type: none"> ▪ A detailed Construction Traffic Management Plan (CTMP) will be prepared prior to the commencement of construction of the development. The detailed CTMP will include a detailed assessment of the anticipated construction traffic generation associated with the proposed development and include details of proposed construction worker parking on the site. ▪ A detailed Green Travel Plan will be prepared prior to the occupation of the proposed development 	Ma
Trees and Landscaping	Impact of the proposed development on trees	C	<p><u>Specific protection measures – demolition phase</u></p> <ul style="list-style-type: none"> ▪ All demolition machinery is to be stationed within the site boundaries. Tree Protection Zone (TPZ) fencing is to be erected adjacent to the existing building as per the Tree Protection Plan prior to demolition commencing. The total 	Pe/Pr

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			<p>length of proposed tree protection fencing during the demolition phase of 510m.</p> <ul style="list-style-type: none"> ▪ Stairs within the TPZs of 12 trees (Trees 168, 169, 171, 172, 173, 175, 176, and 99-103) are to be removed by utilising light weight machinery. <p><u>Specific Protection Measures – Construction phase</u></p> <ul style="list-style-type: none"> ▪ All works within the TPZ of Tree 97 are to be undertaken under supervision of the project arborist. Tree protection fencing is only to be removed once concreting works are complete and at the discretion of the project arborist. ▪ The proposed pathway along the eastern aspect of the development is within the TPZ of six trees (Tree 121, 217, 220, 223, 224 and 225) and as a result is to be made of permeable materials. Construction machinery is not to be utilised to install permeable path along the eastern boundary. ▪ The total length of proposed tree protection fencing during the construction phase is 583m. <p><u>Generic protection and reporting measures</u></p> <p>All subject trees designated for retention require generic protection during the demolition and/or construction stage. Tree protection measures include a range of:</p> <ul style="list-style-type: none"> ▪ Activities restricted within the TPZ ▪ Protective fencing ▪ Trunk and ground protection ▪ Tree protection signage ▪ Involvement from the project arborist ▪ Project milestones ▪ Compliance reporting. <p><u>Protective fencing specification</u></p> <ul style="list-style-type: none"> ▪ Tree protective protection fencing is to be installed at the designated TPZ or maximum practicable extent. As a guide fencing is to be erected as per the image in the Arboricultural Impact Assessment (AIA) before any machinery or materials are brought to site and before commencement of works (including demolition). ▪ In some areas of the site (i.e., protection of trees on neighbouring properties) existing boundary fencing and/or external site fencing may be used as an alternative to protective fencing 	

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			<ul style="list-style-type: none"> ▪ Once erected, tree protection fencing must not be removed or altered without approval from the project arborist and/or the responsible authority and is to be secured to restrict unauthorised access ▪ Tree protection fencing is to be a minimum of 1.8m high and mesh or wire between posts must be highly visible. Fence posts and supports should have a diameter greater than 20 millimetres and should ideally be freestanding, otherwise be located clear of tree roots. ▪ Tree protection fencing must remain intact throughout all proposed construction works and must only be dismantled after their conclusion. The temporary dismantling of tree protection fencing must only be done with the authorisation of the project arborist and/or the responsible authority. ▪ The subject trees themselves must also not to be used as a billboard to support advertising material. Affixing nails or screws into the trunks of trees to display signs of any type is not permitted. <p><u>Trunk and ground protection</u></p> <ul style="list-style-type: none"> ▪ Where proposed works are within the TPZ of retained subject trees, standard protective fencing may not always be a viable method of protection. In these instances trunk protection and/or ground protection should be installed prior to the commencement of site establishment and remain in place until after all proposed works have been completed. ▪ Where construction access into the TPZ of retained subject trees cannot be avoided, the root zone of each affected trees must be protected using steel plates or rumble boards strapped over mulch/aggregate until such a time as permanent, above-ground surfacing (cellular confinement system or similar) is installed ▪ Trunk and ground protection is to be undertaken in accordance with AS4790-2009: Protection of trees on development sites. <p><u>Tree protection signs</u></p> <ul style="list-style-type: none"> ▪ Signs identifying the TPZ are to be placed at approximate 10m intervals around the edge of the TPZ fencing and must be visible from within the development site. 	
Biodiversity	Impact of proposed development on flora and fauna	C	<ul style="list-style-type: none"> ▪ Ecological pre-clearance survey ▪ Monitor and rescue fauna 	

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			<ul style="list-style-type: none"> ▪ Use directional lighting; switch off unnecessary lights ▪ Enforce speed limits; use water tankers on unpaved roads; cover or treat soil stockpiles ▪ Install chain mesh fencing around retained vegetation ▪ Clean vehicles, equipment, footwear, and clothing before site entry ▪ Dispose of weeds appropriately during construction ▪ Highlight sensitive areas in all briefings ▪ Rehabilitation survey and implementation ▪ Ecologist to inspect rock wall, structures and vegetation 2 days before demolition ▪ Install and maintain sediment controls before and during works 	
Air Quality	Impact of proposed development on air quality	C	<p><u>Mitigation Measures specific to Demolition:</u></p> <ul style="list-style-type: none"> ▪ Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust). ▪ Ensure effective water suppression is used during demolition operations. Handheld sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground. ▪ Avoid explosive blasting, using appropriate manual or mechanical alternatives. ▪ Bag and remove any biological debris or damp down such material before demolition. <p><u>Mitigation Measures specific to Earthworks:</u></p> <ul style="list-style-type: none"> ▪ Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable. ▪ Use hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. ▪ Only remove the cover in small areas during work and not all at once. <p><u>Mitigation Measures specific to Construction:</u></p> <ul style="list-style-type: none"> ▪ Avoid scabbling (roughening of concrete surfaces) if possible. ▪ Ensure sand and other aggregates are stored in banded areas and are not allowed to dry out, unless this is required 	Pe/Pr

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			<p>for a particular process, in which case ensure that appropriate additional control measures are in place.</p> <ul style="list-style-type: none"> For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust. <p><u>Mitigation Measures specific to Trackout:</u></p> <ul style="list-style-type: none"> Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use. Avoid dry sweeping of large areas. Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport. Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. Record all inspections of haul routes and any subsequent action in a site log book. <p><u>Daily Environmental Inspections</u> These daily environmental inspections will include, but not be limited to:</p> <ul style="list-style-type: none"> Visual inspection of any airborne dust being generated on-site or being observed blowing off-site Ensuring roads leaving the Site are free of soil, and that there is no observable soil tracking onto the road network Inspection of the erosion and sediment control systems for silt build-up Inspection of stockpiles and waste storage areas to ensure no significant wind erosion is observable. 	
Air Quality	Impact of proposed development on air quality	O	Neighbouring properties will be notified in the event that emergency operation of all of the generators is required	Pr
Noise and Vibration	Noise generation during construction and back-up generators during operational phase	C and O	<p><u>Construction Phase</u> The following recommended and standard mitigation measures include:</p> <ul style="list-style-type: none"> Regular toolbox notification and training of workers and contractors to be aware of nearby noise sensitive receivers and use equipment in ways to minimise noise. Use the minimum sized equipment necessary to complete the work and where possible, use alternative, low-impact construction techniques 	

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			<ul style="list-style-type: none"> ▪ Long term stationary noise sources should be enclosed or shielded from nearby sensitive receivers where possible ▪ Where rockbreakers or other pneumatic equipment is required, select silenced and dampened equipment where possible ▪ Implement community consultation to provide surrounding receivers with information such as the total construction time, what works are expected to be noisy, their duration and mitigation measures that are being applied to minimise the noise ▪ Consultation should include nearby 'other sensitive' receivers such as educational institutions. Noise intensive work that is predicted to impact 'other sensitive' receivers will be scheduled outside of particularly sensitive periods, such as exams, where possible. ▪ A Construction Noise and Vibration Management Plan (CNVMP) will be prepared before any work begins. The plan would: <ul style="list-style-type: none"> – Identify nearby sensitive receivers – Describe the activities, construction equipment and work that will be completed and quantify resulting impacts at sensitive receivers – Include noise and vibration management criteria and relevant licence and approval conditions – Include measures to manage noise and vibration and minimise the potential for impacts during construction, aligned with the results of community consultation and feedback during the approval process – Set out requirements for noise and vibration verification monitoring – Set out procedures for handling complaints. AS 2436 provides further guidance on the control of construction noise and vibration and includes the nominal noise reduction possible from various mitigation strategies. <p><u>Operational Phase</u></p> <ul style="list-style-type: none"> ▪ Optimised site layout to minimise noise emissions from the site ▪ Limit vehicle movements ▪ Limit heavy vehicle movements during the evening and night-time 	

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			<ul style="list-style-type: none"> ▪ Roller doors kept closed when loading/unloading is not occurring ▪ Appropriate design of site layout to minimise the need for trucks to stop or brake outside of loading docks with line of sight to residential receivers. ▪ Use broadband and/or ambient sensing alarms on heavy vehicles where they are required to reverse during the night-time. ▪ Scheduling of generator testing ▪ Appropriate specification and location of mechanical plant during detailed design. ▪ Prepare an Operational Noise Management Plan. 	
Ground and Water Conditions	Impact of the proposed development on ground and water conditions	C and O	<p><u>Soil Salinity</u></p> <ul style="list-style-type: none"> ▪ Materials to be imported to the site are to be assessed for suitability for the intended use. Highly saline or contaminated soils shall not be imported. ▪ The final surface of all areas of the development will be graded to prevent the ponding of surface water ▪ Erosion control of temporary batters, stockpiles and disturbed areas will be planned prior to undertaking the earthworks and implemented during the earthworks. Consideration will be given to: <ul style="list-style-type: none"> – Grading and sealing partially completed surfaces – Installation of clearly visible fencing and traffic control measures to prevent unnecessary trafficking of areas and ensuring site disturbance – Establishing set vehicular access points and roads – Protecting stockpiles (temporary vegetation or mulching) where these are to be left in place for long durations ▪ Sediment control shall be implemented by means of sediment traps and silt fencing where considered necessary. ▪ Plant species have been selected with consideration to soil conditions. ▪ Potential for water logging will be minimised by: <ul style="list-style-type: none"> – Utilising plant species with minimal watering requirements – Adopting waterwise gardening principles – Minimising use of potable water in landscaped areas – Irrigation systems will be properly designed and implemented 	Pr

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			<ul style="list-style-type: none"> – Perennial plant species and deep rooted trees will be used where possible. ▪ Roads, footpath and hardstand surfaces will be graded (and the grades maintained at all times) to prevent ponding of surface water at locations where this can result in infiltration into the underlying soils (e.g. pavement joints) ▪ Connections between the roads, footpath and hardstand surfaces and the surface water and stormwater drainage infrastructure will be designed, constructed and maintained to restrict infiltration into underlying soils ▪ Where practical, services that are to be located below the roads, footpath and hardstand surfaces will be installed at the time of construction ▪ Provision for a damp-proof course or membrane beneath slabs will be considered ▪ Disturbance of natural drainage patterns will be reduced as far as possible. Appropriate artificial drainage will be installed as necessary as shown in the civil plans ▪ Stormwater and surface water will be managed to restrict infiltration ▪ Temporary water retaining structures used during construction will be managed to restrict infiltration ▪ Stormwater and surface water infrastructure will be designed and constructed to minimise the likelihood of leakage ▪ Guttering and down pipes will be connected and maintained ▪ Surface water run-off will be directed around all exposed surfaces, temporary stockpiles and landscaped areas. ▪ The design of structural concrete members in contact with the ground (excluding piles) will adopt an B1 exposure classification as defined in Australian Standard AS36000:2018. ▪ The design of concrete cast in situ piles will adopt a mild classification as fined in AS2159:2009 	
Hazards and Risks	Combustion of dangerous goods	C and O	<u>Design Requirements</u> <ul style="list-style-type: none"> ▪ The design requirements detailed within this report shall be adhered to in the development of the design for the facility. ▪ Spillage containment with a net capacity of at least 34m³ shall be installed for the power transformers. ▪ Where requirements have not been omitted by risk assessment, FM Global Datasheet 5-32 shall be adopted as 	Pe/Pr

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			<p>the design basis with respect to the lithium ion batteries of the UPS</p> <ul style="list-style-type: none"> ▪ An automated sprinkler system shall be installed in accordance with increased design density and area of operation to comply with FM Global DS 5-32 for the data halls and FM Global DS 5-33 for the battery rooms. ▪ Personnel shall be trained to ensure that the inactive door leaf remains in the closed position when not in use. ▪ A VEWFD system, which is the Aspirated Smoke Detection system, shall be provided in accordance with AS1670.1 ▪ Off gas detection system in the battery rooms shall be provided to provide early detection and will be linked to the FIP. The system will automatically alert the fire brigade upon alarm. Additionally, on activation, the exhaust fans will run in emergency mode ▪ The battery manufacturer shall ensure that the Li-ion battery cells, modules, units and BMS are compliant with the testing requirements of UL9540A (Ref. [4]). ▪ Battery Management System (BMS) shall be provided to monitor and protect the Lithium-ion batteries, shutting them down on fault / over-temperature to prevent thermal runaway. ▪ An automatic mechanical ventilation system shall be provided. ▪ At least one (1) carbon dioxide portable fire extinguisher shall be provided on each floor. ▪ No gaseous fire suppression system will be utilised in the design. ▪ Vertical sheet metal barriers shall be provided in server rack rows where Li-ion UPS are to be used in accordance with FM DS 5-32 where practicable. <p><u>Documentation Requirements</u></p> <ul style="list-style-type: none"> ▪ A Dangerous Goods Register, indicating the type of chemical, any notations that may be required from the risk assessment and the Safety Data Sheet for the chemical. ▪ Placard Schedule. ▪ A Manifest and notification shall be submitted to SafeWork NSW. ▪ A DG Risk Assessment of the storage and handling areas. ▪ An Emergency Response Plan (ERP). 	

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Contamination and Remediation	Impact of proposed development prior to commencement of remediation works and during remediation works.	C	<p><u>Asbestos Management</u> Preparation of an asbestos management plan. It should consider at a minimum the following:</p> <ul style="list-style-type: none"> ▪ The location and extent of asbestos within the site. ▪ Notification requirements, including to SafeWork NSW. ▪ Roles and responsibilities, including appropriate supervision, monitoring and clearance for friable asbestos. E.g., all works that expose and/or penetrate asbestos impacted fill material must be supervised by a Class A licensed asbestos removalist contractor. ▪ Air monitoring requirements, which should include boundary monitoring for asbestos fibres. ▪ Demarcation and signage of the works area. ▪ Training and induction requirements. ▪ PPE and decontamination procedures. ▪ Reference to related environmental management controls in the CEMP. <p><u>Preparation of a Construction Environmental Management Plan</u> The CEMP should outline authority approvals, regulatory requirements, team contacts, preconstruction planning, site management strategy, project administration, project specific requirements, site layout and logistics, construction methodology and construction risks and mitigation measures. The following measures should be implemented:</p> <p><u>Site Clearing:</u> All remediation-related heavy vehicle access and egress from the site should follow a designated heavy vehicle route specified by the RC. As a minimum, the following traffic control measures will be implemented:</p> <ul style="list-style-type: none"> ▪ All streets along the designated heavy vehicle route will be kept free from detritus material sourced from the site during the course of the project. A representative of the contractor will, on a daily basis, monitor the roadways leading to and from the site, and take steps to clean any adversely impacted pavements. ▪ Materials such as soil, mud, earth or similar tracked onto the driveways will be removed by means such as sweeping and shovelling but not washing. 	Pre/Pr/Ma

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			<ul style="list-style-type: none"> ▪ Vehicles travelling along the designated heavy vehicle route shall have covered loads and adhere to the relevant speed limits. <p><u>Vehicle Clearing</u> The following controls will be placed on operation and movement of vehicles that have been in contact with contaminated material:</p> <ul style="list-style-type: none"> ▪ The surface of internal access roads carrying vehicular traffic will be kept clean. ▪ Vehicles carrying fill material shall be covered at all times with an “enviro-tarp” or similar impervious material to prevent the escape of dust or other material. ▪ A record of all trucks removing fill or natural materials from the site will be kept in a logbook and tracked to its final destination, NSW EPA IWTS information and tip dockets shall be retained onsite. ▪ The wheels and wheel arches of all vehicles having had access to the fill material will be inspected and if required, cleaned by the use of a broom or water spray to prevent mud and sediment from being deposited on Council roadways. <p><u>Dust Control</u> All practicable measures will be taken to ensure that dust emanating from the site is minimised. Measures to minimise the potential for dust generation may include:</p> <ul style="list-style-type: none"> ▪ Where practicable minimising the excavation area and total number of stockpiles of impacted materials present within the site. ▪ Any asbestos material which may be encountered during the excavation works will be kept wetted at all times or otherwise covered. ▪ Use of water sprays over unsealed or bare surfaces, which are generating unacceptable amounts of dust. ▪ Covering of excavation faces and stockpiles, where necessary (if unacceptable amounts of dust are generated or if weather forecasts predict strong winds). ▪ Establishing dust screens consisting of a minimum of 2 m high shade cloth or similar material secured to a chain wire fence where dust is noted to be escaping the site boundary. ▪ Maintenance of all dust control measures to ensure good operating condition. 	

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			<ul style="list-style-type: none"> ▪ All vehicles having had access to unpaved areas of the site shall exit via a wheel wash facility to prevent mud and sediment from being deposited on public roadways. <p><u>Odour Control</u> While odour is not considered to be a significant risk, all activities conducted at the site will be controlled such that all equipment used is designed and operated to control the emission of smoke, fumes and vapour into the atmosphere and any possible odours arising from the excavation or stockpiled material is controlled. Control measures may include:</p> <ul style="list-style-type: none"> ▪ Maintenance of construction equipment so that exhaust emissions comply with the relevant NSW legislation. ▪ Use of covers (if required, e.g. HDPE). <p><u>Soil Erosion and Surface Water Runoff</u> During remediation works, sediment and surface water controls in accordance with the Southern Sydney Regional Organisation of Council's brochure "<i>Soil and Water Management for Urban Development</i>" should be implemented. While the specific controls to be implemented will be documented within contractor site management plans the following should be considered:</p> <ul style="list-style-type: none"> ▪ Sediment control. ▪ Clean water diversions. ▪ Stormwater drain protection. <p>Sediment and clean water diversion control measures (i.e., silt fencing, hay bales, gravel bags etc.) should be strategically placed at the following locations:</p> <ul style="list-style-type: none"> ▪ Down-gradient of temporary stockpiles. ▪ Up-gradient of temporary stockpiles to redirect water. ▪ Down-gradient of any surrounding stormwater channels that flow within / through the site as a contingency against overflow into bunded stockpile locations. <p>Stormwater runoff should be diverted around open excavations. Stormwater drain protection may comprise:</p> <ul style="list-style-type: none"> ▪ Installation of sediment controls in any identified stormwater drains located down-gradient of any temporary stockpile areas. 	

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			<p>During remediation works all sediment and surface water controls will be routinely inspected. Should any control measure be damaged or defective, the issue will be reported to the site superintendent to arrange for repair or modification.</p> <p><u>Site Security and Signage</u> The site shall be secured by means of an appropriate fence to guard against unauthorised access if required. A sign displaying the contact details of the RC will be displayed on the site adjacent to the works area. The sign/s will be displayed throughout the duration of the remediation works in accordance with NSW regulatory requirements.</p>	
Aboriginal Cultural Heritage	Impact on Aboriginal heritage	C	<ul style="list-style-type: none"> ▪ The location of the PAD will be shown on the Environmental Control Maps contained within a future CEMP so that the extent of the potential archaeological deposit is known to all relevant construction staff, contractors and subcontractors. ▪ A fence or barrier will be installed around the PAD throughout the duration of construction works to avoid incidental harm. ▪ An unexpected finds procedure will be prepared and implemented during ground disturbing works in the event of any unexpected finds of Aboriginal sites, objects or archaeological deposits ▪ Heritage inductions will be prepared and provided to contractors and site staff. ▪ Ongoing consultation with RAPs 	Pr/Ma
Social Impact	Social impact on surrounding receivers	C and O	<ul style="list-style-type: none"> ▪ Implementing the findings from Biodiversity Development Assessment Report (BDAR) relating to the design and landscaping elements. Further, the BDAR notes that the following committed measures will further minimise the impacts on the biodiversity, including: <ul style="list-style-type: none"> – Reducing tree removal – Landscaping management – Bushfire management – Stormwater management – Flora and Fauna management – Monitoring of tree protection measures and tree health during construction 	Pe/Pr/Ma

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			<ul style="list-style-type: none"> ▪ A detailed CTMP will be prepared as part of the Construction Certificate Stage, including details related to on-site car parking availability and anticipated peak hour and daily construction vehicle movements to and from the site. ▪ Prepare the final GTP to encourage sustainable travel and reduce car dependency. ▪ Incorporate the findings and recommendations from the Connecting with Country (CWC) (TikaEQ, 2025) to integrate Indigenous values in the project. ▪ Prepare a construction noise and vibration management plan (CNVMP) as part of the broader CEMP prior to issue of the construction certificate. The CNVMP should reassess all construction noise on sensitive receivers based on the confirmed construction methods, including potential cumulative impacts, and provide appropriate mitigation measures. It should also contain complaint handling procedures and detail any compliance monitoring requirements. ▪ Implement the mitigation measures in the Air Quality Impact Assessment (AQIA) (SLR, 2025) that are either considered 'highly desirable' or 'recommended' for the demolition, earthworks and construction phases. ▪ Maintain ongoing consultation with existing tenants is essential to identify and address any key issues that may arise during the relocation process 	