Chapter 28
Environmental management framework

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28. Environmental management framework

Chapter 28 outlines the proposed environmental management framework for the Moorebank Intermodal Terminal (IMT) Project (the Project), and provides a consolidated list of all proposed environmental management, monitoring and mitigation commitments as discussed throughout this Environmental Impact Statement (EIS). Provisional environmental management plans (EMPs) for key environmental issues are provided in Volume 2, Appendix H, providing further details on environmental protection management and monitoring approaches.

This chapter and Volume 2, Appendix H address the Commonwealth Department of the Environment (DoE)'s EIS Guidelines and the Secretary for the NSW Department of Planning & Environment (NSW DP&E)'s Environmental Assessment Requirements (NSW SEARs) for the Project, as listed in Table 28.1.

Table 28.1 Relevant Commonwealth EIS Guidelines and NSW SEARs

Requirement	Where addressed
Commonwealth EIS Guidelines under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)	
Environmental Record of the person(s) proposing to undertake the action	
Provide details of the proponent's environmental policy and planning framework.	Refer to section 28.1.
Details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against: • the person proposing to take the action; and • for an action for which a person has applied for a permit, the person making the application. Such disclosure should extend to the proponent, its relevant predecessors, agents, parent and subsidiary entities (where known).	For the purposes of the Project, Moorebank Intermodal Company (MIC) is undertaking the action. Volume 2, Appendix I includes details of proceedings relating to MIC and the Department of Finance (DoF) (MIC's predecessor for the Project).
Environmental values and management of impacts – general requirements	
Environmental protection objectives to be achieved and the standards and measurable indicators that will be used. These qualitative and quantitative environmental protection objectives should enhance or protect each environmental value;	Overall objectives are detailed in section 28.1.2. Issue-specific objectives are covered in the individual Provisional EMPs in Volume 2, Appendix H.
Monitoring programs detailing the monitoring parameters, monitoring points, frequency, data interpretation and reporting proposals; and	Key commitments are listed in section 28.2. Further details are included within the Provisional EMPs in Volume 2, Appendix H.
Management strategies to be used to ensure the environmental protection objectives are achieved and control strategies implemented (e.g. continuous improvement framework including details of corrective action options, reporting (including any public reporting), monitoring, staff training, management responsibility pathway, and any environmental management systems and how they are relevant to each element of the environment).	Detailed management and mitigation measures are included in section 28.3. The continuous improvement framework is detailed in section 28.1.1.

Requirement	Where addressed
Environmental values and management of impacts – monitoring and reporting	
Where mitigation or proposed compensatory measures are proposed to address an identified impact, include: • a description and an assessment of the expected or predicted effectiveness of the mitigation measures, including the timing of measures; • details of compensatory measures, for any residual impacts on the environment and listed Threatened species and communities; and • a description of management procedures setting out the framework for continuing management, mitigation and monitoring programs for the relevant impacts of the action, including any provisions for independent environmental auditing and complaint resolution. A consolidated list of all commitments and mitigation measures must also be provided.	Refer to sections 28.3 and 28.5 for a description and an assessment of the expected or predicted effectiveness of mitigation measures. Refer to section 28.4 for details of environmental offsets. Refer to Volume 2, Appendix H for Provisional EMPs detailing specific management procedures. Refer to section 28.3 for a consolidated list of measures.
Discuss the importance of monitoring and reporting measures for increasing public awareness and transparency. In particular, provide the following information in relation to how environmental impacts will be monitored and reported: • identify any baseline monitoring that may be required and discuss the reasons in the relevant subsections. Baseline monitoring should also include the use of data from adjacent infrastructure projects that have been completed since the project was referred. Such baseline data should be used to calibrate assumptions in any modelling undertaken for predicted impacts; • identify the parameters which will be monitored, and their response trigger values and response activities; and • identify any procedural and compliance audit programs including reporting requirements and arrangements to be implemented to demonstrate the effectiveness of management and monitoring (linked to environmental management system/environmental management plan procedures).	This is discussed broadly in section 28.2, with further issue-specific details in the Provisional EMPs (refer to Volume 2, Appendix H).
Matters that must be considered in the proposed monitoring program include:	
• comprehensive monitoring of noise and vibration levels;	Refer to Volume 2, Appendix H (Provisional Noise and Vibration EMP).
• comprehensive monitoring of light spill;	Refer to Volume 2, Appendix H (Provisional Light Spill EMP).
• comprehensive monitoring of traffic congestion;	Refer to Volume 2, Appendix H (Provisional Traffic and Transport EMP).
• comprehensive monitoring of offsite discharge of groundwater and surface water;	A water quality monitoring program for the Georges River and Anzac Creek is being undertaken, with key results published on the MIC website. This program commenced in July 2013 and would be expected to continue throughout the construction and operation of the Project. Provisional Water Quality, Stormwater and Flooding EMP included in Appendix H in Volume 2 (Technical Paper 6 – *Surface Water Assessment).*

Requirement	Where addressed
• comprehensive monitoring of site air emissions;	Chapter 17 – *Local air quality* (section 17.4.3).
• review of the adequacy of emergency procedures developed to deal with fire and other emergency situations;	Refer to Volume 2, Appendix H (Provisional Hazards and Risks EMP).
• monitoring of the adequacy of management actions taken to avoid or minimise impacts on species and communities of conservation significance including those listed under the EPBC Act and *Threatened Species Conservation Act 1995* (NSW); and	Refer to Volume 2, Appendix H (Provisional Biodiversity EMP).
• provision for liaison/consultation with relevant authorities, community and user groups, including Government agencies, residents, researchers, educational institutions, etc. in relation to monitoring and verification of results.	Refer to all issue-specific Provisional EMPs in Volume 2, Appendix H.
Information on monitoring programs could also include details of measures for: • detecting and documenting differences between predicted and actual impacts; • identifying non-predicted impacts and for implementing appropriate reporting and remedial procedures; • applying contingency arrangements; and • reviewing consultation and management arrangements with regulatory authorities and the community including processes for dispute resolution.	Refer to all issue-specific Provisional EMPs in Volume 2, Appendix H.
Proposed environmental offsets	
Provide a description of proposed environmental offset measures, including a proposed strategy to offset any impacts of the proposed action on matters of national environmental significance. The proposed strategy must: • demonstrate how it will achieve long-term conservation outcomes; and • have regard to the scale and intensity of impact from the development on the site. Further guidance may be found in the department's draft Environmental Offsets Policy (or final version of released prior to the EIS being finalised) on the use of environmental offsets under the EPBC Act which is available on the department's website: http://www.environment.gov.au/epbc/publications/pubs/consultation-draft-environmental-offsets-policy.pdf	Refer to Chapter 13 – *Biodiversity*, with summary provided in section 28.4.
NSW SEARs under the NSW *Environmental Planning and Assessment Act 1979* EP&A Act	
A compilation of the measures proposed to mitigate any adverse effects of the development on the environment.	Refer to section 28.3.

28.1 Proposed environmental management framework

28.1.1 Overall framework and approach

MIC is a wholly owned Australian government business enterprise (GBE), established to oversee the delivery of the Project. The Project would be delivered by a separate entity, an operator/developer, who would undertake the construction and operation of the Project. At the time of publication of this EIS, an evaluation of interest from potential operators and developers of the terminal has been completed. MIC has commenced direct negotiations with Sydney Intermodal Terminal Alliance (SIMTA) for a period of up to six months to determine whether suitable terms for the development and operations of the terminal can be agreed. If a detailed agreement with SIMTA cannot be reached within six months, MIC will consider other options.

As a Project contractor has not yet been selected, the environmental policy and planning frameworks of the entity that would be responsible for the overall delivery of the Project cannot be provided at this time. Instead, this chapter proposes an overall environmental management framework that would guide the development of a future detailed framework.

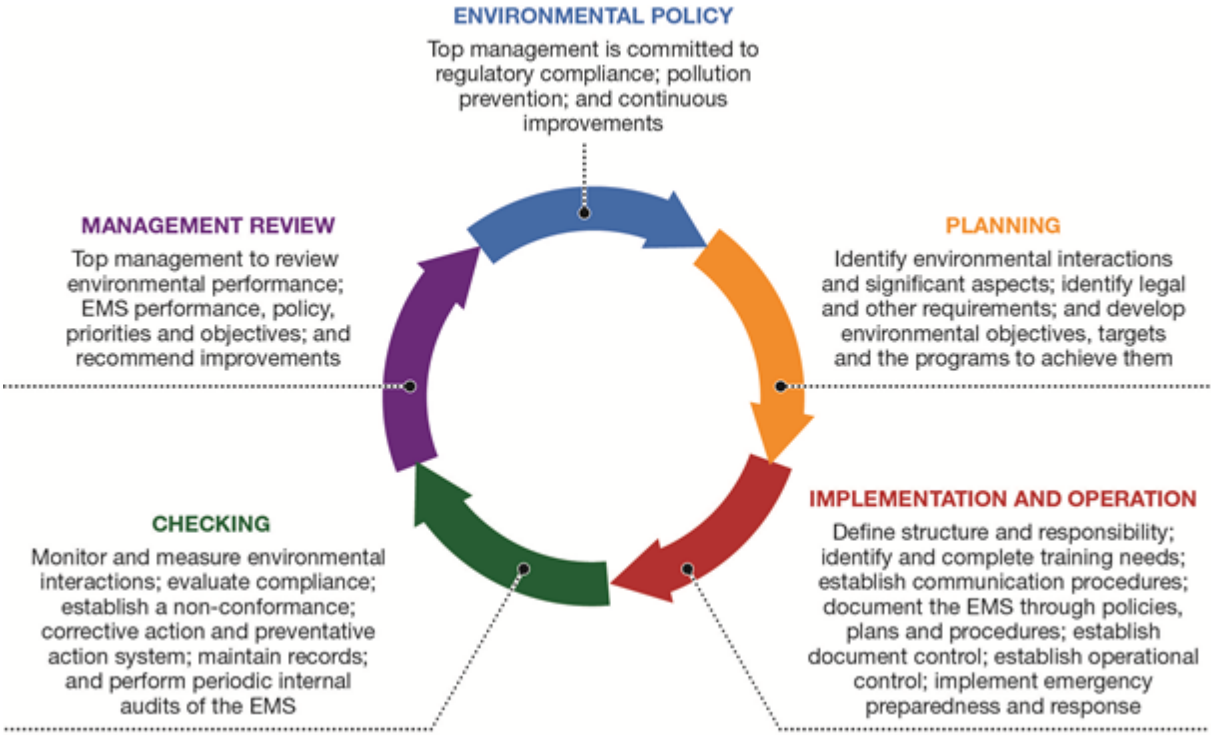

Figure 28.1 Overall environmental management framework for the Project

The environmental management framework would include an overarching Environmental Management System (EMS) that complies with AS/NZS ISO 140001:2004 (refer to Figure 28.1). This EMS would be developed by the selected contractor(s). In accordance with the Australian Government *Environmental Management System Tool* (DoE undated), the EMS would comprise a structured system to:

- identify environmental impacts associated with the organisation's business activities (including confirming and clarifying impacts of the Project detailed in this EIS);
- assess how the organisation meets its legal and other requirements relating to environmental aspects;

- plan for and demonstrate that steps have been taken to reduce or prevent environmental harm from occurring as a result of the organisation's business activities; and
- improve environmental performance (by applying the principle of continuous improvement).

The EMS would include an Environmental Policy that articulates the overall intentions and directions of the GBE (and/or the selected contractor(s)) regarding its environmental performance, and provides a formal means for management to express commitment to environmental management and improvement.

Beneath the EMS would sit a suite of environmental management plans (EMPs), for example construction environmental management plans (CEMPs) and operational environmental management plans (OEMPs). At this point in time, a suite of Provisional EMPs has been prepared (included in Volume 2, Appendix H to this EIS). The purpose of the Provisional EMPs is to demonstrate how environmental impacts would be minimised during the detailed design, construction and operational phases of the Project. This is achieved by:

- identifying activities that may have environmental impacts;
- establishing objectives, targets and indicators for the management of environmental impacts;
- establishing management approaches as well as monitoring, reporting, auditing and review regimes; and
- assessing how the organisation meets its legal and other requirements relating to environmental aspects.

The Provisional EMPs can be updated as more is known about the subsequent Project phases (detailed design, construction and operation). The Provisional EMPs serve as a guide for the development of more detailed EMPs such as CEMPs and OEMPs.

28.1.2 Project environmental objectives

The overarching environmental objectives of the Project are as follows:

- Comply with all relevant environmental standards and approvals during the life of the Project.
- Provide a high standard of environmental management which reflects good planning, implementation and recognition of all features of the environment.
- Comply with statutory requirements, regulatory approvals and regulatory reporting (Commonwealth and NSW).
- Protect people, the environment and property.
- Commit to achieving the highest possible performance in all aspects of the Project in regard to environmental practices.
- Establish, implement and maintain an EMS.

More specific environmental objectives have been developed as part of the Provisional EMPs (included in Volume 2, Appendix H to this EIS).

28.1.3 Environmental record of the proponent

The Commonwealth EIS Guidelines for the Project require an outline of the environmental record of the proponent. As MIC is a new entity that has been specifically set up for this Project, it does not have an environmental history or an environmental record. Therefore, in order to satisfy the Commonwealth EIS Guidelines, details of the environmental record of Department of Finance (DoF), as the Project's previous sponsor, are provided below.

Environmental record of DoF

DoF is proactive in referring proposed actions with the potential to have a significant impact on the environment for consideration by the Minister for the Environment under the EPBC Act. There have not been any instances identified where DoF has failed to refer an action that has had a significant impact on the environment. Due to DoF's approach of seeking to minimise the environmental impacts of proposed actions where feasible through careful site selection, design and construction management planning strategies, the majority of actions that have been referred by DoF under the EPBC Act have been determined by the Minster for the Environment to be non-controlled actions.

In 2007, DoF established an Environment and Heritage team within its Property and Construction Division. Since this time, excluding this Project, the only action that has been referred by DoF and determined to be a controlled action is the refurbishment of the Villawood Immigration Detention Centre (EPBC 2011/5947). The compliance report submitted to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) (now DoE) in August 2013 for the Villawood Immigration Detention Centre project demonstrated that all approval conditions continue to be satisfied, with the minor exception of a brief administrative delay in providing a formal letter of confirmation of commencement of the action to SEWPaC. The detailed compliance report for this action is publicly available via the Project website at: http://www.villawoodredevelopment.immi.gov.au/villawood/wp-content/uploads/2013/08/Final-compliance-Report-Aug-2013.pdf.

Further detail on DoF's environmental record is provided in Volume 2, Appendix I – *Environmental record of Proponent*. MIC, acting as an agent for the Commonwealth, has adopted the DoF's environmental policy framework. This framework is provided in Volume 2, Appendix I.

28.1.4 Provisional EMPs

A suite of Provisional EMPs has been prepared (included in Volume 2, Appendix H to this EIS) to demonstrate how the Project proponent would minimise environmental impacts during the detailed design, construction and operational phases of the Project.

The suite of Provisional EMPs addresses the following key environmental issues:

- traffic and transport;
- noise and vibration;
- biodiversity;
- hazards and risks;
- soils and contamination;
- water quality and stormwater management;

- air quality;
- Aboriginal heritage;
- non-Aboriginal heritage; and
- light spill.

28.2 Environmental protection objectives, management, monitoring and reporting

Provisional environmental protection objectives, management approaches, monitoring, reporting and review processes are detailed in the Provisional EMPs in relation to the key environmental issues.

The monitoring, reporting and review processes are very important for increasing public awareness and transparency, as they can assist with fostering understanding and acceptance of environmental management efforts and promote dialogue with interested parties. The Project contractor, once selected, will need to consider whether and/or how it would proactively communicate with external stakeholders about the significant environmental aspects of the Project. It would also need to identify any procedural and compliance audit programs, including reporting requirements and arrangements to be implemented to demonstrate the effectiveness of the EMS and associated EMPs in minimising environmental impacts and in meeting the established environmental protection objectives.

28.2.1 Baseline environmental monitoring

A long term meteorological, air and noise monitoring program is currently being undertaken to establish baseline conditions in the local area as part of the Project. Monthly monitoring reports are provided to the Project proponent. Some of the existing data have been used in this EIS. Result of the water, air and noise monitoring is provided on the Project website at http://www.micl.com.au/.

28.2.2 Conservation area monitoring

Monitoring of the conservation area (Georges River riparian corridor) would be undertaken in accordance with the Management Plan for restoration of the riparian area of the Georges River at the Project site, provided in Appendix E of Technical Paper 3 – *Ecological Impact Assessment* in Volume 4. The Management Plan outlines the management and restoration strategies for this area, along with the detailed planning, monitoring and performance indicators, and adaptive management measures.

In accordance with the Management Plan, baseline monitoring of current conditions would be needed and would include:

- cover and diversity of weed species;
- cover and diversity of native canopy, shrub and groundcover plants;
- diversity and abundance of sedentary native bird species; and
- extent of erosion.

28.2.3 Reporting, auditing and review

Management plans

A number of Project specific management plans to address design, construction and operational activities would be developed for the Project. These plans would include a design management plan, CEMP(s) and an OEMP.

During the detailed design process, design reviews would be undertaken and documented to ensure the environmental design requirements and criteria associated with mitigating potential environmental impacts during construction and operation have been incorporated into the design and/or complied with.

Any reporting requirements applicable to the construction and operational phase would be in accordance with the Project's CEMP, the Project's OEMP, relevant subordinate management plans, and the requirements specified in Project approvals, conditions of approval, applicable permits and licences. The management plans would be live documents and would be periodically reviewed throughout the life of the Project.

Independent environmental audit

Throughout the construction and operational phases of the Project, the Project contractor would commission an annual independent environmental audit of the Project. The audit should:

- be conducted by a suitably qualified, experienced and independent team of experts – where necessary the team would be endorsed by the relevant Government agencies (e.g. Commonwealth and State);
- be led by a suitably qualified auditor and include experts as directed by the relevant Government agencies;
- be conducted in accordance with the guidance provided in ISO 19011:2002 – *Guidelines for Quality and/or Environmental Management Systems Auditing*;
- include consultation with relevant Government agencies;
- assess the environmental performance of the Project and assess whether it is complying with the requirements of the Project approvals and any relevant licences and permits (including any assessment, plan or program required under these approvals);
- review the adequacy of strategies, plans or programs required under the abovementioned Project related approvals, permits and licences;
- recommend measures and actions to improve the environmental performance of the Project, and/or any strategy, plan or program required under the Project approvals, permits and licences; and
- be included in the relevant annual environmental management report (AEMR).

The Project contractor would make copies of each independent environment audit available for public inspection on request and, if requested, submit copies to the Commonwealth and State based agencies.

Environmental management review

Throughout the construction and operational phases of the Project, the Project contractor would prepare an AEMR that would review the performance of the Project against the CEMP and OEMP. The AEMR should include:

- details of compliance with the various conditions of approval (i.e. Commonwealth and State approval conditions);
- copy of the complaints register for the preceding 12 months (exclusive of personal details), and details of how these complaints were addressed and resolved;
- identification of any circumstances in which the environmental impacts and performance of the Project during the year have not been generally consistent with the environmental impacts and performance predicted in the relevant Project documentation (e.g. environmental impact statement, Project approval conditions as well as any licences and permits), with details of additional mitigation measures applied to the Project to address recurrence of these circumstances;
- results of all environmental monitoring required by the conditions of approval (i.e. Commonwealth and State approval conditions) as well as relevant licences and permits, including interpretation and discussion by a suitably qualified person;
- a list of all occasions when environmental goals/objectives/impact assessment criteria for the Project have not been achieved, indicating the reason for failure to meet the criteria and the action taken to prevent recurrence of that type of failure; and
- copies of the relevant independent environmental audit report, pre-construction compliance report and pre-operation compliance report.

28.3 Environmental management and mitigation measures

Table 28.2 provides a consolidated list of proposed environmental management and mitigation measures for the Project. This list includes various categories of measures as follows:

- Measures marked 'M' in column 3 of the table are mandatory and are firm mitigation commitments. There is still some potential for these measures to be reviewed or new measures to be added in response to community or stakeholder submissions received during the EIS exhibition. Any changes would be clearly justified and detailed in the Final EIS and any supplementary EIS (under the Commonwealth EPBC Act) and/or the Response to Submissions Report (under the NSW EP&A Act).
- Measures marked 'SR' in column 3 of the table are subject to review during the Stage 2 State significant development (SSD) approval(s) and/or detailed design, when more detail about the Project design and operation would be available. At the time of preparation of the Stage 2 SSD approval(s) applications and environmental assessment(s), these 'SR' measures would be reviewed to confirm whether they are likely to be the most effective, reasonable and feasible method to mitigate the potential risk to the environment they are proposed to mitigate. If it is determined that a better, alternative form of mitigation exists, this would be proposed as part of the Stage 2 SSD approval(s) applications. No measures would be removed without an appropriate replacement measure that is able to provide equal or better mitigation.
- Column 4 of Table 28.2 details the proposed timing of implementation of the measures.

- Columns 5 and 6 of Table 28.2 provide explanation and/or additional information regarding:
  - why the individual measures are proposed, i.e. what potential risk/outcome are they designed to mitigate (column 5); and
  - how effective the individual measures are expected to be in mitigating the potential risk/outcome, relative to an unmitigated condition (column 6).
- Definitions of the predicted risks/outcomes shown in Column 5 are taken from the risk definition matrix in Table 29.4 of Chapter 29 – *Environmental risk analysis*.
- In column 6, of Table 28.2, Note 2: Where the effectiveness of measures was not quantifiable, predicted effectiveness was assessed qualitatively using the following definitions:
  - High predicted effectiveness – high likelihood that potential risk/impact can be mitigated based on proven experience on other similar projects and/or specialist knowledge.
  - Medium predicted effectiveness – medium likelihood that potential risk/impact can be mitigated based on proven experience on other similar projects and/or specialist knowledge.
  - Low predicted effectiveness – low likelihood that potential risk/impact can be mitigated based on proven experience on other similar projects and/or specialist knowledge.

The final four columns indicate the relevance of each measure to the construction and operation of the IMT site and each of the three rail access options (northern, central and southern) as proposed in this EIS.

Table 28.2 Management and mitigation measures

No.	Mitigation measure	Mandatory (M)/subject to review (SR)	Implementation phase	Predicted risk/outcome if measure not implemented (i.e. reason for proposed measure)	Predicted effectiveness of measure(s) or outcome relative to unmitigated condition	Applicability			
						IMT site	Northern rail access connection	Central rail access connection	Southern rail access connection
General environmental management *Proposed environmental framework*									
1A	An EMS that complies with AS/NZS ISO 140001:2004 would be developed and implemented on the Project site.	M	Detailed design	High risk that overall environmental impacts of Project would not be managed effectively.	High level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
1B	EMPs including CEMPs and OEMPs would be prepared for the Project. At this point, Provisional EMPs (included in Volume 2, Appendix H) have been prepared and would be updated as more is known about the Project phasing including detailed design, construction and operation.	M	Detailed design and/or Early Works and construction	High risk that overall environmental impacts of Project would not be managed effectively.	High level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
Consultation									
2A	A Community Engagement Plan (CEP) would be prepared to outline community involvement and consultation activities in the pre-construction, construction and operation phases. As a minimum, the CEP would include appropriate measures for community involvement, including: • a direct telephone number (24 hour); • an email address; • a postal address; • regular project updates; • a community liaison representative; and • scheduled meetings with a local representative body such as a community consultative (or liaison) committee. The CEP would also set out the requirements, such as timeframes, for responding to contact received from community members.	M	Early Works, construction and operation	High risk that community impacts would not be effectively mitigated, plus high level of anxiety/concern in community regarding the Project and its impacts.	High level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
2B	The CEP would be prepared to ensure: • the community and stakeholders have a high level of awareness of all processes and activities associated with the Project; • accurate and accessible information is made available; and • a timely response is given to issues and concerns raised by stakeholders and the community.	M	Early Works, construction and operation	As per measure 2A.	As per measure 2A.	●	●	●	●
Sustainability									
3A	The final design would (as a minimum) provide for sustainability outcomes in accordance with the sustainability initiatives identified in Table 9.4 in Chapter 9 – *Project sustainability*.	SR	Detailed design	High risk that ecologically sustainable development objectives listed in Table 9.4 of this EIS would not be achieved.	High level of effectiveness in mitigating risk when combined with measure 3B. Not possible/appropriate to quantify.	●	●	●	●

No.	Mitigation measure	Mandatory (M)/subject to review (SR)	Implementation phase	Predicted risk/outcome if measure not implemented (i.e. reason for proposed measure)	Predicted effectiveness of measure(s) or outcome relative to unmitigated condition	Applicability			
						IMT site	Northern rail access connection	Central rail access connection	Southern rail access connection
					Expected to achieve ecologically sustainable development objectives listed in Table 9.4 of this EIS.				
3B	Implementation of sustainability initiatives would be monitored and audited in accordance with the monitoring framework developed prior to the commencement of detailed design. This framework would identify sustainability indicators for monitoring.	M	Early Works, construction and operation	As per measure 3A	As per measure 3A.	●	●	●	●
Traffic, transport and access									
4A	The Project team would continue to liaise with Australian Rail Track Corporation (ARTC), Transport for NSW (TfNSW) and other stakeholders on the rail freight network regarding the capacity of the network beyond the Southern Sydney Freight Line (SSFL) (including for interstate rail transport). As part of the Stage 2 SSD approval(s) process further analysis would be undertaken to determine likely demand distribution and capacity across the rail freight network.	M	Pre-construction, construction and operation Project Approval assessment process	Moderate risk that rail freight network capacity is inadequate to service full development of Project (import/export (IMEX) and interstate).	Effectiveness limited as Project cannot control wider network upgrades (beyond scope of Project). Not possible/appropriate to quantify.	●	●	●	●
4B	Install a variable message signage system within the Project site to direct heavy vehicles and facilitate safe and efficient access and navigation.	SR	Detailed design, construction and operation	Moderate injury risk associated with pedestrian–vehicle collision or vehicle–vehicle collision due to poor signage.	High level of effectiveness. Not possible/appropriate to quantify.	●	N/A	N/A	N/A
4C	Install a permanent variable message system on Moorebank Avenue to manage traffic movements to and from the various areas of the Moorebank IMT.	SR	Detailed design, construction and operation	Moderate injury risk associated with pedestrian–vehicle collision or vehicle–vehicle collision due to poor signage.	High level of effectiveness. Not possible/appropriate to quantify	●	N/A	N/A	N/A
4D	Use the most southern access off Moorebank Avenue (Access 5) as the main back-up access route for heavy vehicles for the central and southern rail access options, if the main truck access becomes blocked.	SR	Detailed design and operation	Moderate risk of delays to IMT functionality. Possible traffic safety impacts.	High level of effectiveness. Not possible/appropriate to quantify.	●	N/A	N/A	N/A
4E	Consider the provision of pedestrian and cyclist connections from Moorebank Avenue into the Project site for the warehouse developments and the IMT site.	SR	Detailed design, construction and operation	Moderate pedestrian and cyclist injury risk.	High level of effectiveness. Not possible/appropriate to quantify.	●	N/A	N/A	N/A
4F	Provide staff storage and shower areas to promote cycling, jogging and walking as modes of transport.	SR	Detailed design, construction and operation	Minor risk – reduced incentive to switch from car travel to sustainable transport.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	N/A	N/A	N/A
4G	Negotiate with bus operators for the provision of additional bus stops and increased bus services between the Project site and nearby public transport interchange hubs to reduce the volume of light vehicles generated by staff. Facilitate discussions with Transdev and TfNSW about future bus services for the IMT site.	SR	Detailed design	Minor risk – reduced incentive to switch from car travel to sustainable transport.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	N/A	N/A	N/A

No.	Mitigation measure	Mandatory (M)/subject to review (SR)	Implementation phase	Predicted risk/outcome if measure not implemented (i.e. reason for proposed measure)	Predicted effectiveness of measure(s) or outcome relative to unmitigated condition	Applicability			
						IMT site	Northern rail access connection	Central rail access connection	Southern rail access connection
4H	Undertake detailed design and staging of the Project rail link construction works to ensure: • connection with the SSFL is designed to minimise construction impacts on SSFL operations; • connection with the SSFL would allow trains to leave and enter the SSFL at a maximum design speed of 45 kilometres per hour (km/h); • trains entering and leaving the Project site have an appropriate staging area (i.e. arrival and departure roads) to enable smooth interface and minimum disruption to other operations on the SSFL; and • the Project's internal train control system and signalling integrates with the SSFL system. Undertake consultation with the ARTC and appropriate rail operators throughout the detailed design and construction of the proposed rail link to the SSFL to minimise disturbance to SSFL operations.	SR	Detailed design and construction	Moderate impact on safe operation of SSFL.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●
Traffic management plans									
4I	Modify access locations in response to the development of the Moorebank Avenue upgrade during Phase A. During upgrade work, numerous access locations may be required for the transportation of spoil and material.	SR	Early Works and construction	Moderate risk of increased traffic and associated amenity impacts along Moorebank Avenue.	Medium level of effectiveness.	●	N/A	N/A	N/A
4J	Minimise heavy vehicle movements through Casula residential roads by using the Project site east of the Georges River as a construction area for the Georges River rail bridge where possible.	SR	Early Works and construction	Moderate risk of increased traffic and associated amenity impacts on Casula.	High level of effectiveness if implemented. Quantification of traffic impacts not undertaken to date.	●	●	●	●
4K	Minimise construction vehicle movements during peak periods to minimise impacts on Moorebank Avenue and other local roads. In particular, Moorebank Avenue south of the East Hills Railway Line would not be used by construction heavy vehicles.	SR	Early Works and construction	Moderate risk of exacerbating peak hour traffic congestion and delays to construction deliveries (and waste/spoil removal).	Medium level of effectiveness if implemented. Quantification of traffic impacts not undertaken to date.	●	N/A	N/A	N/A
4L	Ensure access to neighbouring properties is maintained, including the ABB site.	M	Early Works and construction	Risk of adverse impacts on ongoing operation of businesses.	High level of effectiveness. Not possible/appropriate to quantify.	●	N/A	N/A	N/A
4M	Develop a communications plan to provide information regarding traffic impacts and road upgrades to the relevant authorities, bus operators and the local community. Ensure the communications plan includes a contact list with appropriate chains of command.	M	Early Works and construction	Risk of poor community understanding of impacts on their activities.	Medium level of effectiveness. Effectiveness will depend on the nature of the plan and mechanisms for disseminating information.	●	●	●	●
4N	Implement Traffic Control Plans (TCPs) to inform drivers of the construction activities and locations of heavy vehicle access locations.	M	Early Works and construction	Risk of poor community understanding of impacts on their activities.	Medium level of effectiveness. Effectiveness will depend on the nature of the TCPs and mechanisms for disseminating information.	●	●	●	●
4O	Obtain Road Occupancy Licences (ROLs) as necessary, including for the upgrade of Moorebank Avenue.	M	Early Works and construction	Statutory requirements.	High level of effectiveness.	●	●	●	●

No.	Mitigation measure	Mandatory (M)/subject to review (SR)	Implementation phase	Predicted risk/outcome if measure not implemented (i.e. reason for proposed measure)	Predicted effectiveness of measure(s) or outcome relative to unmitigated condition	Applicability			
						IMT site	Northern rail access connection	Central rail access connection	Southern rail access connection
4P	Develop an emergency response plan for the upgrade of Moorebank Avenue during Phase A. During this phase, emergency vehicles using Moorebank Avenue as a transport route would need to be considered, as well as emergency access to adjoining properties.	M	Construction	Risk of suboptimal emergency response – risk to human life and property.	Medium to high level of effectiveness. Not possible/appropriate to quantify.	●	N/A	N/A	N/A
4Q	During the Early Works development phase, traffic on Moorebank Avenue would be monitored during peak periods to ensure that queuing at intersections does not impact on other road users.	M	Early Works	Moderate risk of exacerbating traffic congestion and delays to construction deliveries.	Medium to high level of effectiveness. Not possible/appropriate to quantify.	●	N/A	N/A	N/A
Noise and vibration *Construction noise and vibration*									
5A	A construction noise and vibration management plan (CNVMP) would be included in the CEMP to document mechanisms for demonstrating compliance with the Project approvals and commitments made in this EIS.	M	Detailed design and construction	Moderate risk of breaching construction noise goals.	Medium level of effectiveness – may not guarantee compliance as indicated by Chapter 17 – *Noise and vibration.*	●	●	●	●
5B	The appropriateness of the noise and vibration management and mitigation measures in 5C to 5T are to be further investigated as part of the Stage 2 SSD approval(s) process. These measures, or their replacement measures, are to be implemented through the CNVMP prior to and during all noise-generating construction works for each of the Project phases.	M	SSD approval process and construction	Risk of exceedance of construction and operational noise goals.	Medium to high level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●
5C	Standard construction working hours should be restricted to between 7 am and 6 pm (Monday to Friday) and between 8 am and 1 pm on Saturdays. No works would be undertaken on Sundays or public holidays, unless they are necessary to minimise impacts on the local community, maintaining health and safety onsite, and/or where site conditions (such as rail possession works) expressly require construction outside these times. Night works would be programmed to minimise the number of consecutive nights, that works affect the same receptors.	SR	Construction	Moderate risk of complaints for work outside standard hours.	Medium to high level of effectiveness.	●	●	●	●
5D	Works may be permitted outside of the standard daytime construction hours where: • requested by the NSW Police, RMS and other authorities, such as when delivery of materials/equipment to site requires temporary road closures; • required to maintain health and safety, avoid injury or loss of life, or prevent environmental damage; • they would not be audible at the nearest receivers; and/or • required to be undertaken during rail possessions to maintain the operational service of adjacent rail corridors.	SR	Construction	Refer to Item 5X.	Refer to Item 5X.	●	●	●	●
5E	During site inductions and toolbox talks, all site workers (including subcontractors and temporary workforce) are to be made aware of the hours of construction and how to apply practical, feasible and reasonable measures to minimise noise and vibration when undertaking construction activities (including when driving vehicles).	SR	Construction	Moderate risk of breaching construction noise goals, resulting in complaints.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●

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						IMT site	Northern rail access connection	Central rail access connection	Southern rail access connection
5F	Quieter and less vibration-emitting construction methods would be applied where feasible and reasonable. For example, when piling is required, bored piles rather than impact-driven piles would minimise noise and vibration impacts.	SR	Construction	Major risk of breaching construction noise goals, resulting in complaints.	Medium level of effectiveness. Quantification depends on activity/source.	●	●	●	●
5G	The construction site would be arranged to minimise noise impacts by locating potentially noisy activities away from the nearest receivers wherever possible.	SR	Construction	Major risk of breaching construction noise goals, resulting in complaints.	High level of effectiveness. Quantification depends on activity/source.	●	●	●	●
5H	Where possible, equipment that emit directional noise would be oriented away from sensitive receptors.	SR	Construction	Moderate to high risk of impact resulting in complaints.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●
5I	Reversing of vehicles and mobile equipment would be minimised so as to prevent nuisance caused by reversing alarms. This could be achieved through one-way traffic systems and the use of traffic lights which could also limit the use of vehicle horns.	SR	Construction	Moderate to high risk of impact resulting in complaints.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●
5J	Where work is proposed in the vicinity of residences, potentially affected residents would be advised, at least two weeks prior to the commencement of works, of the potential noise and vibration levels and the proposed management measures to control environmental impacts	SR	Construction	Moderate risk of impact resulting in complaints.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●
5K	Whenever possible, loading and unloading areas would be located away from the nearest residences.	SR	Construction	Major risk of breaching construction noise goals, resulting in complaints.	High level of effectiveness.	●	●	●	●
5L	Broadband reversing alarms would be used instead of tonal reversing alarms, in particular outside standard working hours (such as during night-time rail possession works). Subcontractors would also be notified of this requirement and, where possible (particularly for night works), this would be included as a contractual requirement.	SR	Construction	Major risk of breaching construction noise goals, resulting in complaints.	High level of effectiveness.	●	●	●	●
5M	Equipment that is used intermittently would be shut down when not in use.	SR	Construction	Level of risk depends on source but potential breaching of construction noise goals, resulting in complaints.	Level of effectiveness depends on activity/source.	●	●	●	●
5N	All engine covers would be kept closed while equipment is operating.	SR	Construction	Source dependent but major risk of breaching construction noise goals, resulting in complaints.	High level of effectiveness.	●	●	●	●
5O	Where possible, trucks associated with the work would not be left standing with their engines operating in streets adjacent to or within residential areas.	SR	Construction	Major risk of breaching construction noise goals, resulting in complaints.	High level of effectiveness.	●	●	●	●
5P	Traffic speeds would be signposted. All drivers would be expected to comply with speed limits and to implement responsible driving practices to minimise unnecessary acceleration and braking. Traffic movements should be scheduled to minimise continuous traffic flows (convoys).	SR	Construction	Major risk of breaching construction noise goals resulting in complaints.	High level of effectiveness.	●	●	●	●

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5Q	The site manager (as appropriate) should provide a community liaison phone number and permanent site contact so that any noise and/or vibration related complaints can be received and addressed in a timely manner. Consultation and cooperation between the site and its neighbours would assist in limiting uncertainty, misconceptions and adverse reactions to noise and vibration.	SR	Pre-construction and construction	Major risk of noise complaints.	High level of effectiveness.	●	●	●	●
5R	Attended noise and ground vibration measurements would be undertaken at monthly intervals and upon receipt of adverse comment/complaints during the construction program, to confirm that noise and vibration levels at adjacent communities and receptors are consistent with the predictions in this assessment and any approval and/or licence conditions.	SR	Construction	Moderate risk of community backlash in the event of no response to complaints. Minor risk of identifying non-compliance.	High level of effectiveness.	●	●	●	●
5S	If noise generating construction works are undertaken outside the standard daytime construction hours and/or measured construction noise levels at nearest residences are greater than 75 dB(A) L_{Aeq}, the following additional noise mitigation measures would be considered: • Localised acoustic screens, comprising a solid structure such as plywood fencing with an absorptive acoustic to surround noise generating construction plant or work locations. To be effective for ground level noise, the screens would be lined with acoustic absorptive material, at least 2 m in height and installed within 5 m of the noise source. • Dominant noise-generating mechanical plant would be fitted with feasible noise mitigation controls such as exhaust mufflers and engine shrouds. • Respite periods of one hour are recommended for every continuous three-hour period of work; alternatively, daytime works would be scheduled between 9 am and 12 pm, and between 2 pm and 5 pm. • Where practical, noisy construction work would be undertaken during the less sensitive 6 pm to 10 pm evening period.	SR	Construction	Level of risk depends on source but potential breach of construction noise goals, resulting in complaints.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●
5T	Depending on the specific construction works undertaken, construction noise mitigation may need to be implemented: • where piling works (required for all rail access connection options) are undertaken within approximately 600 m of residences in Casula and within approximately 800 m of residences in Glenfield; • for rail access connection works for all rail access options, where daytime construction works undertaken within 450 m of nearest receptors in Casula; and where rail construction is required up to 1400 m from residences outside the standard daytime hours, such as during track possession works.	SR	Construction	Major risk of noise complaints.	Medium level of effectiveness. Not possible/appropriate to quantify.	N/A	●	●	●

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Operational noise and vibration									
5U	To achieve the noise reductions outlined in Table 12.28 in Chapter 12 – *Noise and vibration*, mitigation treatments would need to reduce noise from all dominant noise sources. The Project would implement reasonable and feasible noise mitigation to control potential noise levels. In the event that the Project does not meet the assessment criteria at receptors, if the Project has reduced noise levels to be as low as practicable, the NSW *Industrial Noise Policy* (INP) (EPA 2000b) notes that: • achievable noise limits can be negotiated with regulators and the community; • the Project specific noise levels outlined in Chapter 12 – *Noise and vibration* (and listed in 5V – 5AE) should not automatically be interpreted as conditions for approval without consideration of other factors (environmental, social and economic) consistent with the objectives of the EP&A Act. In this regard, where appropriate, the INP notes that noise limits can be set above the Project specific noise levels.	SR	Detailed design and operation	Major risk of breaching operation noise goals, leading to complaints.	High level of effectiveness.	●	●	●	●
5V	Operational plant and equipment would be selected with the lowest practicable noise emissions.	SR	Detailed design and operation	Major risk of breaching operation noise goals, leading to complaints.	High level of effectiveness.	●	N/A	N/A	N/A
5W	Mechanical components on fixed and mobile equipment, such as motors, gearboxes and exhausts, would include enclosures and acoustic insulation (lagging) to limit noise emissions. The appropriate design of acoustic enclosures and acoustic insulation can reduce source noise levels of individual plant and equipment by 10 dB(A) or more.	SR	Detailed design and operation	Major risk of breaching operation noise goals, leading to complaints.	High level of effectiveness.	●	N/A	N/A	N/A
5X	Where feasible, motors and mechanical noise-generating components of the rail mounted gantries (RMGs) would be located near to ground level rather than at the top of the gantry.	SR	Detailed design and operation	Risk of ongoing complaints.	Moderate to high level of effectiveness.	●	N/A	N/A	N/A
5Y	Where feasible, and where it would produce a lower noise emission, electric motors and vehicles would be operated instead of diesel powered equipment.	SR	Detailed design and operation	Risk of ongoing complaints.	Moderate to high level of effectiveness.	●	N/A	N/A	N/A
5Z	The following measures would be incorporated into the design and operation of the freight trains on the rail access connection for the northern rail access option, and on the rail track on the main IMT site, to control potential operational noise: • The rail freight would operate at a speed of up to 60 km/h on the rail access connections to the SSFL. At these speeds the freight locomotives (engine and exhaust) would be the dominant source of noise above the noise emitted from the wheel/rail interface and wagon bunching. Rail noise barriers would provide the most effective control of noise emissions from locomotives. • The track on the rail access connection would be designed to minimise acute changes in vertical alignment, to reduce the requirement for locomotives to operate at high throttle on the ascent or under heavy braking on the descent. The rail lines would also comprise continuously welded track to remove joints.	SR	Detailed design and operation	Risk of ongoing complaints.	High level of effectiveness.	●	●	N/A	N/A

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	• The rail access connection bridge would be designed as a concrete or composite/concrete structure to minimise potential re-radiated noise from vibrating sections of the elevated track. Detailed noise analysis would be undertaken to identify both airborne and re-radiated noise contributions, to effectively mitigate total noise emissions. • Locomotives accessing the main IMT site should have approval to operate on the network consistent with the noise limits for locomotives detailed in relevant Railway Systems Activities Licences.								
5AA	Unless for health and safety reasons, heavy vehicles should avoid the use of horns within the main IMT site.	SR	Detailed design and operation	Risk of ongoing complaints.	High level of effectiveness.	●	N/A	N/A	N/A
5AB	To further control potential rail noise from wheel squeal the following measures are proposed: • The turn radius of curved track sections would be greater than 500 m to reduce tight turns in the alignment. • Track greasing systems should be investigated on curved sections of track to lubricate and reduce friction at the wheel–rail interface. • The track maintenance system would include measures such as grinding to remove rail roughness, treatment of roughness on the wheels of locomotives and wagons, and adjustment of bogie-suspension tracking and brake system set up.	SR	Detailed design and operation	Risk of ongoing complaints.	High level of effectiveness.	●	●	N/A	N/A
5AC	Where feasible, all rail tracks would be designed to maximise the separation distance between rail lines and the nearest residences.	SR	Detailed design and operation	Risk (dependent on track design) of breaching operation noise goals, leading to complaints.	High level of effectiveness, but dependent on track design.	●	N/A	N/A	N/A
5AD	Noise walls or noise barriers would be installed within the main IMT site to impede the line of sight between noise sources and the nearest receptors. Where a noise wall or barrier fully impedes the line of sight to all dominant noise sources, a reduction in received noise level of 10 dB(A) or more can be achieved. In regard to noise walls or barriers: • Noise walls/barriers would need to be solid structures, typically constructed of concrete or similar material. • Additional absorptive material could be applied to the internal facades of the noise walls/barriers to reduce reflected noise from the wall/barriers. • TEU containers could be used as noise barriers where they are stacked, to effectively impede the direct line of sight to nearest receptors. This is likely to require an operational management procedure to ensure the container areas adjacent to the residential communities are maintained so that the containers are at the maximum practicable height at all times (typically up to five TEU). • To provide effective noise control the noise walls/barriers would need to achieve a transmission loss of at least 10 dB(A) more than the insertion loss.	SR	Detailed design and operation	Risk of breaching operation noise goals, leading to complaints.	High level of effectiveness, but dependent on wall design.	●	●	N/A	N/A

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	• For the northern rail access option, noise walls/barriers would be investigated for the rail tracks on the rail access connection between the SSFL and the main IMT site boundary. Due to the elevated location of residences in Casula, the noise wall/barrier on the viaduct of the rail access connection may require a cantilevered design to increase the mitigation of noise from locomotives. • Onsite noise walls/barriers would be constructed at the earliest opportunity in the Project development to provide noise attenuation during all subsequent construction and operation phases. • Subject to further consideration of environmental, social and economic impacts, earth mounding could be considered as an alternative to, or in conjunction with, noise walls/barriers to attenuate the propagation of noise between the site and nearest affected receptors. Where earth mounding can fully impede the line of sight to dominant noise sources, it may be possible to reduce noise from ground level sources by 6 dB(A) L_{Aeq} or more. For each rail access option, it is proposed that earth mounding be considered on the main IMT site, at the western extent of the IMEX and interstate rail lines.								
5AE	Where feasible, all onsite buildings and structures would be designed and constructed to impede noise from ground level operation of heavy vehicles, side picks and ITVs. The detailed design of the IMT would seek to locate the warehouse buildings to the west of the site, where feasible, to impede the propagation of noise to Casula.	SR	Detailed design and operation	Risk of ongoing complaints.	Effectiveness will depend on the design of the IMT. Potential for medium to high effectiveness.	●	N/A	N/A	N/A
Operational noise management									
5AF	Before to the start of each phase of operations, an operational noise and vibration management plan (ONVMP) would be developed and implemented. The ONVMPs would detail the staged operation of the Project, the potential offsite operational noise levels as determined during the detailed design process, and all measures to manage and mitigate operational noise and vibration.	SR	Pre-operation and operation	Moderate risk of breaching operation noise goals, leading to complaints.	High level of effectiveness.	●	●	●	●
5AG	As a minimum, the ONVMP would include: • the operational noise criteria/limits as defined by the relevant Project approvals and Environmental Protection Licence; • identification of all surrounding receptors and land use that would be potentially sensitive to noise and vibration; • identification of all noise and vibration generating operations and the timing of these operations; • the location and specification of any onsite and offsite noise mitigation, including the requirement for future mitigation as part of the staged operation; • detailed measures for managing operational noise, including checklist and auditing procedures to ensure measures are implemented before the start of noise generating activity; • procedures for the monitoring and reporting of operational noise and vibration;	SR	Pre-operation and operation	Moderate risk of breaching operation noise goals, leading to complaints.	High level of effectiveness.	●	●	●	●

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						IMT site	Northern rail access connection	Central rail access connection	Southern rail access connection
	• procedures for consultation with the community regarding operational noise and vibration; and • complaint handling procedures.								
5AH	Where practical and feasible to do so, consideration would be given to: • undertaking locomotive maintenance during the daytime and evening period between 7 am and 10 pm; • operating heavy vehicles to limit the requirement for reversing and audible reversing alarms, such as the use of one-way systems for onsite roads; and • appropriate commitment – either contractual or operational – that rail operators accessing the site would be required to undertake regular maintenance of all trains to address wheel flat spots and locomotive exhausts.	SR	Pre-operation and operation	Moderate risk of breaching operation noise goals, leading to complaints.	High level of effectiveness.	●	●	●	●
Further assessment									
5AI	The noise and vibration measures described in 5U – 5AH above would be subject to further consideration during detailed design. At that point, the predicted noise impacts and the likely effectiveness of the measures (or equivalent alternative measures) would be further investigated. This further investigation would include consideration of potential environmental, social and economic impacts of the measures. It is also proposed that the following points be considered in the further assessment of potential impacts and design of mitigation measures: • Assessment of potential noise emissions from any concrete batching plant, and implementation of any required noise mitigation, would be undertaken by the appointed construction contractor upon confirmation of the design and operation of the concrete batching plant. • During the detailed design of the Project, the specification of operating plant and machinery for the Project would be confirmed. This would include the provision of one-third octave band noise emission data from equipment vendors to facilitate a detailed assessment of annoyance characteristics in accordance with the NSW *Industrial Noise Policy* (INP) (EPA 2000b). • To verify the predicted noise levels and recommended noise mitigation in the noise and vibration assessment, the predictive assessment of potential noise levels would be revised for the detailed design of the construction and operation of the selected rail access option. This would include detailed assessment of sleep disturbance impacts from rail spur operations. Where deemed necessary, mitigation measures may be required to reduce and control maximum noise events from sources such as locomotive exhausts and wagon bunching. • In accordance with Appendix 2 of NSW EPA's (2013) *Rail Infrastructure Noise Guideline* (RING) an additional noise impact assessment would be undertaken where the Project is expected to increase the designed capacity of the SSFL. Where feasible, this assessment would reference verified SSFL rail noise levels from the post-commissioning rail noise surveys undertaken by the	M SR (mitigation measures)	Detailed design	High risk of complaints.	Potentially high level of effectiveness, depending on the outcomes of the assessment and the mitigation measures employed as a result.	●	●	●	●

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	ARTC. • The specific vibration propagation characteristics can be highly variable depending on the ground conditions at a given location. It is recommended that ground vibration impacts be reviewed during the detailed design, particularly where Project rail track would pass within 50 m of residences.								
Noise and vibration monitoring									
5AJ	The ambient noise monitoring surveys within Casula, Wattle Grove and Glenfield would be continued throughout the construction and operation of the Project (with annual reporting of noise results up to two years beyond the completion of Full Build). The noise surveys would quantify any potential noise from the Project and identify any trends/changes in the ambient noise environment during the progressive development. The measured noise levels and contribution from the operation of the Project would be continually applied to the detailed design of the Project to ensure it includes appropriate mitigation measures to reduce and control noise during construction and operation. The monitoring data would also include any changes to the ambient noise environment from new or changed developments in the area. In the event of any noise or vibration related complaint or adverse comment from the community, noise and ground vibration levels would be measured at the potentially affected premises, where feasible. In accordance with procedures in the CNVMP and ONVMP, the measured noise and/or vibration levels would then be assessed to ascertain if remedial action is required.	SR	Detailed design, construction and operation	If recommended measures are not implemented, complaints handling could become difficult.	High level of effectiveness.	●	●	●	●
Biodiversity									
6A	Following detailed design and before construction, detailed flora and fauna mitigation measures would be developed and presented as part of the CEMP. These detailed measures would incorporate the measures listed in 6B to 6W.	M	Early Works and construction	Without a detailed description of the steps required to implement each measure and identification of the party responsible, there is a risk that measures would not be correctly implemented.	High level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●
6B	Vegetation clearing would be restricted to the construction footprint and sensitive areas would be clearly identified during the construction process as exclusion zones.	M	Early Works and construction	If vegetation clearing is not restricted to the construction footprint, unnecessary clearing could cause additional impacts on biodiversity.	High level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●
6C	The exclusion zones would be marked on maps, which would be provided to contractors, and would also be marked on the ground using high visibility fencing (such as barrier mesh).	M	Early Works and construction	Without clear delineation of clearing limits and no-go areas, there is a risk of unnecessary vegetation clearing and associated impacts on biodiversity.	High level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●

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6D	A trained ecologist would accompany clearing crews to ensure disturbance is minimised and to assist in relocating any native fauna to adjacent habitat.	M	Early Works and construction	Without input from an ecologist, there is a higher risk that native animals would be injured or killed. Unqualified staff may not recognise potential shelter sites (e.g. tree hollows, woody debris) or have the skills necessary to assist animals to relocate to adjacent habitat.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●
6E	A staged habitat removal process would be developed and would include the identification and marking of all habitat trees in the area. Where feasible, clearing of hollow-bearing trees would be undertaken in March and April when most microbats are likely to be active (not in torpor) but are unlikely to be breeding or caring for young, and when threatened hollow-dependent birds in the locality are also unlikely to be breeding. Pre-clearing surveys would be conducted 12 to 48 hours before vegetation clearing to search for native wildlife (e.g. reptiles, frogs, Cumberland Land Snail) that can be captured and relocated to the retained riparian vegetation of the Georges River corridor. Vegetation would be cleared from a 10 m radius around habitat trees to encourage animals roosting in hollows to leave the tree. A minimum 48 hour waiting period would allow animals to leave. After the waiting period, standing habitat trees would be shaken (where safe and practicable) under the supervision of an ecologist to encourage animals roosting in hollows to leave the trees, which may then be felled, commencing with the most distant trees from secure habitat. Felled habitat trees would either be immediately moved to the edge of retained vegetation, or left on the ground for a further 24 hours before being removed from the construction area, at the discretion of the supervising ecologist. All contractors would have the contact numbers of wildlife rescue groups and would be instructed to coordinate with these groups in relation to any animal injured or orphaned during clearing.	M	Early Works and construction	Without the implementation of a staged habitat removal process, there is a higher risk that native animals would be injured. Without appropriate pre-clearing surveys, and encouragement to leave roosts, animals are more likely to remain in habitat during clearing and to be at risk of injury or death.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●
6F	Relocation of animals to adjacent retained habitat would be undertaken by an ecologist during the supervision of vegetation removal.	M	Early Works and construction	Native animals disturbed during vegetation removal would be at risk of being injured or killed by vehicle/plant movements and predation.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●
6G	An ecologist would supervise the drainage of any waterbodies on the Project site and would relocate native fish (e.g. eels), tortoises and frogs to the edge of the Georges River and/or the existing pond at the northern end of the IMT site.	M	Early Works and construction	Native aquatic animals disturbed during drainage of water bodies would be at risk of being injured or killed by earthworks, predation and desiccation/exposure.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●

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6H	The design of site fencing and any overhead powerlines would consider the potential for collision by birds and bats and minimise this risk where practicable.	M	Early Works and construction	Powerlines can be collision and electrocution hazards for wildlife, particularly birds, bats and arboreal mammals. Fences can be collision hazards and, where they include barbed or razor wire, entanglement hazards. Powerlines and fences are therefore potential ongoing sources of wildlife injury and/or mortality.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●
6I	The potential for translocation of threatened plant species as individuals or as part of a soil translocation process would be considered during the detailed development of the CEMP.	M	Early Works and construction	If no individuals or progeny of the threatened plants recorded on site are used in vegetation restoration, a small reduction in the genetic variation within the local populations of these species is possible.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●
6J	Consideration would be given to fitting roost boxes to the bridge over the Georges River to provide roost sites for the Large-footed Myotis and other species of microbats (e.g. Eastern Bentwing-bat) which may utilise such structures. Provision of roost boxes under bridges has been identified as priority action for the recovery of the Large-footed Myotis.	SR	Detailed design	The Project may result in the removal of some potential roost sites (tree hollows) for the Large-footed Myotis. Without provision of roost boxes, a reduction in the availability of roosting habitat for this species may occur.	Medium level of effectiveness. Not possible/appropriate to quantify.	N/A	●	●	●
6K	Important habitat elements (e.g. large woody debris) would be moved from the construction area to locations within the Project site which would not be cleared during the Project, or to stockpiles for later use in vegetation/habitat restoration.	M	Pre-construction	If habitat elements such as large woody debris are not moved into retained habitat, animals that have been displaced by clearing and which rely on these resources may lack sufficient shelter or foraging habitat to persist.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●
6L	Winter-flowering trees would be preferentially planted in landscaped areas of the Project site to provide a winter foraging resource for migratory and nomadic nectar-feeding birds and the Grey-headed Flying-fox.	SR	Construction	Without the implementation of this measure, the Project would result in a greater long-term reduction in winter habitat for nectar-feeding species.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●

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6M	A bridge/viaduct would be used for the railway crossing of the Georges River. This may allow connectivity of terrestrial habitat along the river banks underneath the bridge.	M (connectivity SR)	Detailed design	If connectivity of terrestrial habitat is severed, this would reduce the potential for movement of animals along the eastern banks of the Georges River to the north of the site; however, riparian habitat to the north of the site is highly degraded.	Medium level of effectiveness. Not possible/appropriate to quantify.	N/A	●	●	●
6N	Options for maintaining habitat connectivity would be investigated during the detailed design phase of the Project, and may include establishing native vegetation and placing habitat elements such as rock piles and large woody debris under the bridge to provide cover for fauna.	SR	Detailed design	As above.	Medium level of effectiveness. Not possible/appropriate to quantify...	●	●	●	●
6O	Erosion and sediment control measures such as silt fencing and hay bales would be used to minimise sedimentation of streams and resultant impacts on aquatic habitats and water quality.	M	Pre-construction	Without adequate control measures in place there would be a risk of a substantial increase in turbidity and sediment deposition in the Georges River. This could affect aquatic ecosystems by reducing light availability for aquatic plants, and visibility and oxygen availability for aquatic animals.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●
6P	The detailed design process for the bridge over the Georges River would consider disturbance to aquatic habitat and fish passage conditions. The design would as a minimum adhere to the fish friendly passage guidelines (Fairfull & Witheridge 2003) for waterway crossings.	M	Detailed design	If the design does not consider fish movement, there is a risk that the bridge may adversely affect fish passage along the Georges River.	High level of effectiveness. Not possible/appropriate to quantify.	N/A	●	●	●
6Q	Opportunities for planting of detention basins with native aquatic emergent plants and fringing trees would be explored in the detailed design of the Project and, if practicable, implemented so that they would provide similar habitat in the medium term to that lost through the removal of existing basins.	SR	Detailed design	If detention basins are not planted with native vegetation, there would be a reduction in the availability of this type of habitat for native waterbirds and frogs. This habitat is, however, likely to be of relatively low importance to threatened biodiversity.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	N/A	N/A	N/A
6R	The CEMP would include detailed measures for minimising the risk of introducing weeds and pathogens.	M	Construction	Without a detailed description of the steps required to implement weed management measures and identification of the party responsible, there is a risk that measures would not be correctly implemented and that weed species would proliferate.	High level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●

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						IMT site	Northern rail access connection	Central rail access connection	Southern rail access connection
6S	The Project would include a long-term program of weed removal and riparian vegetation restoration in the Georges River corridor, which would include monitoring landscaped areas for the presence of noxious and environmental weeds. A preliminary weed management strategy is provided in Appendix E of Technical Paper 3 – *Ecological Impact Assessment* in Volume 4, setting out the principles for the management of the riparian zone.	M	Pre-construction, construction and operation	Without a long-term program of weed removal and riparian vegetation restoration, weeds would be unlikely to be adequately controlled, and would be likely to dominate the vegetation of the site in the future.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	N/A	N/A	N/A
6T	The Biosecurity division of the Commonwealth Department of Agriculture would be consulted on the detailed design of the Project and its operation, to ensure that all legal requirements and appropriate management measures related to biosecurity are implemented.	M	Detailed design	If appropriate biosecurity measures are not in place, it is possible that exotic species not currently established in the region (e.g. Red Imported Fire Ant) could be introduced and spread from the site.	High level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●
6U	During detailed design, appropriate design and landscape/vegetation management measures would be implemented to reduce the bushfire risk and threat to biodiversity.	M	Detailed design	If fire onsite is relatively frequent and/or intense, it may result in a reduction in habitat quality and loss of animal and plant species.	High level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●
6V	The management of the conservation lands along the Georges River would include management of fire regimes to promote biodiversity conservation.	M	Pre-construction, construction and operation	As above.	As above.	●	●	●	●
6W	The detailed design process would consider the potential groundwater impacts on ground-dependent ecosystems. In most cases, these impacts would be mitigated at the design phase.	M	Detailed design	If significant changes to groundwater conditions were to occur, vegetation and fauna habitat may be adversely affected, possibly resulting in a reduction in native biodiversity.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	●	●	●
6X	The management plan for the Georges River riparian corridor (refer to Appendix E of Technical Paper 3 – *Ecological Impact Assessment* in Volume 4) would be implemented and would include a monitoring program designed to detect operational impacts.	M	Operation	Without a management plan, the biodiversity conservation objectives of the Georges River riparian corridor may not be achieved. If monitoring of operational impacts from the Project site is not conducted, they cannot be identified and mitigated.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	N/A	N/A	N/A
Offsets strategy									
6Y	The Biodiversity Offsets Strategy detailed in Appendix F of Technical Paper 3 – *Ecological Impact Assessment* in Volume 4 would be implemented for the Project.	M	Detailed design, construction and operation	Without the establishment of biodiversity offsets, the Project would result in a net reduction in biodiversity values in the region.	Medium level of effectiveness. Not possible/appropriate to quantify at this stage.	●	●	●	●

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6Z	A riparian restoration plan for the Georges River riparian zone and Casula offset area would be implemented. The objectives of the plan include: • restoration and revegetation of the riparian zone of the site to be consistent with, and complementary to, areas of remnant indigenous vegetation within the Georges River corridor (approximately 16.7 hectares (ha) of land to be revegetated); • long-term eradication and suppression of the most detrimental weed species on the site including vine and woody weeds (approximately 20.0 ha of land to undergo a weed control program); • consolidation and widening of the existing vegetation corridor of Georges River where feasible; • improved habitat values for native animals and plants, particularly threatened species; and • management of undesirable animal species including introduced animal species and some Australian native animals which may be detrimental to the biodiversity of the Project site.	M	Detailed design, construction and operation	In the absence of active management and restoration, the biodiversity values of the Georges River riparian zone would continue to decline as a result of competition from introduced plants.	Medium level of effectiveness. Not possible/appropriate to quantify.	●	N/A	N/A	N/A
6AA	Measures to manage undesirable animal species include: • monitoring of the site for the presence of introduced and undesirable animal species as part of fauna monitoring; • cooperating with government bodies, interest groups and adjacent landowners in regional pest management programs including the NSW Department of Primary Industries (DPI), the NSW Office of Environment and Heritage (OEH), and the Invasive Animal Cooperative Research Centre interest groups (e.g. Australasian Pest Bird Network and local landowners); • managing the use of nest boxes by undesirable species by removing the eggs and/or young of introduced animals (e.g. Black Rat and Common Myna) under appropriate permit conditions; • removing any insect colonies (bees, wasps, termites, ants found in nest boxes); and • modifying or moving nest boxes to discourage use by undesirable species.	SR	Construction and operation	Without management measures, undesirable species may have a moderate impact on flora and fauna.	Moderate to high level effectiveness.	●	●	●	●
Hazards and risk									
Hazardous materials									
7A	To minimise the risk of leakages involving natural gas, liquid natural gas (LNG) and flammable and combustible liquids to the atmosphere: • appropriate standards for a gas reticulation network, including AS 2944-1 (2007) and AS 2944-2 (2007), would be referred to in the detailed design process; • correct schedule pipes would be used; • a fire protection system would be installed if necessary for gas users; • cathodic protection would be installed for external corrosion if appropriate; and	M	Detailed design, construction and operation	High	High predicted effectiveness.	●	●	●	●

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	• access to the Project site would be secure.								
7B	To minimise the risks of leakage of LNG and liquid petroleum gas (LPG) and flammable liquids during transport: • materials would be transported according to the Australian Dangerous Goods (ADG) Code, relevant standards and regulations; and • contractors delivering the gas would be trained, competent and certified by the relevant authorities.	M	Detailed design, construction and operation	High	High predicted effectiveness.	●	●	●	●
7C	To minimise hazards associated with venting of natural gas, LNG and LPG: • LNG storage would be designed to AS/NZS 1596-2008 standards; • access to the Project site would be secure; and • significant separation distances to residences and other assets would be put in place.	M	Detailed design, construction and operation	High	High predicted effectiveness.	●	●	●	●
7D	Storage of flammable/combustible liquids would be carried out in accordance with AS 1940, with secondary containment in place and location away from drainage paths.	M	Detailed design, construction and operation	Moderate	High predicted effectiveness.	●	●	●	●
7E	Standby or emergency generators and transformers would all have secondary containment.	M	Detailed design, construction and operation	Moderate	High predicted effectiveness.	●	●	●	●
7F	Oil coolers would generally be located in areas where leaks and runoff are appropriately controlled at source or in a retention basin.	M	Detailed design, construction and operation	Moderate	High predicted effectiveness.	●	●	●	●
7G	All systems would be designed in accordance with good engineering practice.	M	Detailed design	High	High predicted effectiveness.	●	●	●	●
7H	Appropriate testing, alarm systems, and workplace health and safety (WHS) safety precautions would be implemented.	M	Detailed design	Moderate	Moderate predicted effectiveness.	●	●	●	●
7I	No hazardous or regulated wastes would be disposed of onsite.	M	Construction and operation	Moderate	High predicted effectiveness.	●	●	●	●
7J	All offsite disposals would be carried out by approved transport operators and to approved facilities.	M	Construction and operation	Moderate	Moderate predicted effectiveness.	●	●	●	●
7K	Other dangerous goods, including any waste materials present on the Project site, would be suitably contained, with secondary containment and runoff controls implemented where appropriate to prevent leaks or spills migrating to environmentally sensitive areas, in particular via stormwater systems that drain to the Georges River.	M	Construction and operation	Moderate	High predicted effectiveness.	●	●	●	●
Bushfire risks									
7L	The aims and objectives of 'Planning for Bush Fire Protection' (RFS 2006) would be further considered, and the Rural Fire Service (RFS) consulted, during detailed design.	SR	Detailed design	Moderate	Moderate predicted effectiveness.	●	●	●	●

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7M	A bushfire management plan would be prepared for the Project site to develop the bushfire management measures in detail, in consultation with the RFS. The bushfire management plan would detail the interaction between the Project footprint and biodiversity offset areas. In the event that no vegetation clearing is undertaken, the bushfire risk assessment and bushfire management plan would be updated and appropriate mitigation measures provided in the design of the IMT.	M	Detailed design	High	High predicted effectiveness.	●	●	●	●
7N	Internal roads would be designed to enable safe access for emergency services and to allow crews to work with equipment aboard the vehicle, including providing: • two-wheel drive, sealed all weather roads; • internal perimeter road to be at least two lanes wide (8 m kerb to kerb); • a minimum vertical clearance of 4 m; • curves with a minimum inner radius of 6 m; and • roads with capacity to carry fully loaded fire-fighting vehicles (15 tonnes).	M	Detailed design	Moderate	High predicted effectiveness.	●	●	●	●
7O	Options would be considered to relocate administration buildings in the south-eastern corner of the Project site to an area further from the bushfire hazard.	SR	Detailed design	Moderate	Moderate predicted effectiveness.	●	N/A	N/A	N/A
7P	Water supplies for fire-fighting would be easily accessible and located at regular intervals, including: • reticulated water supply using a ring main system for the perimeter road; • fire hydrant spacing, sizing and pressures complying with AS 2419.1–2005; • location of hydrants outside of any road carriageway; and • ensuring all aboveground water pipes external to buildings are metal, including any taps.	M	Detailed design	High	High predicted effectiveness.	●	●	●	●
7Q	Electricity services would be located to limit the possibility of ignition of surrounding bushland or the fabric of buildings, including: • where practicable, locating electrical transmission lines underground; • where overhead electrical transmission lines are proposed, lines would be installed with short pole spacing (30 m); and • no part of a tree would be closer to a power line than the distance set out in the specifications of *Vegetation Safety Clearances* issued by Energy Australia (NS179, April 2002).	M	Detailed design	Moderate	High predicted effectiveness.	●	●	●	●
7R	Gas services would be located to avoid ignition of surrounding bushland or the fabric of buildings, including: • ensuring all aboveground gas service pipes external to buildings are metal (including connections); and • ensuring reticulated or bottled gas is installed and maintained in accordance with AS 1596 and the requirements of relevant authorities.	M	Detailed design	Moderate	Moderate predicted effectiveness.	●	●	●	●

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7S	A fuel management plan would be developed for the conservation zone and offset areas taking into consideration the ecological values of this area, including the presence of threatened biodiversity.	M	Detailed design	High	High predicted effectiveness.	●	N/A	N/A	N/A
7T	A landscape management plan would be developed for any landscaped gardens within the Project site.	M	Detailed design	Moderate	High predicted effectiveness.	●	N/A	N/A	N/A
7U	A fire safety and evacuation plan would be developed that would: • include training requirements for staff on fire prevention and safety; • provide a fire escape plan (designated meeting points and escape routes), and require regular fire drills; • outline provision of a functional fire alarm system; • outline equipment use restrictions during fire bans; and • outline measures for arson prevention, including provision of adequate lighting and security to deter trespassers.	M	Detailed design	High	High predicted effectiveness.	●	●	●	●
7V	A more detailed bushfire risk assessment would be undertaken following finalisation of design and layout, in consultation with the NSW RFS.	M	Detailed design	Moderate	High predicted effectiveness.	●	●	●	●
Contamination and soils									
8A	Further investigations for the rail access option would be undertaken as follows: • Northern rail access option: it is recommended that an intrusive soils and groundwater investigation be undertaken to gather data on soil and groundwater quality so that management and/or remediation options can be evaluated. • Central rail access option: it is recommended that a comprehensive site walkover be completed to verify fill mounds and/or depressions. If evidence of contamination is observed, targeted intrusive soil and groundwater investigations may be required. • Southern rail access option: it is recommended that a targeted intrusive investigation be undertaken to gather data on soils and groundwater quality so that management and/or remediation options can be evaluated.	M (depending on which rail access option is selected)	Detailed design	Moderate risk that unidentified contamination in area could impact on construction deliveries, human health.	Medium to high level of effectiveness in identifying potential for contamination to be present on this portion of land.	N/A	●	●	●
8B	Before construction, a remediation program would be implemented in accordance with the Moorebank Intermodal Terminal Preliminary Remediation Action Plan (RAP). The program will have been formally reviewed and approved by the Site Auditor under Part 4 of the NSW *Contaminated Land Management Act 1997* (CLM Act).	M	Detailed design and Early Works	Regulatory requirement, potential major risk to human health and the environment if remediation of identified contamination is not undertaken.	Medium to high level of effectiveness in mitigating impacts if remediation program is implemented.	●	●	●	●
8C	A CEMP would be prepared by the contractor for all excavation and remediation works and would include requirements for decontamination facilities at the Project site.	M	Detailed design and Early Works	Moderate to high risk that remediation works could have detrimental impact on the environment.	High level of effectiveness in preventing environmental incidents as a result of remediation program.	●	●	●	●

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8D	An unexploded ordnance (UXO) management plan would be developed for the Project site. This plan would detail a framework for addressing the discovery of UXO or explosive ordnance waste (EOW) to ensure a safe environment for all Project staff, visitors and contractors.	M	Early Works	High risk to life and health of site workers if a UXO management plan is not implemented and communicated.	High level of effectiveness if implemented and communicated to site staff.	●	N/A	N/A	N/A
8E	Before or during remediation works, further investigation works would be undertaken to address identified knowledge gaps. These further investigations are identified in 8F–8I.	M	Detailed design	Moderate risk that areas of contaminated soil or groundwater are not identified or remediated and complete site validation is not achieved.	High level of effectiveness in closing data gaps and achieving site validation.	●	N/A	N/A	N/A
8F	Further testing of soils would be undertaken to confirm the presence of acid sulfate soils (ASSs). If ASSs are detected, a management plan would be developed in accordance with the ASSMAC Assessment Guidelines (1998), with active ongoing management through the construction phases. Offsite disposal would need to be in accordance with the NSW *Waste Classification Guidelines Part 4: Acid Sulfate Soils* (2009).	M (testing and disposal requirements) SR (ASS management plan)	Detailed design	Moderate risk of ASS affecting construction works, with environmental impacts resulting in a regulatory breach.	High level of effectiveness if ASS testing is completed and any required management plan is implemented.	●	N/A	N/A	N/A
8G	Further testing of surface water quality would be undertaken to gather data to inform management of anticipated dewatering or discharges that may be required. Further groundwater monitoring would be undertaken on the main IMT site and would be used to inform the remedial approach for groundwater, if contamination is detected.	M	Detailed design	Moderate risk that areas of contaminated surface water and groundwater are not identified or remediated and complete site validation is not achieved.	High level of effectiveness if testing is completed and results are used to inform the design process.	●	N/A	N/A	N/A
8H	Further testing of residual sediments would be undertaken to gather data to inform the management of sediments likely to be disturbed/dewatered during construction.	M	Detailed design	Moderate risk that areas of contaminated soil are not identified or remediated and complete site validation is not achieved.	High level of effectiveness if testing is completed and results are used to inform the design process.	●	N/A	N/A	N/A
8I	Further testing of groundwater would be undertaken beneath the north-western area of the IMT site (adjacent to the ABB) to inform any additional control, management or remediation measures required.	M	Detailed design	Low to moderate risk of groundwater contamination affecting site end use or offsite receptors.	Medium to high level of effectiveness in confirming groundwater contamination status in areas identified as being potentially contaminated.	●	N/A	N/A	N/A
8J	Ground penetrating radar (GPR) or similar techniques would be used to locate and document all existing and underground tank infrastructure across the Project site.	M	Detailed design	Moderate risk that underground infrastructure is not identified or remediated and complete site validation is not achieved.	Medium level of effectiveness in identifying underground structures.	●	N/A	N/A	N/A
8K	A management tracking system for excavated materials would be developed to ensure the proper management of the material movements at the Project site, particularly during excavation works.	M	Detailed design	Regulatory requirement to monitor waste tracking and achieve site validation. Moderate to high risk to environment if soil/waste tracking is not undertaken.	High level of effectiveness.	●	●	●	●
8L	Contaminated soil/fill material present will be 'chased out' during the excavation works based on visual, olfactory and preliminary field test results.	M	Early works and construction	Moderate to high risk to construction activities and site validation if contaminated material is not identified.	High to medium effectiveness in confirming extent of identified contamination.	●	●	●	●

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8M	Excavated soil would be temporarily stockpiled, sampled and analysed for waste classification processes. Following receipt of waste classification results, the material would be transported to a licensed offsite waste disposal facility as soon as practicable to minimise dust and odour issue through storage of materials on site.	M	Early works and construction	High risk of regulatory breach.	High level of effectiveness.	●	●	●	●
8N	Stockpiled soils would be stored on a sealed surface and the stockpiled areas would be securely bunded using silt fencing to prevent silt laden surface water from entering or leaving the stockpiles or the Project site.	M	Early works and construction	High risk of impact on environment and regulatory breach.	High level of effectiveness.	●	●	●	●
8O	All excavation works would be undertaken by licensed contractors, experienced in remediation projects and the handling of contaminated soils.	M	Early works and construction	High risk to human health if inexperienced contractors are used.	High level of effectiveness.	●	●	●	●
8P	All asbestos removal, transport and disposal would be performed in accordance with the Work Health and Safety Regulation 2011 (WHS Regulation).	M	Early works and construction	Moderate to high risk of regulatory breach, high risk to human health.	High level of effectiveness.	●	N/A	N/A	N/A
8Q	The removal works would be conducted in accordance with the *National Occupational Health and Safety Commission Code of Practice for the Safe Removal of Asbestos*, 2nd Edition [NOHSC 2002 (2005)] (NOHSC 2005a).	M	Early Works and construction	Moderate to high risk of regulatory breach, high risk to human health.	High level of effectiveness.	●	N/A	N/A	N/A
8R	An appropriate asbestos removal licence issued by WorkCover NSW would be required for the removal of asbestos contaminated soil.	M	Early Works and construction	Moderate to high risk of regulatory breach, high risk to human health.	High level of effectiveness.	●	N/A	N/A	N/A
8S	Environmental management and WHS procedures would be put in place for the asbestos removal during excavation to protect workers, surrounding residents and the environment.	M	Early Works and construction	Moderate to high risk of regulatory breach, high risk to human health.	High level of effectiveness.	●	N/A	N/A	N/A
8T	Temporary stockpiles of asbestos containing material (ACM) soils would be covered to minimise dust and potential asbestos release.	M	Early Works and construction	High risk to human health.	High level of effectiveness.	●	N/A	N/A	N/A
8U	An asbestos removal clearance certification would be prepared by an occupational hygienist at the completion of the removal work. This would follow the systematic removal of asbestos containing materials and any affected soils from the Project site, and validation of these areas (through visual inspection and laboratory analysis of selected soil samples).	M	Early Works and construction	Moderate to high risk of regulatory breach, high risk to human health.	High level of effectiveness.	●	N/A	N/A	N/A
8V	Asbestos fibre air monitoring would be undertaken during the removal of ACMs and in conjunction with the visual clearance inspection. The monitoring would be conducted in accordance with the *National Occupational Health and Safety Commission Guidance Note on the Membrane Filter Method For the Estimating Airborne Asbestos Fibre*, 2nd Edition [NOHSC 3003 (2005)] (NOHSC 2005b).	M	Early Works and construction	Moderate to high risk of regulatory breach, high risk to human health.	High level of effectiveness.	●	N/A	N/A	N/A
8W	All stockpiles would be maintained in an orderly and safe condition. Batters would be formed with sloped angles that are appropriate to prevent collapse or sliding of the stockpiled materials.	M	Early Works and construction	High risk to human health.	High level of effectiveness.	●	●	●	●
8X	Stockpiles would be placed at approved locations and would be strategically located to mitigate environmental impacts while facilitating material handling requirements. Contaminated or potentially contaminated materials would only be stockpiled in unremediated areas of the Project site or at locations that did not pose any risk of environmental impairment of the stockpile area or surrounding areas (e.g. hardstand areas).	M	Early works and construction	High risk to environment.	High level of effectiveness.	●	●	●	●

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8Y	Stockpiles would only be constructed in areas of the Project site that had been prepared in accordance with the requirements of the Project Preliminary RAP in Appendix F of Technical Paper 5 – *Environmental Site Assessment (Phase 2)*, Volume 5A and 5B. All such preparatory works would be undertaken before material is placed in the stockpile. Stockpiles must be located on sealed surfaces such as sealed concrete, asphalt, high density polyethylene or a mixture of these, to appropriately mitigate potential cross contamination of underlying soil.	M	Early works and construction	Moderate risk to environment and further contamination of soil.	High level of effectiveness.	●	●	●	●
8Z	The stockpiles of contaminated material would be covered with a waterproof membrane (such as polyethylene sheeting) to prevent increased moisture from rainwater infiltration and to reduce wind-blown dust or odour emission.	M	Early works and construction	Moderate risk to the environment.	High level of effectiveness.	●	●	●	●
8AA	Before the reuse of any material on site, it would be validated so that the lateral and vertical extent of the contamination is defined.	M	Early Works and construction	Moderate risk of importing or reuse of contaminated soil.	High level of effectiveness.	●	●	●	●
8AB	Where required, contaminated materials and wastes generated from the Project remediation and construction works would be taken to suitable licensed offsite disposal facilities.	M	Early Works and construction	High risk to human health and environment if wastes are not disposed of appropriately.	High level of effectiveness.	●	●	●	●
Hydrology, groundwater and water quality									
9A	A soil and water management plan would be developed before work begins in the conservation area. This plan would include erosion and sediment control plans (ESCPs) and procedures to manage and minimise potential environmental impacts associated with developing this area.	M	Early Works	Moderate to high risk to the environment.	High level of effectiveness.	●	N/A	N/A	N/A
9B	Site compounds, stockpiling areas and storage areas for sensitive plant, equipment and hazardous materials would be located above an appropriate design flood level, which would be determined based on the duration of the construction works.	M	Early Works and construction	Moderate to high risk of flooding of sensitive areas containing sensitive plant, equipment and materials during a long construction period.	Selection of an appropriate flood level above which sensitive areas would be located, based on the duration of the construction period, would reduce this flood risk to low.	●	N/A	N/A	N/A
9C	A flood emergency response and evacuation plan would be implemented for the conservation area works, to allow work sites to be safely evacuated and secured in advance of any flooding on the site. This plan would also include recovery actions to be implemented following a flood and to allow the site works to resume as quickly as possible.	M	Early Works and construction	Moderate to high risk of flooding and associated damage of sensitive disturbed areas, and areas containing sensitive plant, equipment and materials. Moderate to high risk of injury to site operatives due to exposure to flood hazard over a long construction period.	Implementation of a comprehensive flood emergency response plan would reduce the risk of flooding of sensitive areas, and damage to plant and equipment to low. The flood emergency response plan should avoid exposure of site operatives to flood hazards entirely.	●	N/A	N/A	N/A
Regional flooding									
9D	Implement a flood emergency response and evacuation plan that allows work sites to be safely evacuated and secured in advance of flooding occurring at the Project site.	M	Construction	Moderate to high risk of flooding and associated damage.	High level of effectiveness.	●	●	●	●
9E	Implement a staged construction process for the building of the Georges River bridges that minimises temporary obstruction of flow in the main channel and floodplain.	SR	Construction	Moderate to high risk to the environment.	Moderate level of effectiveness.	N/A	●	●	●

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9F	For the building of the Georges River bridges, design temporary works to resist forces and pressures that could occur during the design flood event adopted for the Project construction.	M	Construction	Moderate to high risk of collapse of temporary works if subjected to unforeseen or unallowed for flood loading – e.g. working platforms for bridge construction, temporary protection/formwork for bridge piers and abutments.	Allowing for additional flood loads during extreme events would reduce this risk to low. Note: it would not be possible to fully design out this risk, as there would be a remote possibility of a very extreme event occurring during construction that is not practical or economic to design for.	N/A	●	●	●
9G	For all site works, provide temporary diversion channels around temporary work obstructions to allow low and normal flows to safely bypass the work areas.	M	Construction	Moderate to high risk of flooding of parts of the site during a storm event if temporary diversions are not provided.	Provision of diversions to an appropriate standard of protection would reduce this risk to low (see also note in brackets above).	●	●	●	●
9H	The potential effects of various flood events on construction phase works would be further investigated during detailed design and preparation of the Stage 2 SSD approval(s).	M (investigation) SR (additional mitigation)	Detailed design	Moderate to high risk to the environment. Additional controls may be required to address moderate to high flood risks during construction.		●	●	●	●
9I	The design of the Georges River bridges would ensure structural stability under an appropriate upper limiting flood event, typically the 1 in 2000 year AEP event or other event of similar magnitude.	M	Detailed design	Moderate to high risk of structural damage to bridge due to flood loading if an appropriate design standard is not adopted.	Reduction of this risk to low or within acceptable limits as defined by structural design codes and standards.	N/A	●	●	●
9J	A detailed scour assessment of the structure would be undertaken and a scour protection scheme for the bridge abutments and piers would be designed to ensure structural stability and to avoid erosion of the channel and floodplain bed local to the structure.	M	Detailed design	Moderate to high risk of structural damage to bridge due to flood scour if an appropriate design standard is not adopted.	Reduction of this risk to low or within acceptable limits as defined by structural and scour design codes and standards.	N/A	●	●	●
9K	Further design optimisation of the bridge would consider reducing the afflux impacts as far as possible. The bridge piers would be designed to minimise obstruction to flow and associated afflux under potential blockage and/or debris build-up scenarios.	SR	Detailed design	Low to moderate risk of unacceptable afflux impacts due to the new bridge.	Further reduction of this risk to low following design optimisation (see also note in brackets above for item 9D).	N/A	●	●	●
9L	Further hydraulic modelling would be undertaken to quantify the impact of climate change on afflux caused by the bridge and on hydraulic loading on the bridge structure.	M	Detailed design	Low to moderate risk of unacceptable afflux impacts due to the new bridge. Unacceptable structural stability risks to bridge under extreme flood event loading with climate change.	Further reduction of this risk to low following design checks to assess climate change impacts (see also note in brackets above for item 9D).	N/A	●	●	●
9M	For the central rail access option bridges, further design of the structures and their alignment and/or consideration of compensatory measures would be undertaken during detailed design to reduce the impact of this option.	M	Detailed design	Low to moderate risk of unacceptable afflux impacts due to the new bridge.	Further reduction of this risk to low following design optimisation (see also note in brackets above for item 9D).	N/A	N/A	●	N/A

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						IMT site	Northern rail access connection	Central rail access connection	Southern rail access connection
Onsite stormwater and surface water quality									
9N	The following staging process is proposed to be implemented when constructing surface water drainage infrastructure: • Biofiltration and detention basins that form part of the proposed stormwater management strategy would be excavated at the outset of Phase A, with the intention that the excavated basins would be used as temporary construction phase sedimentation basins. Once these construction phases become operational, these temporary construction phase sedimentation basins could be developed into the permanent biofiltration and detention basins. • During Phase A, all major stormwater pipes and culverts (600 mm diameter and larger) and main channels and outlets would be installed. Minor drainage and upstream systems would then be progressively connected to the major drainage elements during each phase of construction as required.	M	Construction	Moderate to high risk of areas of the site flooding and consequent erosion of disturbed areas and sedimentation of local watercourses.	Early construction of basins and main channels and pipes in the recommended sequence will reduce erosion and sedimentation risks to low.	●	N/A	N/A	N/A
9O	A soil and water management plan would be developed before land was disturbed that would include erosion and sediment control plans (ESCPs) and procedures to manage and minimise potential environmental impacts associated with construction of the Project. The ESCP(s) for the Project would be prepared in accordance with Volume 1 of *Managing Urban Stormwater: Soils and Construction* ('the Blue Book') (Landcom 2004), *Managing Urban Stormwater: Soils and Construction* – Installation of Services, Volume 2A (OEH 2008) and *Managing Urban Stormwater: Soils and Construction* - Main Road Construction, Volume 2D (OEH 2008). The ESCP(s) would be established before the start of each construction phase and would be updated as relevant to the changing construction activities. Strategies proposed as part of the plan include: • clean runoff from upstream undisturbed areas would be diverted around the Project site to minimise overland flow through the disturbed areas; • stabilised surfaces would be reinstated as quickly as practicable after construction; • all stockpiled materials would be stored in bunded areas and away from waterways to avoid sediment-laden runoff entering the waterways; • sediment would be prevented from moving offsite and sediment-laden water prevented from entering any watercourse, drainage line or drainage inlet; • erosion and sediment control measures would be regularly inspected (particularly following rainfall events) to monitor their effectiveness and stability; • erosion and sediment control measures would be left in place until the works are complete or areas are stabilised; • temporary erosion control and energy dissipation measures would be installed to protect receiving environments from erosion; and	M	Construction	Major risk of erosion of disturbed areas and contamination of local drainage systems and watercourses with sediment and other disturbed site contaminants if a soil and water management plan is not implemented for the Project.	Implementation of these measures would eliminate this risk under extreme events, up to a reasonable limit as accepted in the guidelines, and would reduce this risk to low under very extreme scenarios that cannot be designed for.	●	●	●	●

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	• vehicle movements would be managed during rainfall (or while the ground remains sodden) to minimise disturbance to the topsoil.								
9P	Procedures to maintain acceptable water quality and to manage chemicals and hazardous materials (including spill management procedures, use of spill kits and procedures for refuelling and maintaining construction vehicles/equipment) would be implemented during construction.	M	Construction	Major risk of contamination of watercourses if hazardous materials are not protected using industry standard spill management procedures.	This risk can be eliminated using appropriate handling and storage procedures and guidelines.	●	●	●	●
9Q	Vehicles and machinery would be properly maintained to minimise the risk of fuel/oil leaks.	M	Construction	Moderate to high risk of contamination of watercourses if fuel/oil leaks are not contained using industry standard management procedures.	This risk can be eliminated using appropriate maintenance and spill containment procedures and guidelines.	●	●	●	●
9R	Routine inspections of all construction vehicles and equipment would be undertaken for evidence of fuel/oil leaks.	M	Construction	Refer to 9Q above.	Refer to 9Q above.	●	●	●	●
9S	All fuels, chemicals and hazardous liquids would be stored within an impervious bunded area in accordance with AS and EPA guidelines.	M	Construction	Refer to 9Q above.	Refer to 9Q above.	●	●	●	●
9T	Emergency spill kits would be kept onsite at all times. All staff would be made aware of the location of the spill kits and trained in their use.	M	Construction	Refer to 9Q above.	Refer to 9Q above.	●	●	●	●
9U	Construction plant, vehicles and equipment would be refuelled offsite, or in designated re-fuelling areas located at least 50 metres from drainage lines or waterways.	M	Construction	Refer to 9Q above.	Refer to 9Q above.	●	●	●	●
9V	If landfill cells at the Glenfield Landfill are to be affected, then site-specific erosion and sediment control measures would be developed and implemented to ensure pollutants do not enter the Georges River.	SR	Detailed design	High risk to the environment if adequate controls are not put in place.	Risk can be managed to a low level if mitigation is appropriate.	N/A	N/A	N/A	●
9W	A stormwater management plan would be developed in accordance with the detailed design. This includes the requirement to control the rate of stormwater runoff so that it does not exceed the pre-developed rate of runoff.	M	Detailed design	Moderate to high risk of areas of the site and/or neighbouring land and property being subject to worse than existing case flooding.	Implementation of a stormwater management plan will eliminate this risk.	●	●	●	●
9X	The stormwater system would be designed such that flow from low order events (up to and including the 10% AEP event from the main part of the site, and up to and including the 2% AEP event for the rail access connection corridor) would be conveyed within the formal drainage systems. Flows from rarer events (up to the 1% AEP event) would be conveyed in controlled overland flow paths.	M	Detailed design	Major risk of uncontrolled flooding exposing site users to unacceptable flood hazards and risks if these standard design guidelines are not adopted.	Designing to these standards will ensure flooding can be managed and will occur in a controlled way in line with current design guidelines.	●	N/A	N/A	N/A
9Y	The onsite detention system proposed would detain flow and control discharge rates to the Georges River equal to pre-development discharge rates.	M	Detailed design	Refer to 9R above.	Refer to 9W above.	●	N/A	N/A	N/A

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9Z	A stormwater treatment system would be implemented, incorporating sedimentation and bio-filtration basins upstream of the stormwater detention basins.	M	Detailed design, construction, operation	Major risk of contamination of downstream drainage systems and watercourses if standard Water Sensitive Urban Design (WSUD) measures are not adopted to treat stormwater runoff from the site.	Adopting industry standard and good practice WSUD measures will eliminate this risk.	●	N/A	N/A	N/A
9AA	Use of onsite infiltration would be incorporated into the design through the distribution of swale drains and rain gardens across the Project site.	M	Detailed design	Refer to 9Z above.	Refer to 9Z above.	●	N/A	N/A	N/A
9AB	A number of other stormwater management opportunities would be considered during development of the detailed design in accordance with Liverpool City Council (LCC)'s Development Control Plan *Part 2.4 Development in Moorebank Defence Lands* and other relevant policies, including: • polishing water runoff using dry creek gravel beds with macrophyte plants; • using drainage swales to slow down stormwater runoff and increase onsite infiltration; • collecting roof rainwater for re-use onsite; • installing gross pollutant traps (GPTs) at the outlets of the pipe system before discharge into the sedimentation basins; and • incorporating impervious surfaces and vegetated areas into the design to increase sub-surface water flow during rain events and to reduce the discharge of stormwater pollutants.	SR	Detailed design	No major implication if not adopted.	These can be considered 'value added' measures to further improve the management of stormwater across the site above and beyond industry standards.	●	N/A	N/A	N/A
Groundwater									
9AC	Concrete structures and other subsurface infrastructure in areas that may potentially interact with local groundwater would be constructed from sulfate resistant cement and materials.	M	Detailed design and construction	High to major risk of structural damage or failure of sub-surface structures and contamination of local groundwater system.	Adopting the recommended design would eliminate this risk or reduce it to low and within acceptable levels.	●	N/A	N/A	N/A
9AD	Where required, water access entitlements such as groundwater licences would be obtained for dewatering activities, in accordance with the requirements of NSW Office of Water's proposed Aquifer Interference Policy.	M	Pre-construction	Major risk of non-compliant project and construction being halted if the required licences are not in place.	Risk would be eliminated by obtaining the required licences before construction.	●	N/A	N/A	N/A
9AE	Groundwater quality would be tested to determine salinity levels and inform potential design measures to ensure the design life of any infrastructure is achieved.	M	Detailed design	Refer to 9AC above.	Refer to 9AC above.	●	N/A	N/A	N/A
9AF	Suitable groundwater monitoring would be established and undertaken before construction, during construction and during the operational life of the Project.	M	Pre-construction, construction and operation	Moderate to high risk of non-compliance with groundwater licencing and removal of construction/operation licence if monitoring data is not collected to demonstrate compliance.	This risk would be eliminated by establishing a monitoring program.	●	N/A	N/A	N/A

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9AG	To prevent the contamination of groundwater during Project construction and operation, suitable water treatment, water retention, water proofing and ground treatments would be investigated and implemented where required.	SR	Detailed design, construction and operation	Low to moderate risk of contamination of groundwater system if required management measures are not adopted.	This risk would be eliminated through adoption of appropriate industry standard management measures.	●	N/A	N/A	N/A
9AH	Potential impacts on two existing groundwater bores in the vicinity of the proposal would be further investigated during detailed design. Mitigation measures to minimise these impacts would also be developed as required.	SR	Detailed design	Low to moderate risk of groundwater drawdown due to the Project reducing the yield of the existing bores.	The risk may be possible to reduce further or eliminate through appropriate design and staging of construction to minimise dewatering requirements during operation and construction phases.	●	N/A	N/A	N/A
9AI	The following groundwater assessments would be carried out: • an overall assessment of pre-construction groundwater quality and levels; • characterisation of local and regional groundwater flow systems, including the groundwater contours and flow conditions; • consideration of potential groundwater supply options, if required; • assessment of impacts on groundwater levels and quality during construction and ongoing operation; • confirmation of management and mitigation solutions for potential groundwater impacts; and • assessment of the potential salinity impacts that may result from the Project.	M	Detailed design	Moderate to high risk of unacceptable groundwater impacts occurring if these assessments are not undertaken.	Reduction of risk to low or elimination of some risks is possible if these assessments are undertaken to improve the understanding of the vulnerability of the groundwater environment.	●	N/A	N/A	N/A
Air quality									
Construction									
10A	A Dust Management Plan (DMP) would be prepared as part of the CEMP.	M	Early Works and construction	Moderate risk that air quality emissions from the Project would not be managed effectively.	Medium level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
10B	Dust minimisation measures would be developed and implemented before commencement of construction. The *NSW Coal Mining Benchmarking Study: Measures to Prevent and/or Minimise Emissions of Particulate Matter from Coal Mining* (OEH 2011) would be referenced for best practice measures for dust management.	M	Early Works and construction	Moderate risk that air quality emissions from the Project would not be managed effectively.	Medium level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
10C	Methods for management of emissions would be incorporated into Project inductions, training and pre-start talks.	M	Early Works and construction	Moderate risk that air quality emissions from the Project would not be managed effectively.	Medium level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●

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10D	Activities with the potential to cause significant emissions, such as material delivery and load out and bulk earthworks, would be identified in the CEMP. Work practices that minimise emissions during these activities would be investigated and applied where reasonable and feasible.	M	Early Works and construction	Moderate risk that air quality emissions from the Project would not be managed effectively.	Medium level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
10E	A mechanism for raising and responding to complaints would be put in place for the duration of the construction phase.	M	Early Works and construction	High risk that community impacts would not be effectively mitigated.	Medium level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
10F	Vehicle movements would be limited to designated entries and exits, haulage routes and parking areas. Project site exits would be fitted with hardstand material, rumble grids or other appropriate measures to limit the amount of material transported offsite (where required).	M	Early Works and construction	Moderate risk that air quality emissions from the Project would not be managed effectively.	Medium level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
10G	Work site compounds and exposed areas would be screened to assist in capturing airborne particles and reduce potential entrainment of particles from areas susceptible to wind erosion.	M	Early Works and construction	Moderate risk that air quality emissions from the Project would not be managed effectively.	Medium level of effectiveness in mitigating risk (proven measure on similar projects). Emission reduction of 30% applied.	●	●	●	●
10H	Dust would be visually monitored during construction and the following measures would be implemented: • Apply water (or alternative measures) to exposed surfaces that are causing dust generation. Surfaces may include any stockpiles, hardstand areas and other exposed surfaces (for example recently graded areas). Regular watering would ensure that the soil is moist to achieve 50% control of dust emissions from scrapers, graders and dozers. • Appropriately cover loads on trucks transporting material to and from the construction site. Securely fix tailgates of road transport trucks before loading and immediately after unloading. • Prevent, where possible, or remove, mud and dirt being tracked onto sealed road. • Apply water at a rate of >2 litres (L) per square metre per hour ($L/m^2/hr$) to internal unsealed access roadways and work areas. Application rates would be related to atmospheric conditions (e.g. prolonged dry periods) and the intensity of construction operations. Paved roads should be regularly swept and watered when necessary.	M	Early Works and construction	Moderate risk that air quality emissions from the Project would not be managed effectively.	Medium level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
10I	Dust generating activities (particularly clearing and excavating) would be avoided or minimised during dry and windy conditions.	M	Early Works and construction	High risk that air quality emissions from the Project would not be managed effectively.	High level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●

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10J	Project site speed limits of 20 km/hr would be imposed on all construction vehicles at the Project site.	M	Early Works and construction	Moderate risk that air quality emissions from the Project would not be managed effectively.	Medium level of effectiveness in mitigating risk (proven measure on similar projects). Emission reduction associated with reduced travel speed.	●	●	●	●
10K	Graders would be limited to a speed of 8 km/hr to reduce potential dust emissions.	M	Early Works and construction	Moderate risk that air quality emissions from the Project would not be managed effectively.	Medium level of effectiveness in mitigating risk (proven measure on similar projects). Emission reduction associated with reduced travel speed.	●	●	●	●
10L	Material stockpiles would not exceed an area of 1 ha and would be regularly watered to achieve 50% control of potential dust emissions.	M	Early Works and construction	Moderate risk that air quality emissions from the Project would not be managed effectively.	High level of effectiveness in mitigating risk (proven measure on similar projects). Emission reduction of 50% applied.	●	●	●	●
10M	Exposed areas and stockpiles would be limited in area and duration. For example, vegetation stripping or grading would be staged where possible, unconsolidated stockpiles would be covered, or hydro mulch or other revegetation applicant applied to stockpiles or surfaces left standing for extended periods.	M	Early Works and construction	High risk that air quality emissions from the Project would not be managed effectively.	High level of effectiveness in mitigating risk (proven measure on similar projects). Emissions estimated based on size of exposed areas.	●	●	●	●
10N	Revegetation or rehabilitation activities would proceed once construction activities were completed within a disturbed area.	M	Early Works and construction	High risk that air quality emissions from the Project would not be managed effectively.	High level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
10O	Construction plant and equipment would be well maintained and regularly serviced so that vehicular emissions remain within relevant air quality guidelines and standards.	M	Early Works and construction	Moderate risk that air quality emissions from the Project would not be managed effectively.	High level of effectiveness in mitigating risk (proven measure on similar projects). Emissions based on maintaining engine standards.	●	●	●	●
10P	Excavation works in potentially contaminated soils should be managed to ensure that they are completed during optimal dispersive conditions to minimise odorous emissions.	M	Early Works and construction	Low risk that air quality emissions from the Project would not be managed effectively.	Medium level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
10Q	Emissions from trucks would be regulated in accordance with the requirements prescribed in the National Environmental Protection Measure (NEPM) (Diesel Vehicle Emissions) (NEPC 2001).	M	Early Works and construction	Moderate risk that air quality emissions from the Project would not be managed effectively.	High level of effectiveness in mitigating risk (proven measure on similar projects). Emissions based on maintaining engine standards.	●	●	●	●

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10R	All construction vehicles would be tuned to avoid releasing excessive smoke from the exhaust and would be compliant with OEH Smokey Vehicles Program under the *Protection of the Environment and Operations Act 1997* (NSW)(POEO Act) and POEO Regulations (NSW) (2010).	M	Early Works and construction	Moderate risk that air quality emissions from the Project would not be managed effectively.	Medium level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
10S	All on-road trucks are to comply with the Euro V emission standards.	M	Early Works and construction	Moderate risk that air quality emissions from the Project would not be managed effectively.	High level of effectiveness in mitigating risk (proven measure on similar projects). Emissions based on maintaining engine standards.	●	●	●	●
10T	All new off-road construction equipment would be required to meet, at minimum, the US Environmental Protection Agency (EPA) Tier 3 emission standards for non-road diesel engines.	M	Early Works and construction	Moderate risk that air quality emissions from the Project would not be managed effectively.	High level of effectiveness in mitigating risk (proven measure on similar projects). Emissions based on maintaining engine standards.	●	●	●	●
10U	Establishment of Action Response Levels (ARLs) for use with real-time dust management. These aid in the assessment of impact potential, and establish an early warning system during adverse trends, reducing complaint potential and non-compliance issues. An ARL trigger would be a defined measurement of elevated dust levels for a prolonged period.	M	Early Works and construction	Moderate risk that air quality emissions from the Project would not be managed effectively.	High level of effectiveness in mitigating risk (proven measure on similar projects). Emissions based on maintaining engine standards.	●	●	●	●
Operation									
10V	An air quality management plan (AQMP) would be prepared for the operation of the Project.	M	Pre-operation	Moderate risk that air quality emissions from the Project would not be managed effectively.	Medium level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
10W	Manage Project site traffic to ensure trucks do not queue along public roads adjacent to the Project site. This can be achieved through the implementation and enforcement of an idling limit for trucks on site and at the troubled truck parking area (e.g.1 hour).	M	Operation	Moderate risk that air quality emissions from the Project would not be managed effectively.	Medium level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	N/A	N/A	N/A
10X	Investigate the possibility of reducing locomotives' idling times on site.	SR	Pre-operation	Low risk that air quality emissions from the Project would not be managed effectively.	Potential for emission reductions from locomotives should reduce idling time be applied Not possible/appropriate to quantify.	●	N/A	N/A	N/A
10Y	Optimise the use of trucks capable of transporting multiple TEU containers simultaneously to achieve maximum efficiency onsite and reduce air emissions.	M	Operation	Moderate risk that air quality emissions from the Project would not be managed effectively.	High level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	N/A	N/A	N/A

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10Z	Emissions from any exhaust stacks would be regulated in accordance with the provisions of the NSW *Protection of the Environment and Operations Act* 1997 (POEO Act).	M	Operation	Statutory requirement. High risk that regulatory requirements would not be met.	High level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	N/A	N/A	N/A
10AA	Periodic stack monitoring would be undertaken to demonstrate compliance with in-stack limits.	M	Operation	Statutory requirement. High risk that regulatory requirements would not be met.	High level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	N/A	N/A	N/A
10AB	Vehicles would be tuned to not release excessive levels of smoke from the exhaust and to be compliant with OEH's Smokey Vehicles Program under the POEO Act and POEO Regulations.	M	Operation	Moderate risk that air quality emissions from the Project would not be managed effectively.	Medium level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	N/A	N/A	N/A
10AC	A documented testing program by relevant enforcement agencies would be implemented at regular intervals.	M	Operation	High risk that regulatory requirements would not be met.	High level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	N/A	N/A	N/A
10AD	A regular and documented maintenance and inspection program would be implemented for all equipment that enters the Project site.	M	Operation	High risk that regulatory requirements would not be met.	High level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	N/A	N/A	N/A
10AE	On site good housekeeping and raw material handling practices would be controlled through agreed protocols.	M	Operation	Moderate risk that air quality emissions from the Project would not be managed effectively.	Medium level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	N/A	N/A	N/A
10AF	Emissions from trucks would be regulated by the NEPM (Diesel Vehicle Emissions) (NEPC 2001).	M	Operation	High risk that regulatory requirements would not be met.	High level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	N/A	N/A	N/A
10AG	Emissions from locomotives should follow international standards, such as those provided for under United States legislation '*Final Rule: Control of Emissions of Air Pollution from Locomotives and Marine Compression-Ignition Engines Less Than 30 Liters per Cylinder*' (US EPA 2012) and should meet the Tier 2+ or above emission standard for all new locomotives entering the Project site. (No emission standards are available under the NSW or Federal legislative framework for locomotives.)	SR	Operation	Moderate risk that air quality emissions from the Project would not be managed effectively.	High level of effectiveness in mitigating risk (proven measure on similar projects). Emissions based on maintaining engine standards.	●	●	●	●

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10AH	Emissions from shunting engines should follow international standards, such as those provided for under United States legislation '*Final Rule: Control of Emissions of Air Pollution from Locomotives and Marine Compression-Ignition Engines Less Than 30 Liters per Cylinder*' (US EPA 2012) and should meet the Tier 2+ or above emission standard. Older locomotives should upgraded to meet Tier 1 or Tier 2+ emission standards where reasonable and feasible. (No emission standards are available under the NSW or Federal legislative framework for shunting engines).	SR	Operation	Moderate risk that air quality emissions from the Project would not be managed effectively.	High level of effectiveness in mitigating risk (proven measure on similar projects). Emissions based on maintaining engine standards.	●	●	●	●
Cleaner fuel technology									
10AI	During detailed design the following measures would be further investigated: • refrigerated on site containers would be electrically powered; • use of hybrid only cars (electric/liquefied natural gas (LNG)/compressed natural gas (CNG), liquefied petroleum gas (LPG)) onsite; • consider requirement that older diesel trucks be installed with the latest emission reduction technology (e.g. retrofitting of particle filters, installation of catalytic convertors or replacement with newer, less polluting diesel engines to ensure emissions requirements conform to the Australian Design Rule ADR80/03); • all on-road trucks would comply with the Euro V emission standards; • all new off-road construction equipment to meet, at minimum, the US EPA Tier 3 emission standards for non-road diesel engines (US EPA Tier 4 emission standard equipment should be adopted where available); • use of hybrid locomotives or cleaner fuels for locomotives would be considered (e.g. locomotives powered by batteries with a small diesel engine for recharging the batteries and for additional power (as currently used on the Burlington Northern Santa Fe railway, California, USA)); and • use of fuel cells, LNG and electric powered locomotives would be considered.	SR	Detailed design	Moderate risk that additional improvements to the reduction of air quality emissions would not be achieved.	Effectiveness would depend on the type of measures implemented. Not possible/appropriate to quantify.	●	●	●	●
Strategic planning and management									
10AJ	The following proposals would be considered as part of an effective and integrated strategic management plan: • investigation of the feasibility of increasing the proportion of container traffic that moves by rail; • implementation of terminal appointment systems and appropriate time slots for Project site access for truck and rail deliveries to avoid unnecessary onsite air emissions during peak periods; • minimisation of the potential for fluctuating demand forecasts for equipment among carriers, railways and the terminal through effective communication;	SR	Detailed design	Moderate risk that air quality emissions from the Project would not be managed effectively.	Effectiveness will depend on the type of measures implemented. Not possible/appropriate to quantify.	●	●	●	●

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	• utilisation of the latest information technologies such as Intelligent Transportation Systems (ITS) applied to transportation operations which can result in improved transportation efficiency and a reduced environmental impact; and • consideration of the use of a virtual container yard to assist with incorporating onsite operational efficiencies to ensure air emissions are minimised.								
Miscellaneous emissions									
10AK	The following measures would be further investigated at detailed design stage: • All chemicals and fuels would be stored in sealed containers as per appropriate regulations and guidelines. • The onsite storage of fuel would be kept to a minimum to minimise vapour emission levels. • Unloading of fuels (diesel or liquefied natural gas) would be vented via return hoses that recirculate vapours from delivery to receiver. • Tanks would be fitted with a conservation vent (to prevent air inflow and vapour escape until a pre-set vacuum or pressure develops). • Strategies would be put in place to reduce the usage of chemical and fuels in addition to using alternative fuel technologies as recommended in the NSW *Action for Air* (DECCW 2009). Particular focus would be on those products with the potential to release high levels of air toxics.	SR	Detailed design	Low risk that emissions from the Project would not be managed effectively.	High level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	N/A	N/A	N/A
Odour									
10AL	Odour emissions would be controlled through the implementation of best management practice (BMP). The following mitigation measures and safeguards are recommended for the operational works: • providing covering for inlet works; • extraction of inlet works foul air gases to a soil bed filter for treatment; and • contingencies in place for potential loss of aeration (backup generator for power supply and storage of lime for dosing to the process units in the event that anaerobic conditions occur).	M (implementation of BMP) SR (measures and safeguards)	Detailed design and operation	Moderate risk that emissions from the Project would not be managed effectively.	Effectiveness will depend on the type of measures implemented. Not possible/appropriate to quantify.	●	●	●	●
Future monitoring									
10AM	It is also proposed that ambient air quality monitoring be undertaken as part of the Project's construction phase right through to operation. This would include: • onsite monthly dust deposition monitoring during construction to measure dust fallout from the Project at boundary points and selected sensitive receiver locations. This would include comparison of concentrations with the air quality criteria; • continuation of the existing Project monitoring (that records continuous measurements of NOx, PM_{10} and weather data) after operations commence to ensure that	M	Construction and operation	High risk that community and regulatory expectations would not be managed effectively.	High level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●

No.	Mitigation measure	Mandatory (M)/subject to review (SR)	Implementation phase	Predicted risk/outcome if measure not implemented (i.e. reason for proposed measure)	Predicted effectiveness of measure(s) or outcome relative to unmitigated condition	Applicability			
						IMT site	Northern rail access connection	Central rail access connection	Southern rail access connection
	the ambient air quality criteria are met. The existing station may need relocation based on site construction works and regulator recommendations; and • review of the existing onsite meteorological monitoring station location to ensure compliance with relevant Australian Standard documentation.								
Greenhouse gases (GHG)									
11A	Where possible, establish and maintain areas of native flora and vegetation either within the Project site or at alternative suitable locations to generate significant carbon sequestration benefits.	M	Early Works, construction and operation	High risk of GHG emissions not being effectively managed	High level of effectiveness in mitigating risk. Not possible/appropriate to quantify.	●	N/A	N/A	N/A
11B	Where possible, implement the use of biofuels (e.g. biodiesel, ethanol, or blends such as E10 and B880) to reduce GHG emissions from plant and equipment.	SR	Early Works, construction and operation	High risk of an increase in GHG emissions.	High level of effectiveness in mitigating risk. Not possible/appropriate to quantify.	●	N/A	N/A	N/A
11C	Consider the use of vehicles with minimum GHG emissions ratings of 7.5 for passenger vehicles and 6 for light commercial vehicles, as described in the Green Vehicle Guide (http://www.greenvehicleguide.gov.au/GVGPublicUI/home.aspx).	SR	Early Works, construction and operation	As per measure 11A.	High level of effectiveness in mitigating risk. Not possible/appropriate to quantify.	●	N/A	N/A	N/A
11D	Energy-efficient guidelines for operational work, such as minimal idling time for machinery or complete shut off, would be considered and implemented where appropriate.	SR	Operation	High risk of GHG emissions not being effectively managed.	High level of effectiveness in mitigating risk. Not possible/appropriate to quantify.	●	N/A	N/A	N/A
11E	Establish an Environmental Management System (EMS) that involves regular monitoring, auditing and reporting on energy, resource use and GHG emissions from all relevant activities; include energy audits with a view to progressively improving energy efficiency and investigation of renewable energy sources (e.g. onsite solar generation), where feasible.	M	Operation	As per measure 11A.	High level of effectiveness in mitigating risk. Not possible/appropriate to quantify.	●	●	●	●
11F	Investigate methods to reduce losses from industrial processes (refrigerants and SF6).	M	Operation	As per measure 11A.	High level of effectiveness in mitigating risk. Not possible/appropriate to quantify.	●	N/A	N/A	N/A
11G	Investigate and, where possible, implement key performance indicators (KPIs) for plant efficiency and GHG intensity.	M	Operation	As per measure 11A.	High level of effectiveness in mitigating risk. Not possible/appropriate to quantify.	●	N/A	N/A	N/A
11H	Consider and implement, where possible, the mitigation options for further reducing energy and GHG emissions detailed in Table 9.4 in Chapter 9 – *Project sustainability.*	SR	Detailed design, construction and operation	As per measure 11A.	High level of effectiveness in mitigating risk. Not possible/appropriate to quantify.	●	●	●	●
Aboriginal heritage									
12A	Where practicable, options would be explored to conserve moderate to high significance sites in situ.	SR	Detailed design and Early Works	High risk that the Project would destroy parts or all of moderate to high significance sites.	High level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●

No.	Mitigation measure	Mandatory (M)/subject to review (SR)	Implementation phase	Predicted risk/outcome if measure not implemented (i.e. reason for proposed measure)	Predicted effectiveness of measure(s) or outcome relative to unmitigated condition	Applicability			
						IMT site	Northern rail access connection	Central rail access connection	Southern rail access connection
12B	An Aboriginal heritage interpretation strategy for the Project would be developed in close consultation with the registered Aboriginal parties. The strategy may consider combining both European and Aboriginal interpretation within the Project site.	M	Detailed design and Early Works	High risk that the Project would impact area of intangible values.	Moderate level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
12C	If the northern rail access option is selected, then the mitigation measures outlined in the Northern Powerhouse Land Aboriginal archaeology assessment (NOHC 2014a addendum report) should be implemented and consideration given to potential historical heritage implications. This includes further data gathering to fill the knowledge gaps regarding Moorebank Aboriginal Potential Archaeological Deposit 2 (MAPAD2) and would involve: • a desktop study (of geotechnical borehole data and levels); • drilling to recover undisturbed sediment core (for assessment and dating and as an archive sequence); and • subsurface bulk sample retrieval (using augered mud bucket) to assess preservation conditions and artefact presence/absence at depth. Information recovered from future investigations at MAPAD2 would be incorporated into an Aboriginal heritage interpretation strategy for the Project as a whole, developed in close consultation with the registered Aboriginal parties.	M	Detailed design	Moderate risk that the Project would impact unknown sites.	High level of effectiveness in mitigating risk (proven measure on similar projects).	N/A	●	N/A	N/A
12D	If the central rail access option is selected, a program of Aboriginal subsurface archaeological investigation should be undertaken. The testing program would need to assess the upper metre of deposits as well as deposits at depth.	M	Detailed design	Moderate risk that the Project would impact unknown sites.	High level of effectiveness in mitigating risk (proven measure on similar projects).	N/A	N/A	●	N/A
12E	If the southern rail access option is selected, a combined geotechnical and archaeological assessment should be undertaken to assess the nature of any deposit and the need for further archaeological investigation and/or salvage.	M	Detailed design	Moderate risk that the Project would impact unknown sites.	High level of effectiveness in mitigating risk (proven measure on similar projects).	N/A	N/A	N/A	●
12F	Options for avoidance of impacts at sites MA6 and MA7 would be explored during the detailed design phase. If impacts cannot be avoided, consultation would be undertaken with registered Aboriginal parties regarding options for specialist investigations (e.g. a suitably qualified specialist in eucalypts of the Sydney region and dendrochronology may be engaged to formally assess the age of the trees and their scars) and culturally appropriate mitigation strategies.	SR	Detailed design and Early Works	Critical risk that the Project would destroy parts of or all of these sites	Avoidance has a high level of effectiveness in mitigating risk (proven measure on similar projects). Further investigations would have a moderate level of effectiveness of mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	N/A	N/A	N/A
12G	An archaeological salvage excavation program would be implemented to preserve archaeological deposits of moderate to high archaeological/scientific significance located within the construction footprint (items recorded at MA5 and MA9). Consideration would be given to conserving both sites in situ, within open space reserves, or as an extension of the proposed conservation zone.	M (salvage program) SR (details of conservation)	Detailed design and Early Works	Critical risk that the Project would destroy parts or all of these sites.	The salvage program would have a moderate level of effectiveness in mitigating risk (proven measure on similar projects). Conservation will have a high level of effectiveness in	●	N/A	N/A	N/A

No.	Mitigation measure	Mandatory (M)/subject to review (SR)	Implementation phase	Predicted risk/outcome if measure not implemented (i.e. reason for proposed measure)	Predicted effectiveness of measure(s) or outcome relative to unmitigated condition	Applicability			
						IMT site	Northern rail access connection	Central rail access connection	Southern rail access connection
					mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.				
12H	A surface salvage program would be carried out to conserve surface artefacts located within the construction footprint (items recorded at MA1, MA2, MA3 and MA4). Salvage of surface artefacts would be undertaken before any impacts in these areas.	M	Detailed design and Early Works	Critical risk that the Project would destroy parts or all of these sites.	The salvage program will have a moderate level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	N/A	N/A	N/A
12I	The Unanticipated Discoveries Protocol described in Appendix 10 of Technical Paper 10 – *Aboriginal Heritage Impact Assessment* in Volume 7, would be followed in the event that historical items or relics or suspected burials are encountered during construction works.	M	Construction	Moderate risk that the Project would affect unknown sites.	Moderate level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
12J	Consultation would be ongoing with the registered Aboriginal parties throughout the life of the Project and would include: • consultation on the future care and management of recovered Aboriginal objects; • methodologies for any future investigations; and • finalisation of management and mitigation strategies subject to detailed design.	M	Construction and operation	High risk that the Project would not comply with consultation guidelines and that the views and wishes of RAPs would not to be taken into consideration in future stages.	High level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
European heritage									
13A	Road names within the School of Military Engineering (SME) would be retained through their transfer to roads created at the new SME complex.	SR	Detailed design	High risk that the Project would affect areas of intangible values.	Moderate level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	N/A	N/A	N/A
13B	Continued commemoration of significant events and individuals would be considered through the naming of buildings, streets and the rail bridge proposed for construction as part of the Project.	SR	Detailed design	High risk that the Project would affect areas of intangible values.	Moderate level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
13C	Where practicable options exist for avoiding impacts on one or more identified heritage items, preference would be given to conserving items of Commonwealth or State significance.	M	Detailed design	High risk that the Project would destroy parts of or all items of Commonwealth or State significance.	High level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
13D	Where avoidance of impacts on a heritage item is not practicable, mitigation works inclusive of archival recordings, salvage of archaeological deposits, relocation of significant elements of the built environment and/or adaptive reuse would be undertaken.	M	Early Works	Critical risk that the Project would destroy parts or all of these sites.	Moderate level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●

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						IMT site	Northern rail access connection	Central rail access connection	Southern rail access connection
13E	A European heritage interpretation strategy would be developed in close consultation with local historical societies, former and current staff and military personnel. The strategy could consider combining both European and Aboriginal interpretation within the Project site.	M	Early Works	High risk that the Project would affect areas of intangible values.	Moderate level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
13F	Archival recording of all items of Commonwealth, State and local significance would be required. This would include recording of salient physical aspects of the Moorebank Cultural Landscape.	M	Early Works	Critical risk that the Project would destroy parts or all of these sites.	Moderate level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
13G	No impacts would occur within the potential archaeological deposits (PAD) boundaries of Moorebank Historical Potential Archaeological Deposit (MHPAD) 1 and MHPAD2 without prior archaeological salvage, as these sites contain archaeological deposits, inclusive of in-situ building remains, that are assessed to be of local significance in the context of the history of military housing and training at Moorebank.	M	Early Works	Critical risk that the Project would destroy parts or all of these sites.	Moderate level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	N/A	N/A	N/A
13H	In addition to archival recording of the Transport Compound Workshop (B99), consideration would be given during the detailed design stage to the in-situ conservation or adaptive reuse of this structure within the Project site. This would assist with mitigation of heritage impacts on the structure itself and the Moorebank Cultural Landscape as a whole.	SR	Early Works	Critical risk that the Project would destroy parts or all of these sites.	Conservation will have a High level of effectiveness in mitigating risk (proven measure on similar projects). Adaptive reuse will have a moderate level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	N/A	N/A	N/A
13I	In addition to archival recording, the Dog Cemetery (MH1) would be repositioned and the individual graves reinterred. This would be carried out in accordance with the wishes of the SME's Explosive Detection Dogs unit and respecting the social value of the site.	SR	Early Works	Critical risk that the Project would destroy parts or all of these sites.	Moderate level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	N/A	N/A	N/A
13J	In addition to archival recording, consideration would be given during detailed design to the in-situ conservation of the Commemorative Garden (MH6). If in situ conservation is not possible, the plaques and planting should be relocated to an alternative location on public display within the Project.	SR	Early Works	Critical risk that the Project would destroy parts or all of these sites.	Conservation will have a high level of effectiveness in mitigating risk (proven measure on similar projects). Relocation will have a moderate level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	N/A	N/A	N/A
13K	If the central rail access option proceeds, Heritage item *Railway viaduct, Main Southern Railway Line* (Item 11) should be noted on all plans and maps during construction and all care taken to avoid this item.	SR	Detailed design and construction	Critical risk that the Project would destroy parts or all of these sites.	Highly effective in mitigating risk.	N/A	N/A	●	N/A

No.	Mitigation measure	Mandatory (M)/subject to review (SR)	Implementation phase	Predicted risk/outcome if measure not implemented (i.e. reason for proposed measure)	Predicted effectiveness of measure(s) or outcome relative to unmitigated condition	Applicability			
						IMT site	Northern rail access connection	Central rail access connection	Southern rail access connection
13L	If the southern rail access option proceeds, heritage item *Railway viaduct, Main Southern Railway Line* (Item 12) should be noted on all plans and maps during construction and all care taken to avoid this item.	SR	Detailed design and construction	Critical risk that the Project would destroy parts or all of these sites.	Highly effective in mitigating risk.	N/A	N/A	N/A	●
13M	The Unanticipated Discoveries Protocol (detailed in Appendix 7 of Technical Paper 11 – *European Heritage Impact Assessment* in Volume 8) would be followed in the event that historical items or relics or suspected burials are encountered during excavation works.	M	Early Works and construction	Moderate risk that the Project would affect unknown sites.	Moderate level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
13N	The Unanticipated Discoveries Protocol (detailed in Appendix 7 of Technical Paper 11 – *European Heritage Impact Assessment* in Volume 8) would be followed in the event that historical maritime items or relics are encountered during bridge works within the Georges River.	M	Early Works and construction	Moderate risk that the Project would affect unknown sites.	Moderate level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	N/A	●	●	●
13O	Further consideration would be given to options for the retention and/or relocation and adaptive reuse of the CUST Hut and the RAAF STRARCH Hangar to mitigate impacts on heritage values associated with these structures and to broaden their cultural landscape. Options considered for mitigation in order of preference are: 1. Relocation (either offsite or onsite) and conserve/adaptive reuse – this would be investigated further as part of the detailed design and Project approval process. 2. Interpretive commemoration utilising materials/elements from the building – this may be required but would be determined by the findings from investigations in option 1 above. 3. Demolition may be required but would be determined by the findings from investigations in option 1 above. The first preference would be to retain and adaptively re-use these items on the redeveloped Project site (within the precinct but outside the secure area, as part of the administrative facilities or similar). If this is not feasible or practicable, the second preference would be for relocation to another appropriate location, potentially with adaptive reuse.	SR	Detailed design and Early Works	Critical risk that the Project would destroy pats or whole of these sites.	Moderate level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	N/A	N/A	N/A
Visual and urban design *Visual impact mitigation*									
14A	Visual mitigation measures to be considered during the detailed design of the Project include: • avoiding clearing of the conservation area which currently obscures and filers views into the Project site; • enhancing existing native vegetation adjoining the Georges River; • enhancing existing native trees with extended and consolidated planting; and • setback controls which would conserve the natural character and streetscape along Moorebank Avenue and allow for effective landscaping.	SR	Detailed design	High risk that visual amenity would be severely affected surrounding the Project site.	High level of effectiveness.	●	●	●	●

No.	Mitigation measure	Mandatory (M)/subject to review (SR)	Implementation phase	Predicted risk/outcome if measure not implemented (i.e. reason for proposed measure)	Predicted effectiveness of measure(s) or outcome relative to unmitigated condition	Applicability			
						IMT site	Northern rail access connection	Central rail access connection	Southern rail access connection
14B	The following additional visual mitigation measures would be considered during detailed design: • Consider the siting of development to minimise vegetation clearing. • Maximise integration of the terminal facilities and the associated warehousing precinct by providing vegetation screening, way-finding throughout the Project site, breakout space for the public and staff, and visual relief. • Provide additional native trees to the car park areas to maximise the opportunity for shade and to provide a landscape frontage that is scaled to complement the new buildings. • Provide landscaping along Moorebank Avenue, including extensive tree and shrub planting on road frontages, that provides visual relief from the industrial appearance of the warehousing, with a layered approach along the streetscape. • Consider localised earth mounding and native canopy tree planting to internal landscape areas on the western side of the new buildings to mitigate visual impacts on residential areas. • Choose finishes and materials that limit contrast with the surrounding landscape, with the preferred use of muted colours. • Take opportunities to start early rehabilitation and supplementary planting of endemic species to the conservation area on the western boundary. • Place higher buildings fronting Moorebank Avenue and Anzac Road to provide a visual buffer from the IMT operations beyond, while also ensuring they make a positive visual contribution to the streetscape. • Consider options for tree planting adjacent to buildings and rail lines, to reduce visual impacts (while also considering any required security constraints and rail line fell distances). • Consider the building design further during the detailed design process and be consistent with controls outlined in the *Liverpool Development Control Plan 2008, Part 7 Development in Industrial Areas* (LCC 2008c), including facade treatment, materials, building design and lighting.	SR	Detailed design	High risk that visual amenity would be severely affected from locations around and within the site, especially along Moorebank Avenue.	High level of effectiveness if implemented at the detailed design stage. Good urban design principles will assist in reducing visual impact.	●	●	●	●
14C	Consider detailed design of the Georges River bridge crossing to reduce visual impact and maintain the amenity value of the Georges River Casula Parklands by allowing free access underneath the bridge (to avoid bisecting the park).	SR	Detailed design	High risk that visual amenity would be severely impacted at Georges River Casula Parklands.	Low to moderate level of effectiveness (the visual impact of the rail access cannot be completely mitigated).	N/A	●	N/A	N/A
Light spill measures									
14D	Lighting required during construction of the Project would be designed and located to minimise the effects of light spill on surrounding sensitive receivers, including residential areas and the proposed conservation area.	M	Construction	High level of risk that some sensitive receivers would be impacted unnecessarily.	High level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●

No.	Mitigation measure	Mandatory (M)/subject to review (SR)	Implementation phase	Predicted risk/outcome if measure not implemented (i.e. reason for proposed measure)	Predicted effectiveness of measure(s) or outcome relative to unmitigated condition	Applicability			
						IMT site	Northern rail access connection	Central rail access connection	Southern rail access connection
14E	Design lighting to minimise impacts on surrounding existing and future residents and the proposed conservation zone.	M	Detailed design	High level of risk that some sensitive receivers would be affected.	High level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	N/A	N/A	N/A
14F	Consider use of shields on luminaire lighting to minimise brightness effects.	SR	Detailed design	Providing item 14G is achieved the risk to some sensitive receivers would be moderate. If item 14G is not achieved the risk would be major.	Providing item 14G is achieved there is a high level of effectiveness in mitigating risk (proven measure on similar projects). If item 14G is not achieved there is a low level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	●	●	●
14G	Select asymmetric light distribution-type floodlights as part of the proposed lighting design (which means the light is directed specifically to the task with minimal direct light spill to the surrounding area).	M	Detailed design	Major risk that sensitive receivers and the environment would be affected.	High level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	N/A	N/A	N/A
14H	Consider low reflection pavement surfaces to reduce brightness.	SR	Detailed design	High level of risk that sensitive receivers, particularly residents in Casula, would be affected.	High level of effectiveness in mitigating risk (proven measure on similar projects). Not possible/appropriate to quantify.	●	N/A	N/A	N/A
14I	Minimise the quantity of light and energy consumption in parts of the Project site that are not active, while retaining safe operation.	M	Detailed design	High level of risk that there would be unnecessary energy usage and higher light spill impacts.	High level of effectiveness in mitigating risk (proven measure on similar projects). Energy consumption could be reduced by up to one-third for inactive areas of the site.	●	N/A	N/A	N/A
14J	Monitoring of light spill during the operation of the Project.	M	Operation	High level of risk that some sensitive receivers would be impacted unnecessarily.	High level of effectiveness in mitigating risk (proven measure on similar projects).	●	●	●	●
14K	For the northern rail access option, in consultation with train operators, consider the practice of avoiding the use of high beam lights on northbound and southbound trains leaving the IMT site until they are on the SSFL, to minimise transitory light spill impacts on residences in Casula.	SR	Operation	High level of risk that some sensitive receivers in Casula would be affected.	High level of effectiveness in mitigating risk (proven measure whereby standard operational procedure for trains not to use high-beam when approaching stations). Not possible/appropriate to quantify.	N/A	●	N/A	N/A

No.	Mitigation measure	Mandatory (M)/subject to review (SR)	Implementation phase	Predicted risk/outcome if measure not implemented (i.e. reason for proposed measure)	Predicted effectiveness of measure(s) or outcome relative to unmitigated condition	Applicability			
						IMT site	Northern rail access connection	Central rail access connection	Southern rail access connection
14L	For the central rail access option, in consultation with train operators, consider the practice of avoiding the use of high beam lights on northbound trains leaving the IMT site until they are on the SSFL, to minimise transitory light spill impacts on residences in Casula.	SR	Operation	High level of risk that some sensitive receivers in Casula would be affected.	High level of effectiveness in mitigating risk (proven measure whereby standard operational procedure for trains not to use high-beam when approaching stations). Not possible/appropriate to quantify.	N/A	N/A	●	N/A
Property and infrastructure									
15A	Undertake further investigations into the location of existing utilities and the likely impact on these utilities. This would include consultation with asset owners to determine the appropriate measures for relocation.	M (undertake consultation and investigation) SR (details of measures)	Detailed design	High level of risk that relevant asset owners will not be consulted.	High level of effectiveness in mitigating risk. Not possible/appropriate to quantify.	●	●	●	●
15B	Continue consultation with the ARTC regarding the design of the rail access to the SSFL to confirm design, construction and operational measures to avoid or minimise impacts on operation of the SSFL.	M (undertake consultation) SR (details of measures)	Detailed design	High level of risk that the operation of the SSFL will be affected by construction works.	High level of effectiveness in mitigating risk. Not possible/appropriate to quantify.	N/A	●	●	●
15C	Consider impacts on recreational and other uses of the Georges River during detailed design of the Georges River bridge crossing.	M	Detailed design	Moderate impacts on recreational users of Georges River and other uses.	Moderate level of effectiveness in mitigating risk. Not possible/appropriate to quantify.	N/A	●	●	●
15D	Maintain access to the ABB site and other adjoining sites such as the Defence National Storage Distribution Centre (DSNDC) and the Moorebank Business Park. This would be addressed during detailed design and as part of traffic management plans to be prepared for the Early Works development phase.	M	Early Works	High level of risk that local residents in Casula and Glenfield and workers at the ABB site and Moorebank Business Park cannot access areas near the Project site	High level of effectiveness in mitigating risk. Not possible/appropriate to quantify.	●	N/A	N/A	N/A
15E	Implement 'dial before you dig' protocols for all potential utilities affected by the Project.	M	Early Works and construction	High level of risk that not all affected utilities are identified.	High level of effectiveness in mitigating risk. Not possible/appropriate to quantify	●	N/A	N/A	N/A
15F	Maintain access to the ABB site and other adjoining sites such as DNSDC, the Moorebank Business Park and local residences in Casula and Glenfield. This would be addressed during detailed design and as part of construction and operational traffic management plans to be prepared for each development stage.	M	Construction	High level of risk that local residents in Casula and Glenfield and workers at the ABB site and Moorebank Business Park cannot access areas near the Project site.	High level of effectiveness in mitigating risk. Not possible/appropriate to quantify.	●	N/A	N/A	N/A
Social and economic impacts									
16A	A Project contact phone number and website would be maintained during construction and operation to enable the community, including local business owners and/or operators, to access information on the Project and receive responses to any concerns.	M	Early Works and construction and operation	Moderate level of risk that affected residents and business owners are not consulted during key stages of the Project.	High level of effectiveness in mitigating risk.	●	●	●	●
16B	An ongoing community consultation program would be developed before the start of construction, to establish and maintain good relationships with local residents and business owners.	M	Detailed design, Early Works, construction and operation	Refer to 16A above.	High level of effectiveness in mitigating risk.	●	●	●	●

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						IMT site	Northern rail access connection	Central rail access connection	Southern rail access connection
16C	A complaints line and resolution process would be set up and maintained.	M	Early Works, construction and operation	High level of risk that complaints are not dealt with and resolved quickly and effectively.	High level of effectiveness in mitigating risk.	●	●	●	●
16D	A citizens' jury has been established to develop a public benefits package.	M	Early Works, construction and operation	High level of risk that community does not see any benefit in the Project and therefore is not supportive.	Medium level of effectiveness in mitigation risk.	●	N/A	N/A	N/A
Human health risks and impacts									
17A	As part of wider ongoing monitoring and evaluation processes, monitoring data for air quality, noise and traffic would be regularly reviewed against the guidelines developed in the specialist studies supporting this EIS, as they are based on protecting the health of the community. Should exceedances be identified in these key indicators as a result of the Project, then a further and more targeted monitoring and management program would be developed as required.	M	Construction and operation	Potential for moderate impacts if elevated exposures to air emission, noise and traffic if not adequately monitored and managed. May result in adverse health effects and/or increased levels of stress in the local community.	Medium to high effectiveness based on range of mitigation measures proposed.	●	●	●	●
Waste management									
Construction waste									
18A	A construction waste management plan would be prepared as part of the overall CEMP. This would implement key principles of relevant waste guidelines, and the waste management hierarchy of reduction, reuse, recycling and recovery.	M	Early Works and construction	High level of risk that waste guidelines are not implemented effectively.	High level of effectiveness in mitigating risk.	●	●	●	●
18B	The waste hierarchy would be investigated and implemented where possible with avoidance of waste, re-use and recycling incorporated into construction methodologies.	SR	Early Works and construction	High risk that waste is not avoided, reduced or minimised throughout construction.	High level of effectiveness in mitigating risk.	●	●	●	●
18C	Consideration would be given to the selection of materials for use in construction to minimise waste generated throughout their lifecycle.	SR	Early Works and construction	Moderate level of risk that best practice recycling methods with a high sustainability rating are not used.	High level of effectiveness in mitigating risk.	●	●	●	●
18D	Where practicable, construction materials that contain minimal embodied energy would be preferred.	SR	Early Works and construction	Moderate risk of using construction materials made from high energy intensive methods.	High level of effectiveness in mitigating risk.	●	●	●	●
18E	Opportunities would be explored where practicable to recycle or re-use materials arising from demolition works, with a preference for onsite re-use where possible (or recycling through an appropriate recycling contractor).	SR	Early Works and construction	High risk that waste is not avoided, reduced or minimised throughout construction.	High level of effectiveness in mitigating risk.	●	●	●	●
18F	Where possible, site disturbance and unnecessary excavation would be minimised.	SR	Early Works and construction	High risk of ground disturbance.	High level of effectiveness in mitigating risk.	●	●	●	●
18G	Formwork would be re-used where possible.	SR	Early Works and construction	High risk that materials from the construction phase are not recycled or disposed appropriately.	High level of effectiveness in mitigating risk.	●	●	●	●
18H	Sewage waste would be disposed of by a licensed waste contractor in accordance with Sydney Water and OEH requirements.	M	Early Works and construction	High level of risk that waste is not disposed of correctly.	High level of effectiveness in mitigating risk.	●	●	●	●

No.	Mitigation measure	Mandatory (M)/subject to review (SR)	Implementation phase	Predicted risk/outcome if measure not implemented (i.e. reason for proposed measure)	Predicted effectiveness of measure(s) or outcome relative to unmitigated condition	Applicability			
						IMT site	Northern rail access connection	Central rail access connection	Southern rail access connection
Operational waste									
18I	A waste management plan would be prepared and implemented to govern the overall use of materials, categorisation of wastes, and re-use and recycling process.	M	Operation	High level of risk that waste guidelines are not implemented effectively.	High level of effectiveness in mitigating risk.	●	●	●	●
18J	The waste hierarchy would be investigated and implemented where possible with avoidance of waste, re-use and recycling incorporated into the design, purchasing and procurement.	SR	Operation	High risk that waste is not avoided, reduced or minimised throughout operation.	High level of effectiveness in mitigating risk.	●	N/A	N/A	N/A
18K	Consideration would be given to the selection of materials for use in operation to minimise waste generated throughout their lifecycle.	SR	Operation	Moderate level of risk that best practice recycling methods with a high sustainability rating are not used.	High level of effectiveness in mitigating risk.	●	N/A	N/A	N/A
18L	Materials used onsite would be recycled where possible, including steel, batteries, electronics and paper.	SR	Operation	High risk that waste is not avoided, reduced or minimised throughout operation.	High level of effectiveness in mitigating risk.	●	N/A	N/A	N/A
18M	Future recovery of waste would be encouraged through site design, including provision for storage areas and appropriate paths for waste containers.	SR	Operation	High risk that waste is not avoided, reduced or minimised throughout operation.	High level of effectiveness in mitigating risk.	●	N/A	N/A	N/A
18N	Dedicated recycling storage areas and recycling bins would be located throughout the Project site, with clear signage and convenient access for waste recycling service providers. This would include bins for paper, plastics, glass, metals and compost.	SR	Operation	High risk of contamination if waste is not effectively managed.	High level of effectiveness in mitigating risk.	●	N/A	N/A	N/A
18O	A separate bunded storage area would be established for liquid wastes (e.g. oils), along with drainage to grease trap if required.	SR	Operation	High risk of contamination if liquid wastes are not appropriately stored.	High level of effectiveness in mitigating risk.	●	N/A	N/A	N/A
18P	A waste management system would be developed to include calculations of anticipated waste volumes from the office, landscaped areas, refuelling facilities and warehousing and distribution activities for ongoing comparison and monitoring.	SR	Operation			●	N/A	N/A	N/A
18Q	Onsite waste management infrastructure would, as a minimum, cater for the following three waste streams: • recovered waste (for re-use or recycling); • residual waste (for disposal or alternative waste technology); and • hazardous waste (wastes that are toxic, corrosive, flammable, explosive or reactive).	SR	Operation	High risk of contamination if waste streams are not effectively managed.	High level of effectiveness in mitigating risk	●	N/A	N/A	N/A
18R	Water efficient fixtures and fittings would be installed wherever possible, including in all basins, wash down areas and offices and general amenities areas.	SR	Operation	Moderate risk of water wastage.	High level of effectiveness in mitigating risk.	●	N/A	N/A	N/A
18S	Where possible, rainwater harvesting and surface water runoff management would be utilised for watering of gardens and landscaping.	SR	Operation	Moderate risk of water wastage.	High level of effectiveness in mitigating risk.	●	N/A	N/A	N/A
18T	The use of grey water and black water recycling would be investigated. Recycling water would most likely be used for toilet flushing and/or landscape irrigation.	SR	Operation	Moderate risk of water wastage.	High level of effectiveness in mitigating risk.	●	N/A	N/A	N/A

No.	Mitigation measure	Mandatory (M)/subject to review (SR)	Implementation phase	Predicted risk/outcome if measure not implemented (i.e. reason for proposed measure)	Predicted effectiveness of measure(s) or outcome relative to unmitigated condition	Applicability			
						IMT site	Northern rail access connection	Central rail access connection	Southern rail access connection
18U	Where possible, fire test water from the Project site would be collected for re-use. Washdown water from vehicle and train washdown facilities (if required) would also be collected for re-use.	SR	Operation	Moderate risk of water wastage.	High level of effectiveness in mitigating risk.	●	N/A	N/A	N/A
18V	Where practicable, water meters would be installed on all major water uses (air conditioning cooling towers, irrigation, domestic hot water, amenities, washdown, rainwater collection and recycled water system).	SR	Operation	Moderate risk of water wastage.	High level of effectiveness in mitigating risk.	●	N/A	N/A	N/A
18W	Water reduction targets would be established for office areas, in line with the National Australian Built Environment Rating System (NABERS) Water protocol for office buildings (assume 4.5 stars) (refer discussion in Chapter 9 – *Project sustainability*).	SR	Operation	Moderate risk of water wastage.	High level of effectiveness in mitigating risk.	●	N/A	N/A	N/A
Use of resources – construction									
18X	All opportunities to utilise recycled building materials in the overall structure of the Project would be explored. Development of the design would seek to use construction materials that have been made with a post-consumer recycled content of 50% or greater. Table 9.4 in Chapter 9 – *Project sustainability* identifies other initiatives to minimise the use of materials and, where possible, use recycled materials.	SR	Detailed design and operation	Moderate to high risk of resource waste.	High level of effectiveness in mitigating risk.	●	●	●	●
18Y	Measures to minimise the use of energy and fuel would be investigated and implemented where appropriate. These may include using non-renewable sources such as petroleum, diesel, natural gas and liquefied natural gas.	SR	Early Works, detailed design and construction	Moderate to high risk of resource waste.	High level of effectiveness in mitigating risk.	●	●	●	●
18Z	Where practicable, water would be re-used onsite, including water stored in sediment basins.	SR	Early Works, detailed design and construction	Moderate to high risk of water waste.	High level of effectiveness in mitigating risk.	●	●	●	●
Use of resources – operation									
18AA	Initiatives in Table 9.4 in Chapter 9 – *Project sustainability* would be considered and implemented where practicable to minimise the use of energy and fuel during the operation of the Project.	SR	Detailed design and operation	Moderate to high risk of resource use.	High level of effectiveness in mitigating risk.	●	●	●	●
Cumulative impacts *Cumulative traffic impacts*									
19A	For cumulative scenario 3, the following intersection modifications would need to be considered: • Moorebank Avenue/Anzac Road intersection: > modification of the traffic signal cycle; > provision of a dual right turn lane on the Moorebank Avenue south approach; and > extend the length of left turn slip lane on Moorebank Avenue north approach; • Moorebank Avenue/DNSDC Access intersection and Moorebank Avenue/Moorebank IMT Main Access/SIMTA central access intersection; > provision of a shared left and right turn kerbside land on the DNSDC access and the SIMTA central access.	SR (subject to approval and confirmed details of SIMTA development)	Detailed design	Moderate risk of increased traffic and associated amenity impacts along Moorebank Avenue.	High level of effectiveness in mitigating risk.	●	N/A	N/A	N/A

No.	Mitigation measure	Mandatory (M)/subject to review (SR)	Implementation phase	Predicted risk/outcome if measure not implemented (i.e. reason for proposed measure)	Predicted effectiveness of measure(s) or outcome relative to unmitigated condition	Applicability			
						IMT site	Northern rail access connection	Central rail access connection	Southern rail access connection
Cumulative air and noise									
19B	The management and mitigation of potential air quality and noise impacts relating to the Project and the SIMTA warehousing development during operation would be the separate responsibility of the Project developers and operators of these respective sites, in accordance with the air and noise criteria established as part of regulatory approvals and licensing. However, a combined approach may be taken where appropriate. The design and implementation of air quality and noise mitigation would need to be determined for the final staged operations during the detailed design phase and, as required, be included in the environmental assessment for the Stage 2 SSD approval(s). Dependent on the progress of the proposed SIMTA development, the Project may require additional mitigation to comply with air quality and noise criteria. Any additional mitigation would be considered further through the development of the detailed design. Regular meetings between the operators of the Project and the SIMTA development would need to be established to manage complaints or issues relating to air quality. Where necessary, a review of simultaneous operations would be considered, potentially resulting in the coordinated management of potential issues.	SR (subject to approval and confirmed details of SIMTA development)	Detailed design and operation	High risk of air and noise emissions not being effectively managed.	High level of effectiveness in mitigating risk.	●	N/A	N/A	N/A
Cumulative construction impacts									
19C	Should both the Project receive approval and both the Project and the SIMTA development proceed to detailed design and subsequent approvals under the EP&A Act, consideration would be given to the potential combined coordination of construction management plans where appropriate and relevant. Opportunities to reduce environmental impacts throughout the construction and operation of the two projects would be explored, potentially including construction noise sharing agreements, traffic and air quality goals as well as integration of environmental management plans.	SR (subject to approval and confirmed details of SIMTA development)	Detailed design	High risk of cumulative impacts of both the Project and the SIMTA warehousing development not being effectively assessed.	High level of effectiveness in mitigating risk.	●	N/A	N/A	N/A
Cumulative heritage impacts									
19D	Measures to mitigate the cumulative Aboriginal and European heritage impacts would include those already proposed as part of the Project in combination with investigating, archiving, salvage and relocation (where feasible) of items on the SIMTA site. These measures would be investigated and determined once the final design for each project is determined.	SR (subject to approval and confirmed details of SIMTA development)	Detailed design and Early Works	Moderate risk that the cumulative scenarios would impact on Aboriginal and European heritage and would affect unknown sites.	Moderate level of effectiveness in mitigating risk (proven measure on similar projects).	●	N/A	N/A	N/A

28.4 Environmental offsets

A biodiversity offset strategy has been developed for the Project to compensate for losses of native vegetation, threatened ecological communities and habitat for threatened species (refer to Chapter 13 – *Biodiversity* and Appendix F of Technical Paper 3 – *Ecological Impact Assessment* in Volume 4). Offset strategies may include both on and offsite or local area proposals that contribute to the long-term conservation of threatened species and communities. For the Project, the proposed offsets include:

- Moorebank offset area–Georges River riparian zone: restoration and management of the Georges River riparian zone (approximately 32.3–38.6 ha) including the eastern side of the river corridor from approximately 300 m south of the M5 Motorway for a length of approximately 2.5 km south to the East Hills Railway Line.

- Casula Offset Area: management and restoration of vegetation within Lot 4 DP 1130937 is proposed. The Casula Offset Area is an irregular shaped allotment (known as the 'hourglass' land) of approximately 3.2 ha on the western side of the Georges River opposite the main IMT operations.

- Wattle Grove Offset Area: Part of the eastern portion of Lot 3001 DP 1125930 (east of Moorebank Avenue) contains native vegetation that is proposed to be used to offset vegetation to be cleared for the Project. This area of vegetation adjoins the East Hills Railway Line to the south, land owned by the SIMTA consortium to the north-west, and the residential area of the suburb of Wattle Grove to the east. This area is currently mapped as Environmentally Significant Land and zoned SP2 (infrastructure – Defence) under the Liverpool Local Environmental Plan 2008. This land would need to be actively managed in order to maintain or improve the condition of the vegetation and habitats.

As noted in Chapter 13 – *Biodiversity,* the final size of the Moorebank offset area–Georges River riparian zone and the Casula Offset Area (as identified above) will depend on the location of the selected rail access option.

In summary, the proposed offset strategy consists of a dual direct offset approach including offsets both within and outside the Project site to achieve an improved conservation outcome, combining the long-term protection and/or enhancement of existing habitat in moderate to good condition with the restoration, rehabilitation and re-establishment of habitat in poor condition.

28.5 Overall effectiveness of mitigation measures

This section provides comment on the predicted overall effectiveness of the proposed mitigation measures for each environmental issue category. Table 28.2 includes comment on the predicted effectiveness of individual measures; however, it is also important to consider the overall effectiveness of the measures combined.

The overall effectiveness of the mitigation measures has been assessed in terms of the likelihood that the measures would avoid, mitigate and minimise the overall effects of the Project. The effectiveness has been measured using the following:

- High level of effectiveness in mitigating impacts and risks: the proposed mitigation measures are likely to be successful in reducing the environmental impacts to a level that the overall risk can be considered to be low or low–moderate.

- Medium level of effectiveness in mitigating impacts and risks: the proposed mitigation measures are likely to reduce the impacts to a level that the overall risk can be considered to be moderate.

- Low level of effectiveness: the overall impacts and risks of the Project are still likely to be high, and therefore, the level of effectiveness of the mitigation measures is considered to be low.

This ranking has been used to assess the effectiveness of each environmental category as detailed below.

28.5.1 Traffic, transport and access

Early Works and construction

The mitigation measures proposed during the Early Works and construction phases of the Project are considered to have a medium to high level of effectiveness in reducing the potential traffic impacts of the Project. This would primarily be achieved through the preparation and implementation of CEMPs which would be developed for the different phases and elements of construction. These plans would contain control measures to minimise the impact of construction traffic on the road network, and would in particular be focused on minimising congestion and traffic safety impacts. A range of traffic mitigation measures have been proposed to reduce the potential traffic impacts during construction, including minimising construction vehicles during peak periods where possible.

Monitoring of construction traffic would be required during Early Works (before the Moorebank Avenue upgrade) during peak periods to ensure that queuing at intersections does not affect other road users.

Overall, with these measures in place, it is anticipated that the potential traffic impacts would be reduced to a level that they are low to moderate in nature. Therefore, the mitigation is expected to have a high level of effectiveness.

Operation

To control traffic during operations, a range of measures have been proposed and/or recommended for further consideration. It is important that the detailed design accounts for the operational needs of the Project with the rail and road connections. Control measures are able to be implemented into the detailed design to inform and control vehicles on Moorebank Avenue and within the terminal. The detailed design would need to also consider and promote other modes of transport available for staff by providing footpaths/shared paths, storage and shower areas, and bus facilities.

The proposed upgrade of Moorebank Avenue would have the capacity to facilitate the estimated demand. The terminal operators would need to consider how truck movements would be controlled through a scheduling system (similar to the system used at Port Botany).

The operational mitigation measures are likely to have medium to high level of effectiveness in reducing the potential traffic impacts.

28.5.2 Noise and vibration

Early Works

As discussed in section 12.3.2 of Chapter 12 – *Noise and vibration,* based on the predicted noise levels, the Early Works would not require the implementation of specific mitigation measures to reduce potential noise levels from daytime works. No night time works would occur during Early Works.

In addition, operation of construction equipment is likely to be more than 450 m from the nearest noise-sensitive receptors. Consequently, all construction equipment would be operated within the recommended safe working distances (refer to section 12.3.2 of Chapter 12 – *Noise and vibration)* and therefore no mitigation would be required during Early Works.

Construction

A range of feasible and reasonable noise and vibration mitigation measures have been proposed to reduce and control potential noise and vibration consistent with the *Interim Construction Noise Guideline* (ICNG) (DECC 2009). Where implemented, the recommendations, including the use of low noise emitting plant and broadband reversing alarms, safe working distances for vibration generating plant, and locating noise generating plant away from receivers, are likely to achieve the objectives of the ICNG.

Where construction works may exceed the noise objectives of the Guideline, additional noise mitigation measures would be required. Such measures could include respite work periods, localised noise screens and limiting the use of simultaneous noise generating plant, which may be necessary to control potential impacts.

Where implemented in full, the measures proposed and detailed in Table 28.2 are likely to have a medium to high level of effectiveness, and are likely to:

- minimise potential for disturbance at all potentially affected receptors;
- preserve acoustic amenity in the surrounding environment; and
- achieve the noise and vibration assessment adopted criteria (as identified in Chapter 12 – *Noise and vibration).*

During the Early Works development phase the predicted noise levels are likely to be short-term (up to a month) at any one receptor location. Based on this, the Early Works would not require the implementation of specific mitigation measures to reduce potential noise levels from daytime works.

Operation

Where implemented in full, the suite of measures would likely ensure that the Project meets the noise criteria as identified in section 12.3.1 of Chapter 12 – *Noise and vibration*. Measures include source noise controls such as acoustic enclosures, low noise rail track designs, and designing noise sources at the furthest distance possible from receivers. Further attenuation is proposed through the application of noise walls or barriers to impede the propagation of noise from within the main IMT site to affected receivers. Specific noise and vibration reducing rail systems are to be investigated during the design of the northern rail access option, to mitigate the impacts of this rail access on surrounding receptors. Importantly, all requirements for noise mitigation would need to be verified during further noise assessments and the detailed design of the Project.

Overall, the measures proposed are considered to have a medium level of effectiveness. Even with the mitigation measures in place, there would still be an increase in existing ambient noise levels, the Project will control noise levels to be as low as reasonably practicable, within permitted limits and in accordance with the objectives of the *Industrial Noise Policy* (EPA 2000b) and the *Rail Infrastructure Noise Guideline* (EPA 2013b) to:

- minimise potential for disturbance at all potentially affected receptors; and
- preserve acoustic amenity in the surrounding environment.

28.5.3 Biodiversity

The Project would result in vegetation clearing and habitation disturbance, the impacts of which are irreversible. However, mitigation measures have been identified and would be applied across the Project site where possible to minimise the potential loss of habitat and the disturbance to flora and fauna species.

General mitigation measures have been identified which are applicable to all native vegetation communities, habitats and native species of plants and animals likely to be affected by the Project. Also included are species-specific measures aimed at mitigating impacts on the Threatened and migratory species listed under the Commonwealth EPBC Act and/or the NSW *Threatened Species Conservation Act 1995*. Following detailed design and before construction, the proposed biodiversity impact mitigation measures would be further developed and presented as part of the CEMP and OEMP for the Project. The biodiversity component of the plans would include detailed requirements for the implementation of the mitigation measures. It would also include a monitoring program to determine the effectiveness of mitigation measures and identify any changes to management necessary to rectify any observed shortfall in the required outcomes.

The proposed offset strategy directly accounts for the residual biodiversity impacts associated with the Project. The strategy proposes replacement and management of the same vegetation and habitat types that may be affected by the Project. Much of the proposed offset area is located on or directly adjacent to the Project site. The management of the offset sites would be guided by site-specific offset management plans detailing the measures and monitoring required to ensure that biodiversity values are maintained and improved.

The development of management measures for mitigating and offsetting impacts would be undertaken through careful consideration of their likely efficacy, cost-effectiveness and maintenance requirements to ensure that the available resources are effective in achieving the overall objectives of the management plans. In addition, management plans would be developed within a framework that recognises that natural area restoration programs may not be successful, if the causes of degradation are not sufficiently considered, and/or if expectations of responses to management are unrealistic. Poorly designed vegetation management regimes also pose a risk of causing further degradation due to factors such as erosion and water quality impacts.

For Early Works, while this development phase is unlikely to result in the clearing of any native vegetation communities, it may involve the removal of scattered native and introduced trees and shrubs within the main IMT site. Therefore, Early Works mitigation measures to minimise the impacts of vegetation removal and disturbance would be undertaken. This includes the use of exclusion zones, and the presence of a trained ecologist on site to accompany clearing crews, to ensure disturbance is minimised and to assist in relocating any native fauna to adjacent habitat.

For the above reasons, the proposed biodiversity mitigation measures are considered to have a medium level of effectiveness for all Project development phases. The mitigation measures provide an integrated approach that recognises the interaction between elements such as the operational requirements of adjacent lands, stormwater issues, public amenity, weed proliferation and habitat for native species. Proposed strategies would consider potential conflicts between objectives, such as the potential impact of weed removal on bank stability and fauna habitat. Using this proposed approach, practical and effective plans can be developed and implemented with minimal risk of failing to meet the Project's required biodiversity conservation objectives.

28.5.4 Hazard and risk

The mitigation measures proposed in relation to managing hazards and risk are expected to have a high level of effectiveness. The overall risks arising from the use, storage or transport of hazardous materials associated with the Project, during Early Works, construction and operational phases of the Project, are not expected to have a significant impact on any persons or property outside the Project site. With the implementation of appropriate design, construction and operation procedures in line with relevant standards and codes of practice, it is expected that the potential impacts would be reduced to a low level of risk.

There is some bushfire risk as a result of the surrounding environment, in particular the extensive and heavily vegetated bushland and proposed conservation zone surrounding the Project site on the south-eastern corner and western boundary. Adequate protection from the effects of bushfire is expected to be achieved through suitable site design (including access provisions, location of vulnerable facilities, appropriate fire-fighting systems, and power and gas reticulation systems), along with procedures to limit fuel loads and ensure safe evacuation if a fire should threaten the Project site. A more detailed bushfire assessment would be undertaken as part of the detailed design process, in consultation with the NSW RFS, to minimise any remaining risk.

28.5.5 Contamination and soils

The Project site has been subject to extensive testing and analysis, and the extent of the contamination and remediation requirements, are relatively well understood for the main IMT site. Mitigation measures proposed for the main IMT site include remediation of 'hot spot' locations as well as remediation approaches and technologies that would be used as part of the Early Works, construction and ongoing management of the Project.

The mitigation measures proposed are in line with best practice and have been developed in accordance with relevant legislative and guideline requirements. The mitigation measures proposed to maintain water quality in the Georges River are also standard measures. The proposed remediation measures include 'cap and cover' where appropriate, and excavation and disposal of contamination 'hot spots'. As such, the contamination and soil management mitigation measures are expected to be fully effective in ensuring that the main IMT site is remediated to a state suitable for its intended use without risk of contamination of the receiving environment.

In terms of the rail access options, further investigations are proposed to determine the mitigation required for the selected rail access option. However, based on preliminary assessment, it is likely that effective measures can be put in place.

Overall, the mitigation measures are anticipated to have a high level of effectiveness in addressing contamination issues at the main IMT site.

28.5.6 Hydrology, groundwater and water quality

Early Works

Early Works would mainly take place outside the flood affected areas, except for the development of the conservation area. In addition, Early Works would not be expected to have an impact on the local stormwater catchments, as existing drainage would continue to be used during this phase.

Mitigation measures to avoid and reduce impacts on surface water quality include the implementation of erosion and sediment control plans (ESCPs) and appropriate design and location of stockpiling and storage areas.

These measures are considered to have a high level of effectiveness as the overall risk is anticipated to be low.

Construction

The development and implementation of ESCPs and other flood and water quality mitigation measures as outlined in Table 28.2 would, if appropriately installed and managed in accordance with best practice, be highly effective in minimising the potential impacts of the Project on local and regional flooding and downstream water quality. Measures include the use of best practice erosion and sediment control, stormwater diversion channels, appropriate location of stockpile areas, stabilised construction surfaces and spill management. There is a high risk of erosion of disturbed areas and contamination of local drainage systems and watercourses if the measures are not effectively implemented; however, the use of these measures would eliminate the risk for the majority of the time. During very extreme flood events, the risk would be minimised to low.

Operation

It is proposed to manage the potential impacts of the Project on the Georges River and Anzac Creek receiving waterways through a treatment train approach of onsite stormwater best practice management systems. Through the proposed combination of swales, raingardens, catchpit screens and bio-retention, potential stormwater pollutants such as total suspended solids, total phosphorus and total nitrogen would be removed in accordance with regulatory guidelines. A preliminary assessment has shown that stormwater quality from the developed site would be maintained or improved relative to the existing situation. Therefore, the mitigation measures that address water quality are considered to be highly effective.

Stormwater quantity discharges would be managed in parallel with stormwater quality through velocity constrictions of swales and raingardens and detention within the piped stormwater network and detention basins. An assessment of the flooding impacts of the Project, as outlined in Chapter 16 – *Hydrology, groundwater and water quality*, has determined that as the changes in existing stormwater flows would be managed on site and discharged solely to Anzac Creek and the Georges River, the main potential impacts on regional flooding are associated with the new rail access connection and Georges River crossing. Modelling indicates that the maximum afflux for a 1% AEP event would occur immediately upstream of the proposed rail bridges for each option and would be limited to:

- 150 mm for the northern rail access connection option;
- 220 mm for the central rail access connection option; and
- 30 mm for the southern rail access connection option.

The central rail access option had the largest predicted impact at the upstream model extent; this is of concern as it could result in a change to the flood level at the upstream extent of the model, which could in turn affect flood planning considerations. However, modelling shows that none of the three bridge options would increase the flood risk to residences upstream during a 1% AEP event, as these properties are beyond the 1% AEP flood extent.

Notwithstanding this, it is recommended that the impacts of the Project be further minimised through design refinement of the bridge and bridge related infrastructure during later stages of design. For the central rail access option, further assessment and mitigation measures are required to reduce the afflux resulting from this option.

With these measures in place, and assuming that additional design and mitigation would be undertaken, the approach to mitigation for flooding and water quality impacts is considered to have a medium level of effectiveness.

28.5.7 Local air quality

Early Works and construction

Air quality control measures for the Early Works and construction phases would be documented within the dust management plan which forms part of the CEMP. The implementation of best practice dust management measures would significantly reduce site emissions and potential offsite air quality impacts. Remaining offsite air quality impacts would be managed through the implementation of real-time meteorological and airborne particle concentration monitoring, with contingency actions implemented in response to adverse weather conditions or elevated particle concentrations. Contingency actions would involve ceasing or modifying operations that involve hauling, dozing, grading, scraping and material handling.

These measures are considered to have a high level of effectiveness in minimising air quality emissions when implemented together.

Operation

To control air emissions and air quality impacts during operation, a range of measures have been proposed and/or recommended for further consideration. Control measures would be documented within the Project's air quality management plan. The most significant air emission sources during the operational phases are combustion emissions from onsite mobile plant, locomotives and on-road diesel trucks. For the purpose of the assessment, onsite mobile plant were assumed to be LNG powered, with progressive improvements in combustion engine exhaust emissions taken into account for on-road diesel trucks and locomotives. Further emission reductions are expected for on-road diesel trucks in the event that Australia adopts Euro V emission standards for heavy duty trucks. The specification that all new locomotives entering the Project site meet US Tier 2+ standards would significantly reduce particle and NO_x emissions below the emission rates assumed in the assessment.

Operational mitigation measures include the management of site traffic and rail activities to reduce idling, and regular maintenance and inspection of onsite equipment. It is proposed that monitoring be continued during the operational phase to provide an ongoing measure of compliance with applicable criteria. The implementation of the technological and operational measures, in combination with the application of real-time monitoring, would enable air quality impacts to be managed so that they are reduced to a low to moderate level. On this basis, the mitigation measures are expected to have a high level of effectiveness.

28.5.8 Regional air quality

As detailed in Chapter 18 – *Regional air quality*, no mitigation measures are required beyond those recommended for local air quality.

28.5.9 Aboriginal heritage

During the current assessment, various measures have been considered to avoid or mitigate impacts. However, there are very limited options in terms of altering the Project impact area.

The majority of the Project area is identified as having low archaeological and/or cultural significance. The mitigation measures proposed in this EIS have been developed with a focus on mitigating impacts in those areas of greatest heritage significance.

The mitigation strategies endeavour to ensure the long-term security of Aboriginal objects within the Project area through specialist investigations, artefact collection and comprehensive programs of subsurface testing and salvage excavations within archaeologically sensitive areas. These measures would maximise information yielded from affected sites and ensure retention of such information for future generations.

Any direct impact on Aboriginal heritage resulting from the Project would effectively be offset by the physical salvage of Aboriginal objects within the Project area and the interpretation of the archaeological record recovered during future phases of investigation. Moreover, the detailed design phase of the Project may also present additional opportunities to identify areas for conservation, thus further mitigating any impacts. As a general principle, all of the mitigation measures would be completed as part of the Early Works development phase. This includes testing, interpretation, analysis and salvage.

For these reasons, overall the mitigation measures are considered to have a medium level of effectiveness.

28.5.10 European heritage

Similar to the strategies implemented to manage Aboriginal heritage impacts, various measures have been considered to avoid or mitigate impacts on European heritage, with the majority of the measures proposed to be implemented before the main construction phases (i.e. before or during Early Works). However, there are very limited options in terms of altering the Project impact area.

The proposed mitigation measures for the identified archaeological deposits are focused on investigating, documenting and archiving those deposits identified as having the greatest research potential. Additional investigations, historical research and a comprehensive salvage program would maximise information yielded from affected sites as well as ensuring retention of such information for future generations. In terms of effectiveness, the proposed mitigation measures would account for the majority of the Project's impacts on European heritage. Archaeological deposits identified as having research potential would be salvaged. Archival recording would be undertaken where it is not possible to salvage heritage items.

A key concern is the Project's potential impact on the Dog Cemetery (MH1), Commemorative Garden (MH6), CUST Hut, Transport Compound Workshop (B99) and the RAFF STRARCH Hangar, all of which meet the criteria for Commonwealth Heritage Listing as well as local and/or State levels of significance against NSW criteria. As such, the adaptive re-use or relocation of these items should be a priority for the Project (and is proposed for further consideration).

Given the possibility that items identified as having heritage significance may be demolished, the mitigation measures are considered to have a medium level of effectiveness.

28.5.11 Visual and urban design

Visual impact

Due to the limited impacts predicted for the Early Works phase, the mitigation measures focus on the main construction and operational phases of the Project.

The proposed height controls for built form and containers (21 m height limit) and setback controls (most notably on Moorebank Avenue) would limit the extent of visual impacts. Proposed landscape planting and biodiversity enhancements in the proposed conservation zone would ensure that the Project's visual impacts are minimised. However, the following limitations on the effectiveness of visual impact mitigation measures are noted:

1. The Project site contains numerous light poles and gantry structures that are around 30 m in height and are therefore likely to be directly visible to some receptors – notably the suburb of Casula, due to its elevation above the Project site.

2. While the conservation area would largely screen direct views for receptors to the west of the Project site, the elevated nature of the Casula suburb relative to the Project site means that, even with landscape planting, some views into the Project site (over the conservation area) may occur.

3. Moorebank Avenue would provide direct views to the Project site for passing motorists. Although the impact of these views would be softened by use of landscape planting and appropriate setback controls, viewers would experience a significant visual change from that currently presented.

For the reasons above, in the long term, the mitigation measures proposed would have a medium level of effectiveness.

Light spill

Lighting required for Early Works and construction at night would be designed and located to minimise light spill impacts. This is predicted to have a high level of effectiveness.

Light spill mitigation has been built into the proposed Project concept, and additional measures are proposed to further mitigate impacts. The effectiveness of the mitigation measures is supported through consideration of other related projects such as Port Botany, where the dimming of locomotive headlights that face residential properties has proven effective. Furthermore, a conservative approach has been adopted for assessment of light spill impacts on sensitive receivers (such as residences and surrounding recreational or community based land uses). As detailed design progresses, it is likely that the lighting requirements for the Project would be further refined and may reduce the overall impact and need for the recommended mitigation measures. Therefore, the mitigation measures are considered to have a relatively high effectiveness in reducing the light spill impacts.

28.5.12 Property and infrastructure

The Project may result in the need to acquire a number of lots currently outside Commonwealth ownership, specifically to undertake construction of the rail access option. This would result in a reduction in available land area, particularly during construction, when additional land for laydown areas would be required.

While detailed design would be undertaken to minimise the extent of land take required from other (non-Commonwealth) property owners, the Project would still have a residual impact within the direct footprint of the permanent infrastructure. As such, mitigation cannot achieve a zero-impact outcome. However, landowners would be compensated for the loss of land under the *Land Acquisition (Just Terms Compensation) Act 1991*.

Notwithstanding this, the mitigation measures proposed for the Project and detailed in Table 28.2 seek to ensure that the design of the rail access options considers the impact on other uses of the Georges River, and that access to adjoining sites is maintained during construction and operation of the Project.

In terms of amenity impacts on adjoining land use during Early Works, construction and operation, appropriate mitigation measures proposed for air, noise, traffic, light spill and visual impacts would ensure these impacts are minimised.

Impacts on infrastructure would be effectively mitigated through detailed design, to ensure that there is no reduction in service as a result of the works.

For the reasons described above, the mitigation measures are anticipated to have a high level of effectiveness in reducing the property and infrastructure impacts of the Project, as the overall impacts of the Project are considered to be low.

28.5.13 Social and economic impacts

The mitigation measures for social impacts are related to the mitigation of amenity impacts described above. The effectiveness of these measures is discussed in the relevant subsections above.

28.5.14 Human health risks and impacts

The mitigation measures associated with human health risk are closely aligned with the mitigation of impacts on local air quality (Chapter 17 – *Local air quality*). In the event of exceedances, further mitigation measures would be developed to specifically address health risks.

Mitigation associated with the health impact assessment generally related to the mitigation of impacts associated with air quality, traffic, noise and other amenity impacts. The effectiveness of these measures is discussed in the relevant subsections above.

28.5.15 Waste and resource management

Waste generation and disposal impacts during Early Works, construction and operation would be minimised through various measures that focus on reduction, re-use, recycling and recovery. In addition, impacts on resources would be minimised through product substitution, recycling and other measures to reduce the demand on primary sources.

While the measures outlined in Table 28.2 have the potential to be highly effective in reducing waste and minimising resource use (when applied in combination), the actual level of effectiveness will depend on the ability of the Project contractor to implement such measures. For example, in some instances materials generated by Early Works, construction and operation would not be suitable to be re-used or recycled due to the nature of the materials or the lack of practical opportunities. While the Project contractor may look to source recyclable materials, these may not always be cost effective or appropriate to use on the Project site.

In addition, while the use of natural resources (water, energy and materials) can be reduced, it cannot be eliminated.

28.5.16 Cumulative impacts

The effectiveness of mitigation measures developed to manage the cumulative impacts of the Project is difficult to predict at this stage. This is because, as noted in Chapter 27 – *Cumulative impacts,* there is no prospect that both the Moorebank IMT and SIMTA IMT project would be developed jointly. As such, alternative cumulative scenarios have been developed and assessed in Chapter 27 – *Cumulative impacts,* but the exact details and the potential impacts of these theoretical proposals cannot be determined at this stage.

Mitigation measures proposed for traffic, air and noise impacts could be implemented during design development for the Project and/or the SIMTA project. These include some of the mitigation measures already proposed for the Project; however, these measures would need to be reviewed should both the Moorebank IMT and SIMTA development progress concurrently. As stated earlier in this chapter and in Chapter 27 – *Cumulative impacts*, additional mitigation may be required to ensure that the Project, when considered along with the potential impacts of other projects of spatial or temporal relevance, would comply with relevant regulatory criteria.