Appendix D

Mitigation Measures

ENVIRONMENTAL RISK ASSESSMENT AND MITIGATION MEASURES

The following section provides recommendation for mitigation measures in response to potential impacts identified in **Section 6** of the EIS. The structure of mitigation measures is based on the DPE's hierarchy of approaches for managing impacts identified in the *State significant development guidelines – preparing an environmental impact statement* released by DPE in December 2021, as:

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

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

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

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

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

Likelihood		**Consequence**	
A	Almost certain	1	Widespread and/or irreversible impact
B	Likely	2	Extensive but reversible (within 2 years) impact or irreversible local impact
C	Possible	3	Local, acceptable or reversible impact
D	Unlikely	4	Local, reversible, short term (<3 months) impact
E	Rare	5	Local, reversible, short term (<1 month) impact

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

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

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

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

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

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
Design quality and design excellence	The development does not achieve design excellence.	O	E	2	Very Low	The future Detailed SSDA must implement the process outlined in the Sydney Metro West Design Excellence Strategy for Hunter Street Station.	Prescriptive measure	N/A
Built form and urban design	The development does not achieve built form and design objective for the site.	O	E	2	Very Low	The detailed design of the OSD is to be undertaken in accordance with the draft site-specific Design Guidelines. The Detailed SSDA must address the manner in which the design/proposal responds to the detail within this Concept SSDA and the Design Guidelines.	Prescriptive measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
Crime and public safety	Antisocial and criminal behaviour	O	D	3	Low	The Detailed SSDA must incorporate CPTED principles relating to natural surveillance, access control, territorial reinforcement and space management. The Detailed SSDA must adopt the recommendations contained within the CPTED Assessment Report (Appendix L).	Management based measure	N/A
Overshadowing	Increase in shadowing to surrounding public domain, including The Domain	O	C	2	Medium	Future development is to be consistent with the proposed maximum building envelope (and detailed in Appendices G) so as to ensure that the overshadowing impacts are not worse than those assessed in this concept proposal.	Prescriptive measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
Sky view	Create adverse impacts to public domain amenity including daylight access	O	C	2	Medium	Future development is to be consistent with the proposed maximum building envelope (and detailed in Appendices G) so as to ensure that the natural light levels in the public domain surrounding the site is protected.	Prescriptive measure	N/A
Reflectivity	Adverse solar reflectivity glare to motorists and pedestrians	O	D	2	Low	As part of the future Detailed SSDA, the design and materiality of the façade should adopt a maximum 20 per cent specular reflectance for the glazed surfaces and must not exceed a veiling luminance limit of 500 cd/m2 to drivers.	Prescriptive measure	N/A
Wind impacts	Adverse wind environment along surrounding streets, publicly accessible open space.	O	D	2	Low	Further investigation of the wind conditions for the ground level and elevated areas within and around the development must be	Prescriptive measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						undertaken as part of the Detailed SSDA to verify the suitability of the relevant public domain areas. This would also include detailed wind tunnel testing of any proposed elevated and open communal areas in the OSD.		
Visual impacts	▪ Visual / view impacts from surrounding streetscape and key public vantage points ▪ View impacts on heritage items	O	C	1	Medium	Future development is to be consistent with the proposed maximum building envelope (as detailed in Appendix G) so as to ensure that the visual and view impacts are not worse than those assessed in this concept proposal.	Prescriptive measure	N/A
Integration with station and public realm	Create adverse impacts on railway infrastructure, and the station podium below	C & O	D	2	Low	The future Detailed SSDA would need to propose a building which is architecturally and structurally integrated with the station structure	Prescriptive measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						beneath and would be guided by the Draft Design Guidelines.		
Pedestrian amenity	▪ Impacts to surrounding pedestrian network ▪ Conflict with pedestrians	O	C	2	Medium	Future development is to be consistent with the proposed maximum building envelope including proposed maximum floor space (and detailed in Appendices G) so as to ensure that the amenity of surrounding pedestrian network is not worse than those assessed in this Concept SSDA. Any improvements to the surrounding pedestrian network should be investigated in consultation with key stakeholders such as the City of Sydney and Transport for NSW.	Prescriptive measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
Ecologically sustainable development	▪ Carbon emissions ▪ Energy consumption ▪ Thermal comfort of building occupants	C & O	D	2	Low	In order to achieve a high level of ecological sustainability, Detailed SSDA should comply with the sustainability framework and strategies, including the minimum targets identified in the ESD Report (Appendix P). Where practicable, a future Detailed SSDA should also consider and implement world best practice / innovation strategies.	Prescriptive measure and Management based measure	N/A
Transport, traffic and parking	Increased traffic on surrounding roads	C & O	D	1	Low	A total of 70 spaces are to be provided between the eastern and western Hunter Street Station sites, with the number on each site to be determined in a future Detailed SSDA Provision of car share spaces to reduce	Prescriptive measure and Management based measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						individual car parking demands. Allocation and provision is subject to confirmation as the design evolves Potential loading dock management measures, such as a booking system, extended operating dock hours and or appointing a sole delivery contractor A detailed Construction Traffic Management Plan (CTMP) for adoption during the construction phase should be prepared as part of the future Detailed SSDA. A travel plan should be created to reduce car trips and encourage the use of sustainable transport as part of the future Detailed SSDA		

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
Noise and vibration	▪ Increase in noise and vibration associated with construction including from vehicles and machinery ▪ Increase in noise and vibration associated with emissions from building plant and services ▪ Increase in noise associated with vehicle movements	C & O	D	2	Low	The future Detailed SSDA must address and meet the noise and vibration criteria established within the Acoustic and Vibration Impact Assessment Report at Appendix S, and implement the recommendations in the report, including: ▪ Major noise and vibration emitting sources from traffic and plant, and should be treated to meet the established criteria with the use of standard acoustic treatments. ▪ Noise and vibration intrusion to the proposed development from the station and tunnel should be	Prescriptive measure and Management based measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						ensured to be in accordance with the relevant requirements stipulated for the Stage 3 CSSI Application. ▪ External glazing recommendations should be incorporated in the Detailed SSDA. ▪ A Construction Noise and Vibration Management Plan should be developed as part of the Detailed SSDA to manage and minimise potential construction noise and vibration impacts on nearby receivers, including structural or cosmetic damage to surrounding building		

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						structures, such as the Tank Stream. ▪ Construction noise and vibration impacts should be mitigated in accordance with the Sydney Metro Construction Noise and Vibration Standard, July 2022 (CNVS).		
Stormwater and wastewater	Impacts on quality of stormwater discharge into drainage system	O	D	2	Low	As part of the future Detailed SSDA, the following is required to finalise the stormwater and water quality design: ▪ design of connection to existing council drainage system ▪ final on-site detention requirements based on the finalised architectural scheme	Prescriptive measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						▪ further authority coordination as required.		
Flooding	Potential flooding of development	O	D	2	Low	The mitigation measures described in the Flooding Assessment at Appendix V should be incorporated as part of the Detailed SSDA for further design refinement to ensure that floor levels would be situated at or above a level consistent with the requirements outlined as follows: ▪ Any function which has the potential to compromise the flood immunity of the Stage 3 CSSI application - PMF event, or the 1% AEP climate change flood event level with an allowance for freeboard of 0.5	Prescriptive measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						metres (whichever is greater) ▪ Critical facilities (including fire control room and critical infrastructure control equipment rooms) - PMF event, or the 1% AEP climate change flood event level with an allowance for freeboard of 0.5 metres (whichever is greater) ▪ Commercial uses (including OSD lobby, service facilities and access to and from critical facilities) - 1% AEP climate change flood event level ▪ Retail opportunities - balance of protection from the 1% AEP		

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						climate change flood event and achieving urban design outcomes. ▪ On-site flood risk, design solutions and operational flood emergency response plans to mitigate flood risk, if required, for specific functions should be included as part of the future Detailed SSDA.		
Contamination and remediation	Exposure of contamination of hazardous materials during construction	C	E	2	Very low	Contamination has been addressed as part of the Stage 2 and 3 CSSI Applications. No further contamination investigation is required for the Concept SSDA.	N/A	N/A
Waste management	Waste production associated with construction activities Waste	C & O	D	2	Low	A detailed waste management plan for the construction and operational phase of the	Management based measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
	production associated with operation of OSD					development should be prepared and submitted as part of the Detailed SSDA. The detailed Waste Management Plan should address the following: Construction phase: ▪ careful procurement of materials ▪ better utilisation of materials already available on site ▪ reducing the amount of waste generated where it cannot be eliminated completely ▪ re-using and then recycling as much as practicably possible Operational phase:		

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						▪ Future detailed design should be generally consistent with the minimum waste area requirements proposed in the preliminary Waste Management Plan submitted under this SSDA, ▪ The area and spaces allocated for operational waste storage and collection for the proposed development may be subject to further design development as part of future Detailed SSDA.		
Aboriginal cultural heritage	Impacts to Aboriginal heritage that may result from the proposal.	C & O	D	2	Low	As the proposed development would have no impact on the ground surface or subsurface	Management based measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						ground it is recommended that further assessment is not required. If changes are made to the proposal that may result in impacts to areas not assessed by this ACHAR, further assessment would be required. If any aboriginal objects, or potential objects, are uncovered during the proposed development, all work in the vicinity should cease immediately and The Sydney Metro Unexpected Heritage Finds Procedure followed. A qualified archaeologist should be contacted to assess the find.		

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						If human remains, or suspected human remains, are found during the proposed development, all work in the vicinity should cease, the site should be secured, and the NSW Police and Heritage NSW should be notified, and The Sydney Metro Unexpected Heritage Finds Procedure and Exhumation Management Procedure should be followed.		
Environmental heritage	Potential impact of the proposed concept design on the heritage items.	C & O	D	1	Low	Consider provision for the interpretation of archaeological findings from the surface demolition and excavation proposed in Stage 2 CSSI as Public Art in the proposed development where not	Prescriptive measure and Management based measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						incorporated into the station.		
Accessibility	Adequate access for people with a disability	O	D	3	Low	The Detailed SSDA must take into consideration the Australian Standards, Building Code of Australia, Federal Disability Discrimination Act (DDA) and Disability (Access to Premises – Buildings) Standards 2010), as relevant.	Prescriptive measure	N/A
Social impact	▪ General disruption to community associated with large scale construction ▪ Potential anti-social behaviour associated with operation of the development	C & O	D	3	Low	To mitigate increased noise and vibration impact, the recommendations made in the Noise and Vibration Assessment should be implemented in the future Construction Noise and Vibration Management Plan.	Prescriptive measure and Management based measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
Infrastructure and utilities	▪ Adequate connection to infrastructure and utilities ▪ Adequate capacity to service building	O	D	3	Low	In accordance with the specific requirements of the individual utility service providers, the developer of the OSD must undertake detailed enquiries and arrange for final connections and associated approvals based on the final design.	Prescriptive measure	N/A
Construction	Construction impacts to pedestrians, road network, public transport, emergency access and other developments nearby.	C	D	2	Low	When the timeframe for construction of the OSD is determined at a later stage, a Construction Traffic Management Framework (CTMF) should be prepared as part of future Detailed SSDA. The CTMF provides the overall strategy and approach for construction traffic management for proposed development as well as any cumulative traffic impact.	Prescriptive measure and Management based measure	N/A

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
						The CTMF will establish the traffic management requirements and processes and acceptable criteria to be considered and followed in managing roads and footpaths adjacent to the proposal.		