PART C

ENVIRONMENTAL MANAGEMENT AND CONCLUSION

21.0 Environmental management and mitigation measures

21.1 Proposed approach to management and monitoring

21.1.1 Environmental Management Plan outline

An Environmental Management Plan outline has been developed and is included as Appendix L. The Environmental Management Plan outline sets out environmental management requirements for the construction and operation phases of the Project, including minimum scope required for the Construction Environmental Management Plan (CEMP) and Operational Environmental Management Plan (OEMP).

21.1.2 Construction environmental management

The CEMP would be prepared and implemented prior to the commencement of works, and would specify the environmental requirements for implementation during the construction phase of the Project, to meet environmental performance requirements, and if approved, relevant conditions of approval.

An outline of the requirements to be included in the CEMP is provided in Section 2 of Appendix L (Environmental Management Plan outline).

21.1.3 Operational environmental management

The OEMP would be prepared and implemented by the Operator, and would specify the environmental requirements to be implemented during the operational phase of the Project, to meet environmental performance.

An outline of the requirements to be included in the OEMP is provided in Section 3 of Appendix L (Environmental Management Plan outline).

The development of the Public Domain Master Plan defines end-state design outcomes and quality, and would contribute to managing operational landscape, heritage and visual impacts. The Public Domain Master Plan is provided in Appendix I (Public Domain Master Plan). The plan would be subject to further review and refinement as part of the revised, final Environmental Impact Statement (EIS), taking into consideration community and stakeholder feedback on the draft EIS.

21.2 Management and mitigation measures

Environmental management and mitigation measures to be implemented through the design, construction and operation phases of the Project are listed in Table 21-1. These measures have been developed to address risks identified within the environmental risk assessment (refer to Appendix J) and in response to impacts identified in this EIS. In the event of any inconsistency between environmental management recommendations canvassed in the Technical Reports appended to this EIS and the measures outlined in Table 21-1, the measures in Table 21-1 prevail.

The residual risks associated with the Project after the implementation of the proposed mitigation measures are also presented in Appendix J (Environmental Risk Assessment).

Table 21-1 Proposed management and mitigation measures for the Project

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
General				
G1	Select the most appropriate alignment for the Project	A decision on the final alignment for the Project will be made having regard to the outcomes of the draft EIS process and feedback from stakeholders.	Design	All
G2	Incorporation of management and mitigation measures into future planning approval applications	Include relevant management and mitigation measures outlined in the revised, final EIS in future Commonwealth and Territory planning approval applications.	Design	All
G3	Adequate assessment of any future design changes	A Consistency Assessment will accompany any design refinements or adjustments associated with future Commonwealth and Territory planning approval applications. The assessment will consider the environmental risks of the proposed change and determine whether the proposed change is consistent with relevant Project approvals.	Design	All
G4	Repurpose timber from key precincts in a way that respects their history, supports a circular economy and provides opportunities for beneficial environmental outcomes	Mature non-native trees to be removed by the Project will be prioritised for high value reuse applications.	Construction	CA, NT, B
G5	To maintain special characteristics of the National Capital	Traffic capacity and traffic arrangements on major routes in Designated Areas will be planned to allow for safe and dignified access for all ceremonial occasions, and for residents, staff, tourists and visitors.	Design, Construction and Operation	CA, NT, IS, PH
G6	Develop a final trackform arrangement that responds to sustainability objectives and landscape character	The final trackform arrangement for the Project will be developed in consultation with key stakeholders and be reflected in the detailed planning approval applications. The Project will seek to determine a final trackform arrangement that minimises the use of concrete and supports the permeability of the system within the landscape.	Design	IS,YG, W

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
G7	Provide a centralised mechanism for the management of potential construction environmental impacts	**Construction Environmental Management Plan(s)** (CEMP) will be prepared prior to construction to outline the construction conditions and temporary environmental protection measures to manage the impact of construction activities associated with the Project or component parts. The CEMP(s) would be consistent with the environmental management measures documented in this EIS and identified in planning approval conditions, and any other requirements or conditions within any licences or permits as issued or required by Government Authorities (refer to Appendix L (Environmental Management Plan outline).	Prior to and during construction	All
G8	Design development and construction planning activities will identify analyse and respond to potential construction and operational hazards	A Rail Accreditation, Safety and Systems Assurance Plan including the requirement for safety performance reporting will be developed. The plan will include a process to enable analysis of potential construction and operational hazards as part of design development and construction planning.	Design and construction	All
G9	Mitigate impacts associated with early and enabling works	For any early and enabling works that are carried out before the start of major construction activities, mitigation measures would be adopted commensurate to activities and their associated environmental impacts. A risk-based approach will be undertaken to determine the relevant mitigation measures and controls to be adopted for early and enabling works. These mitigation measures will be documented in the CEMP(s) prepared to support early and enabling works in accordance with Section 2.2 of Appendix L (Environmental Management Plan outline).	Prior to and during construction	All
Air quality				
AQ1	Minimising dust generation with potential to affect off-site receivers during construction of the Project	Measures to minimise the generation and emission of dust will be detailed in a **Dust Management Plan** as part of the CEMP(s) for the Project, and applied to relevant construction locations and construction activities. The **Dust Management Plan** will be developed in accordance with the requirements specified in Section 2.12 of Appendix L (Environmental Management Plan outline).	Construction	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
AQ2	Minimising dust generation with the potential to affect off-site receivers during transport and handling of materials	Dust emissions from construction vehicles travelling to or from the Project area will be minimised by: • Covering dust generating loads • Implementing a wheel washing system at key construction site access points (with rumble grids to dislodge accumulated dust and mud prior to leaving the site) • Using water-assisted sweepers or similar on access roads within the Project area to remove any material tracked onto those roads by construction traffic • Restricting vehicles to stabilised areas, and where necessary removing mud and dirt tracked on to road surfaces • Establishing and enforcing onsite vehicle speed limits • Implementing controls for exposed stockpiles and unsealed construction areas, including stabilising long-term stockpiles and exposed areas • Delivering and storing cement and fine materials in enclosed tankers and silos to prevent material escape.	Construction	All
AQ3	Minimising air emissions from construction plant and equipment	Air emissions from construction plant and equipment will be minimised by: • Identifying opportunities to use mains electricity or battery powered equipment instead of diesel or petrol generators • Switching off vehicles, plant and equipment when not in use • Using lower emissions plant and equipment.	Construction	All
Biodiversity				
BD1	Minimising impacts to sensitive native biodiversity values during construction of the Project	Measures to minimise the impacts on native biodiversity values will be detailed in a **Biodiversity Management Plan** as part of the CEMP(s) for the Project. The **Biodiversity Management Plan** will be developed in accordance with the requirements specified in Section 2.12 of Appendix L (Environmental Management Plan outline).	Construction	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
BD2	Identifying sensitive biodiversity values to be protected	Prior to commencing construction of the Project, a final consolidated clearance footprint and biodiversity values map(s) will be produced, showing the extent of vegetation clearing and site disturbance required during construction of the Project, and also showing significant biodiversity values within and adjacent (within 100 m) of the Project clearance footprint to be protected during construction, including: • Natural temperate grassland of the Southeastern Highlands as defined under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) and Natural Temperate Grassland defined under the *Nature Conservation Act 2014* (ACT) • Mature native trees including as defined in the *Nature Conservation (Loss of mature native trees key threatening process) Action Plan 2023* and hollow bearing trees • Foraging habitat for the Gang-gang Cockatoo (*Callocephalon fimbriatum*) and the Superb Parrot (*Polytelic swainsonii*) • Potential breeding habitat for the Gang-gang Cockatoo (*Callocephalon fimbriatum)* • Actual and potential habitat for the Golden Sun Moth (*Synemon plana*) • Grey-headed Flying-fox (*Pteropus poliocephalus*) camps (Commonwealth Avenue precinct only). • Native burrowing fauna habitat	Design and construction	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
BD3	Demarcating and protecting sensitive biodiversity values during construction	Based on the final consolidated Project clearance footprint and biodiversity values map(s) (refer to mitigation measure BD2), a protective buffer will be applied around areas of significant biodiversity value and the resulting areas clearly demarcated prior to the commencement of construction. The demarcated areas will be managed as a Project 'no go zone' for the duration of the construction period in that location. In particular, the size of buffers around suitable Gang-gang Cockatoo (*Callocephalon fimbriatum*) breeding trees must be confirmed in consultation with a suitably qualified ecologist.	Construction	All
BD4	Qualified ecological oversight over construction activities with the potential to affect native biodiversity	A qualified ecologist(s) will oversee and advise on all activities with the potential to affect protected species, communities, populations and their habitats for the duration of the Project construction period. The qualified ecologist(s) will provide recommended preventative and corrective actions, consistent with the requirements of the **Biodiversity Management Plan** (refer to mitigation measure BD1).	Construction	All
BD5	Identifying and managing affected fauna during construction	Fauna spotters will be present during all vegetation and ground clearing works, to assist in the early identification of potentially affected native fauna. The fauna spotters will operate under the guidance of the qualified ecologist(s) (refer to mitigation measure BD4), and consistent with the requirements of the **Biodiversity Management Plan** (refer to mitigation measure BD1).	Construction	All
BD6	Minimising disturbance during Gang-gang Cockatoo breeding activities	Clearing of trees immediately adjacent to known Gang-gang Cockatoo (*Callocephalon fimbriatum*) breeding trees (refer to mitigation measure BD3) will only be carried out during February to August each year, and not within the breeding period for that species (September to January) unless under the guidance of a suitably qualified ecologist.	Construction	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
BD7	Minimising disturbance during Grey-headed Flying-fox birthing period	Consistent with the *National Recovery Plan for the Grey-headed Flying-fox Pteropus poliocephalus* (DAWE, 2021a), expert advice would be sought with the objective of minimising potential indirect impacts from construction of the Project on the species, especially during breeding season (October to December).	Construction	CA
BD8	Identifying and protecting native burrowing fauna	Prior to the commencement of construction of the Project, specified areas (refer to mitigation measure BD2) subject to vegetation clearing and ground disturbance will be inspected by a qualified ecologist(s) for the presence of native burrowing fauna. Should such fauna be identified, the individual(s) will be relocated consistent with the requirements of the Biodiversity Management Plan (refer to mitigation measure BD1).	Construction	All
BD9	Rehabilitating and reinstatement of areas disturbed during construction	Rehabilitation, reinstatement and landscaping of areas disturbed during construction of the Project will seek to maximise the use of locally endemic native species and to enhance habitat connectivity across the Project corridor, consistent with the landscape plan for the Project (refer to mitigation measures LV2). Opportunities to use advanced planting stock in rehabilitation and landscaping will be considered to reduce restoration timeframes.	Construction	All
BD10	Reusing removed native vegetation	Native vegetation cleared from areas disturbed during construction of the Project will be prioritised for reuse or repurposing on-site, for example to provide habitat features (coarse woody debris within the Project area or offset sites) or for stabilisation and landscaping in the Project area.	Construction	All
BD11	Minimising fauna strike through effective landscape design	To minimise the risk of fauna strikes, including strikes with Project over-head wiring, strategies, including tree retention and tree planting within the Yarra Glen precinct (within the known movement corridor between the Molonglo Valley and Red Hill Nature Reserve for the Superb Parrot (*Polytelis swainsonii*)) will be further progressed as part of ongoing design development for implementation.	Design	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
BD12	Minimising lighting and overshadowing effects on sensitive biodiversity	Consistent with the lighting requirements detailed in mitigation measure LV8, in specified areas (refer to mitigation measure BD2) potential lighting / overshadowing effects from the Project on flora and fauna, including for retained Golden Sun Moth (*Synemon plana*) habitat, will be minimised.	Design, construction and operation	All
BD13	Managing invasive and pest species during operation of the Project	Invasive and pest species will be managed within the Project area including: • Invasive weeds will be managed annually using chemical and physical methods in accordance with the relevant approved weed management strategy • Pest animals will be managed in accordance with the relevant approved pest animal management strategy.	Operation	All
BD14	Offsetting residual biodiversity impacts	Any residual impacts to MNES will be offset in accordance with the EPBC Act Offsets Policy (SEWPaC, 2012). A Preliminary Biodiversity Offset Strategy (Appendix E of Technical Report 2 (Biodiversity)) describes the process by which direct and indirect offset measures would be identified. A final Biodiversity Offset Strategy would be developed once suitable offset site(s) have been confirmed.	Prior to construction	All
Climate change risk				
CC1	Design and implementation of the Project to include adaptation measures for material climate change risks	Climate change adaptation measures will be incorporated into the Project's design and construction approach to respond to identified climate change risks. The adaptation measures will take into account the outcomes and recommendations from Technical Report 7 – Climate Change Risk (as may be updated consistent with mitigation measure CC2), including in particular the adaptation measures listed in Table 6-2 of Technical Report 7.	Design, construction and operation	All
CC2	Climate change risk management is reviewed and updated over the course of the Project	The climate change risk assessment carried out for the Project and documented in Technical Report 7 – Climate Change Risk will be reviewed and updated, during design development for the Project, having regard to available climate projections, relevant standards and suitability of adaptation measures.	Design	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
CC3	Response to material climate change risks during construction of the Project	The CEMP(s) for the Project will consider construction-related climate change risks (e.g. heatwaves or increased frequency and severity of extreme rainfall events). The CEMP(s) will detail management responses for those risks as outlined in Section 2.2 of Appendix L (Environmental Management Plan outline).	Construction	All
Cumulative impacts				
CU1	Managing cumulative impacts	During design development and construction phases, consultation will occur with proponents of other projects in the area to: • Coordinate any interfacing design aspects • Increase awareness of construction timeframes, including overlapping construction activities, and identify potential impacts • Coordinate relevant impact mitigation and management responses between projects (e.g., respite periods).	Design and construction	All
Greenhouse gas emissions				
GG1	Minimising greenhouse gas emissions through design, construction and operation	A **Carbon Management Plan** will be developed as part of the CEMP for the Project in accordance with the requirements specified in Section 2.12 of Appendix L (Environmental Management Plan outline). This will include a strategy to minimise, and a process for reporting on, direct (Scope 1) and indirect (Scope 2 and Scope 3) greenhouse gas emissions associated with the Project. A **Carbon and Energy Management Plan** will be developed as part of the OEMP for the Project in accordance with the requirements specified in Section 3.7 of Appendix L (Environmental Management Plan outline).	Design, construction and prior to operation	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
GG2	Minimising the embodied energy of the Project	Through the application of the circular economy hierarchy (Refuse, Rethink, Reduce, Reuse, Repair, Refurbish, Remanufacture, Repurpose, Recycle), the Project will be designed and constructed to maximise the use of materials with lower embodied energy values where they are a reasonable substitute. For high embodied energy materials (such as concrete, steel and asphalt), effective opportunities to reduce or substitute quantities used will be prioritised where in line with the decarbonisation objectives of Infrastructure Australia's Embodied Carbon Projections for Australian Infrastructure and Buildings report.	Design, construction	All
GG3	Maintaining and replacing vegetative carbon sinks	The Project will be designed to minimise vegetation clearance and will replace trees impacted at a minimum replacement ratio of 2:1.	Design	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
Hazards and risk				
HR1	Managing construction site safety and minimising construction-related safety risks	The **Work Health Safety (WHS) Management Plan** for the Project will include consideration of construction safety for Project staff and the general public. The WHS Management Plan will be prepared in accordance with all applicable legislation including the *Work Health and Safety Act 2011* (ACT) and the *Rail Safety National Law Act 2014* (ACT) and will detail a construction safety management system and risk minimisation measures including: • A safety management system and safe work method process for all construction sites and activities • Processes, responsibilities and measures to manage hazards, and potential incidents (such as an accidental spill or the removal/disposal of contaminated waste) and emergency situations (including bushfires and other extreme weather events) during construction • Processes and procedures for isolating construction works from the generally public and separating construction sites from publicly accessible areas • Measures to allow for the security of construction sites and to prevent unauthorised access.	Design and construction	All
HR2	Effective emergency planning and management during construction	An **Emergency Response Plan** will be prepared for the Project in accordance with all applicable legislation which will identify potential construction phase emergency situations and will detail requirements for responding to emergency situations, including: • Emergency management procedures that include universal accessibility considerations • Consideration of unexpected finds protocols, particularly in relation to unexpected utilities • An incident response strategy for events such as failure of sewerage systems, heavy or prolonged rainfall, or chemical spills • A schedule for testing and process for continual improvement of emergency procedures.	Construction	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
HR3	Managing and minimising bushfire risks	A Bushfire Assessment Report will be prepared for the Project to consider the bushfire attack level and identify protection measures or management responses to be considered in proximity to Project infrastructure, including asset protection zones, fuel load management strategies during construction and operation of the Project. The Bushfire Assessment Report will inform preparation of a **Bushfire Management Plan** as part of the CEMP**.** The **Bushfire Management Plan** will be prepared in accordance with the requirements specified in Section 2.12 of Appendix L (Environmental Management Plan outline).	Design, construction and operation	All
HR4	Identifying and managing potentially affected utilities during construction	Prior to commencing construction works at each site/location, potentially affected utilities will be identified and measures to protect, isolate, remove, relocate or otherwise manage the utility will be developed in consultation with the relevant utility provider. Construction planning will take into account utility management requirements for each site / location, and will include emergency and contingency measures in the event of an unexpected impact on the utility, or discovery of an unexpected utility during construction (refer to mitigation measure HR2).	Construction	All
HR5	Managing site security requirements for high security sites	Consultation will occur with relevant land custodians/lessees of buildings or sites (or related activities) in and around the Project area that have elevated security requirements to identify measures to maintain, amend or manage security requirements, including site access arrangements.	Design, construction and operation	All
HR6	Managing, storing and handling of dangerous goods and hazardous materials	With reference to relevant legislation and guidelines, the requirements for management, storage and use of dangerous goods required for the Project will be outlined in a **Hazardous Materials and Storage Management Plan** as part of the CEMP(s) and a **Waste and Hazardous Materials Management Plan** as part of the OEMP in accordance with the requirements specified in Section 2.12 and Section 3.7 respectively of Appendix L (Environmental Management Plan outline).	Construction and operation	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
HR7	Minimising risks associated with electric and magnetic fields	The Project will meet the requirements of Australian Standard (AS)/New Zealand Standard (NZS) 7000:2016 Overhead Line Design and comply with the limits of exposure set out in the International Commission for Non-Ionising Radiation Protection Guidelines for Limiting Exposure to Time Varying Electric and Magnetic Fields (ICNIRP, 2010).	Design, construction and operation	All
HR8	Minimising risks associated with potential collisions with LRVs	Detailed safety reviews will occur as part of ongoing design development, to refine measures to reduce the risk of collisions and other incidents between LRVs, motor vehicles, cyclists and pedestrians during operation.	Prior to operation	All
HR9	Minimising risks of collisions associated with introducing LRVs into a new environment	Targeted road safety campaigns to raise awareness around the operation of LRVs will be implemented prior to the commencement of operation and will include promoting safe behaviours in and around the Project.	Prior to operation	All
HR10	Effective emergency planning and management during operation	As identified in Section 3.4 of Appendix L (Environmental Management Plan outline), emergency response procedures and processes specifically considering universal accessibility requirements will be developed for the Project in accordance with all applicable legislation prior to the commencement of operation.	Prior to operation	All
Heritage – First Nations heritage				
AH1	Managing unexpected heritage items discovered and/ or impacted during construction	An Unexpected Heritage Items Procedure, including for items of potential First Nations heritage significance, will be developed and implemented as part of the CEMP(s) for the Project (refer to Section 2.6 and Section 2.12 of Appendix L (Environmental Management Plan outline). The Procedure will detail areas with greater potential for unknown heritage items, include requirements for managing heritage items if discovered, and measures in the event of impacts on discovered heritage items.	Construction	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
AH2	Minimise accidental impacts to First Nations heritage	A cultural awareness induction will be held with those working on the Project to outline the significance of areas of the route to Aboriginal people and specifically the Traditional Custodians of the area and to alert construction personnel to the possibility of unexpected finds (refer to mitigation measure AH1). The induction will also include basic training in the identification of potential Aboriginal archaeological artefacts.	Prior to construction and construction	All
Heritage – Historic heritage				
NH1	Heritage values are incorporated into design development	Specialist heritage advice will be obtained during design development to inform decision-making on design elements so that impacts to heritage items and/or heritage values are avoided or mitigated. This will include consideration of recommendations for detailed design proposed within Technical Report 3 – Heritage where possible within the constraints of design and planning approval requirements.	Design	All
NH2	Identifying sensitive heritage values to be protected	During design development for the Project, consolidated heritage values map(s) will be produced, showing the extent of: • Heritage items, places and values within and adjacent (within 100 m) to the Project area, including heritage trees and curtilage areas where relevant • The level of protection afforded to each item, place and value (eg Commonwealth, Territory etc) and its significance as assessed in Technical Report 3 – Heritage • Sites of potential direct and indirect impact, and physical interface, between the Project design and disturbance footprint, and the heritage item, place or value.	Design and construction	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
NH3	Minimising impacts to sensitive heritage values through design	The heritage values mapping (see mitigation measure NH2) will be used to support heritage in design workshops, with heritage specialists, to confirm design responses that integrate the Project into the surrounding heritage landscape (including landscaping and public domain treatments). Specific consideration will be given to: • Protection and visual access to the State Circle cutting geological feature • Retention and replacement of trees with heritage value, including consideration of tree species (see section 3.15 of Appendix I (Public Domain Master Plan)) • Opportunities to reflect and enhance the Griffins' Plan.	Design and construction	All
NH4	Demarcation and protection of sensitive heritage values during construction	In specified areas (refer to mitigation measure NH2), prior to construction commencement and for the duration of construction, protective buffers will be applied and demarcated around areas, items or trees with heritage values. This includes establishment and maintenance of tree protection zones, in accordance with *Australian Standard 4970-2009 Protection of Trees on Development Sites* (refer to Section 2.12 of Appendix L (Environmental Management Plan outline)).	Prior to Construction	All
NH5	Archival recording of heritage values potentially affected by the Project	Prior to commencement of construction and ground disturbing works, a full archival recording of the sensitive heritage values identified in the final heritage values map(s) (refer to mitigation measures NH3 and NH4) will be carried out where there is potential to be impacted by the Project. The recording will include a photographic archival recording of heritage values within and around the Project, and will be completed by a qualified heritage specialist.	Design and construction	All
NH6	Interpreting heritage values through Project design	An interpretation plan, through Project design, signage, public domain treatments and similar, will be developed and implemented in response to the sensitive heritage values identified in the final heritage values map(s) (refer to mitigation measure NH2).	Design, construction and operation	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
NH7	Minimising impacts to sensitive heritage values during construction of the Project	Measures to minimise construction impacts on heritage values will be detailed in a **Conservation Management Plan** as part of the CEMP(s) for the Project. The Plan will be prepared in accordance with the requirements specified in Section 2.12 of Appendix L (Environmental Management Plan outline).	Construction	All
NH8	Maintaining heritage management measures	Heritage-related mitigation and management measures, including interpretive signage, landscaping relevant to heritage sites and values, heritage-sensitive operational lighting, and other public domain measures relevant to heritage values would be maintained during operation.	Operation	All
NH9	Relocation of Waterloo Bridge memorial	The Waterloo Bridge Memorial stones will be relocated close to its existing location to enable the continued interpretation of the historical connection between the memorial stones and Commonwealth Avenue Bridge, in consultation with the NCA and other stakeholders as relevant.	Construction	CA
Hydrology, flooding, water quality and groundwater				
HF1	Minimising impacts on water resources during construction of the Project	Measures to minimise erosion and sedimentation, manage surface water and flooding, and protect local water quality during construction will be detailed in a **Surface Water and Groundwater Plan** as part of the CEMP(s) for the Project. The Plan will be prepared in accordance with the requirements specified in Section 1.12 of Appendix L (Environmental Management Plan outline). The Plan would include a Sediment and Erosion Control Plan (SECP), consistent with industry best practice guidelines including Environment Protection Guidelines for Construction and Land Development in the ACT, Managing Urban Stormwater: Soils and Construction – Volume 1 (Blue Book), and IECA Best Practice Erosion and Sediment Control Guidelines.	Construction	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
HF2	Gain an understanding of baseline groundwater conditions	As part of ongoing design development, further investigation of groundwater conditions will be carried out for locations within the Project area that are expected to be at high risk of groundwater interception. The results will inform the preparation of a Detailed Site Investigation (refer to mitigation measure SC2).	Design	All
HF3	Minimising impacts to groundwater water quality	Groundwater intercepted as part of the Project will be managed, subject to the outcomes of testing, consistent with construction and operational water quality requirements for the Project (refer to mitigation measures HF1 and HF7).	Construction and operation	All
HF4	Minimising impacts to Lake Burley Griffin during construction	The **Surface Water and Groundwater Plan** (refer to mitigation measure HF1) will include specific, detailed measures to manage hydrology and water quality during construction works within Lake Burley Griffin. This will include: • Identification of licenses and approvals relevant to the works • A detailed methodology and staging plan for construction activities, including the installation and removal of coffer dams • Water quality requirements, and a related monitoring program for Lake water prior to, during and after completion of water-based construction activities. • Water quality management measures to be applied during construction, to minimise turbidity and total suspended solids • Procedures to be implemented where defined construction water quality targets for the Project are not being achieved • Measures to manage extreme weather and changes in depth or flow around construction activities on the Lake • A strategy to progressively stabilise and rehabilitate disturbed areas following completion of construction activities.	Construction	CA

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
HF5	Minimising flood risks and adverse changes to flood characteristics during construction.	Measures to minimise the risks and impacts of flooding, during construction will be detailed in the **Surface Water and Groundwater Plan** as part of the CEMP(s) for the Project (refer to Section 1.12 of Appendix L (Environmental Management Plan outline). The Plan will include details of engineering controls and management strategies to maintain existing flow regimes and respond to flood risk, including heritage measures for any work in existing flood flow pathways including the Yarralumla Creek channel, and details of flood warning and response strategies.	Construction	All
HF6	Minimising water quality impacts to waterbodies from stormwater runoff during operation	The Project will be designed and operated to be consistent with the requirements of stormwater quality targets as defined in the Waterways: Water Sensitive Urban Design General Code (ACT 2020).	Design and operation	All
HF7	Project design to progress consistent with wider catchment strategic planning, minimising flood risks during operation	An inter-agency catchment working group will be established to coordinate interactions between established Project baseline, catchment wide strategic planning, and Project Design development. This coordination will seek to support the Project being designed and operated, while considering strategic planning, to meet the following flood design objectives: • No adverse afflux impacts outside the Project area • No adverse afflux impacts to private property • No worsening of the existing flood hazard. The Project will be designed and operated to minimise flood risks, including to minimise adverse changes to flooding characteristics in affected catchments. This will include consideration of: • Development setbacks from waterways • Protection of overland flow pathways • Grading of Project track to limit flood depth during the 5% AEP flood event to no greater than 40 mm above the top of rail • Modifications and upgrades to the existing drainage network and / or new drainage infrastructure.	Design and operation	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
Land use and property				
LP1	Minimising Project footprint and occupation of land	Opportunities to reduce the extent and duration of land required to construct and operate the Project will be identified and implemented where practical.	Design and construction	All
LP2	Community and stakeholder consultation for the occupation of land	Community and stakeholder consultation would be undertaken to notify the community of potential land use and amenity issues associated with the Project, particularly for sensitive land uses in the immediate vicinity of the Project. Information would be provided to the local community on a regular basis throughout the construction program, including in relation to public access under and around Commonwealth Avenue bridge construction activities, so that they are adequately informed of the works at any given time. Sequencing of construction activities would also be managed to enable impacts on public land or the local road network to be minimised as far as practicably possible.	Design and construction	All
LP3	Rehabilitating affected land	Land occupied for construction activities, or otherwise disturbed during construction, and which is not required for permanent operational infrastructure, will be rehabilitated. Rehabilitation will be carried out in consultation with the relevant land custodian, consistent with biodiversity requirements (refer to mitigation measure BD9), and return the land to an equivalent condition prior to disturbance by Project construction activities, or as agreed with the relevant land custodian.	Design and construction	All
Landscape character and visual amenity				
LV1	Finalising the urban design approach	The urban design principles and strategies outlined in the Public Domain Masterplan (PDMP) for the Project will be adopted as part of ongoing design development.	Design	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
LV2	The landscape led design approach is reflected in landscaping and public domain plan(s)	Consulting with key stakeholders, landscaping and public domain plan(s) will be developed that include: • Tree clearing and replacement plans for the Project • A landscape design identifying planting locations and plant species, taking into account relevant biodiversity, climate change and heritage constraints • Consideration of tree succession and related longer-term opportunities for tree management in and around the Project area • Using advanced plant stock (including trees) for specific landscaping activities • Prioritising use of locally endemic native species to enhance habitat connectivity across the Project corridor (refer to mitigation measure BD9) • Relevant bushfire management strategies (refer to mitigation measure HR3) • Surrounding cultural themes and sensitivities, including vegetation of significance to Aboriginal people (as developed in the Designing with Country Framework) and reinforcing the historic heritage setting.	Prior to construction	All
LV3	Landscape enhancement in Phillip/ Woden	Opportunities to soften landscape and visual impacts on the Phillip / Woden area will include consideration of: • Water sensitive urban design strategies and elements within the Woden town centre • The landscape design response between the Phillip Oval light rail stop and nearby residential properties.	Design	W
LV4	Landscape enhancement at the Mint Oval	Opportunities to visually screen the active travel path at the Mint Oval from the Project's operational infrastructure will be considered. This may include landscaping plantings along the verge adjacent to the active travel path.	Design	YG

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
LV5	Protecting trees identified to be retained during construction of the Project	In coordination with the demarcation of sensitive biodiversity values (refer to mitigation measure BD3) and sensitive heritage values (refer to mitigation measure NH4), a tree protection zone will be identified and demarcated around all trees to be retained, consistent with *AS 4970-2009 Protection of Trees on Development Sites*.	Construction	All
LV6	Minimising and managing landscape and visual impacts during construction	Measures to minimise landscape character and visual impacts during construction will be detailed in a **Visual Impact Management Plan** as part of the CEMP(s) for the Project. The Plan will be prepared in accordance with the requirements specified in Section 2.12 of Appendix L (Environmental Management Plan outline).	Construction	All
LV7	Minimising visual clutter	The Project design will minimise visual clutter and maximise visual integration of Project operational elements into the surrounding visual setting. This will include consideration of options to combine above-ground street elements (lighting, traffic signals, traffic signs) on common use poles to reduce visual clutter.	Design and operation	All
LV8	Minimising intrusive lighting effects	Measures to minimise the obtrusive effects of light spill on adjacent properties would be detailed in a **Light Spill Plan** developed as part of the **Visual Impact Management Plan** (refer to mitigation measure LV6) that will include consideration of relevant lighting requirements and design standards during construction and operation.	Design and construction	All
LV9	Minimise the visual impacts of construction activities	Wherever possible, high quality construction hoarding will be used with consideration given to the potential for local public art or heritage interpretation, subject to all other necessary approvals. The design of the hoarding will consider visually recessive, natural colours and images, and where possible be developed with input from local schools or artists.	Construction	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
LV10	Visual integration of traction power substations	The scale and bulk of traction power substations will be refined to enable greater integration into the surrounding landscape. Material selection and finishes, lighting, landscaping and screen planting (including trees) will be used to minimise the visual presence of the substations.	Design and operation	IS, YG, W
LV11	Recognising the visual significance of the Aboriginal Tent Embassy and Old Parliament House	Opportunities to enhance and celebrate the visual significance of the Aboriginal Tent Embassy and Old Parliament House through signage, landscaping and lighting will be developed in consultation with relevant stakeholders.	Design and operation	NT
Materials, waste and resources				
MR1	Minimising waste generation during construction of the Project	Measures to minimise and manage waste will be detailed in a **Spoil and Waste Management Plan** as part of the CEMP(s) for the Project. The Plan will be prepared in accordance with the requirements specified in Section 2.12 of Appendix L (Environmental Management Plan outline).	Construction	All
MR2	Minimising operational water consumption	Opportunities to reduce water consumption and to reuse and recycle water within the Project will be identified during further design development and implemented during operation. This will include opportunities to use recycled and non-potable water for irrigation of the green track.	Design and operation	All
MR3	Minimising energy consumption	The Project will be designed, constructed and operated according to the following energy consumption hierarchy: • Avoid or reduce energy use • Avoid or reduce use of fossil fuels • Improve energy efficiency • Source renewable energy where possible (on or off-site) • Use low emission energy • Use conventional energy.	Design, construction and operation	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
MR4	Minimising and managing operational waste	Operational waste, including general litter clean up, will be managed consistently with the broader Light Rail network Operation Environmental Management Plan and the waste hierarchy principles contained in the *ACT Waste Management Strategy 2011-2025.*	Operation	All
Noise and vibration				
NV1	Minimising noise and vibration impacts during Project construction	Measures to minimise and manage noise and vibration will be detailed in a **Noise and Vibration Management Plan** as part of the CEMP(s) for the Project. The Plan will be prepared in accordance with the requirements outlined in Section 2.12 of Appendix L (Environmental Management Plan outline).	Construction	All
NV2	Scheduling construction activities to minimise noise and vibration impacts	The **Noise and Vibration Management Plan** (refer to mitigation measure NV1) will require scheduling of construction activities to: • Maximise the undertaking of noise and/or vibration generating construction activities during standard construction hours in residential areas or near noise sensitive receivers • Noise and/or vibration generating construction activities will generally only occur outside standard construction hours (refer to mitigation measures NV3) to maintain the safe and efficient operation of the road network, to maintain critical access to local services or where those works would otherwise risk the safety of workers and the public if carried out during standard working hours • If working adjacent to schools, where possible schedule particularly noisy activities outside normal school hours • Plan for and provide respite periods for sensitive receivers affected by frequent, intense and longer duration noise or vibration generating activities.	Construction	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
NV3	Minimising high noise generation outside of standard construction hours	Construction activities for the Project will be undertaken between the hours of 7.00am and 6.00pm Monday to Saturday (standard construction hours), with no work on Sundays and Public Holidays. Work proposed outside of these hours would require assessment and approval on a case-by-case basis through an Out of Hours Works Plan request. This process will include: • Identification of the duration, location, type of activities construction equipment involved • Assessment of the potential noise and vibration impact associated with the proposed construction activities and determination of the number and type of sensitive receivers potentially impacted • Identification of any reasonable and feasible mitigation measures to be implemented • Consultation with the potentially impacted receivers to inform them of the proposed out of hours works, and providing an opportunity for impacted receivers to provide feedback Minimising out of hours works as much as practicable (e.g., deliveries of equipment and materials could be made during standard hours, or disposal of construction waste may be delayed until the following day) • Inclusion of scheduled respite for the community for extended periods of night work	Construction	All
NV4	Minimising high noise generation outside of standard construction hours	Where high noise impact activities (75 dB(A) L_{Aeq} at receiver) are required outside standard construction hours the following will be implemented: • The equipment will be used prior to 11pm where feasible and reasonable • Where the above cannot be achieved, the equipment can be used where controls are implemented to minimise noise impacts.	Construction	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
NV5	Minimising noise and vibration impacts during construction of the Project	Construction compounds, construction sites and / or construction site activities will: • Be configured to maximise the distance between noisy plant and equipment and sensitive receivers (and / or provide shielding) • Be configured to minimise the need for reversing vehicles, particularly for regular / repeatable movements • Position site sheds, earth bunds and hoarding to provide shielding between noisy plant and equipment and sensitive receivers • Load and unload materials / deliveries as far away as practicable from sensitive receivers, and / or loading / unloading areas will be shielded • Require all construction vehicles and mobile plant regularly used on site to have non-tonal reversing beepers (or an equivalent mechanism) fitted and used • Require that, delivery vehicles be fitted with straps rather than chains to minimise noise when unloading	Construction	All
NV6	Managing construction vibration impacts on buildings and structures	A process for managing potential vibration impacts will be included in the **Noise and Vibration Management Plan** (refer to mitigation measure NV1). For buildings, structures and significant places (such as the State Circle Cutting) potentially affected by vibration (including those with vibration sensitive uses or equipment), vibration criteria will be determined based on a combination of the sensitivity (commercial, residential, and heritage significance) and structural integrity of the building or item. The process for managing potential vibration impacts will include: • Condition surveys will be carried out by an appropriately qualified structural engineer, and in the case of heritage items, a structural engineer experienced in assessing heritage items. The condition surveys will document the	Construction	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
		condition of the building or item pre- and post-construction and establish appropriate vibration criteria for the item. • Minimum working distances will be established for vibration intensive activities so that established vibration criteria for buildings and structures (including for heritage significant items or structures) can be met. • Vibration testing will be conducted during initial vibration generating activities that have the potential to impact on vibration sensitive buildings and structures (including heritage items) to confirm minimum working distances to meet established criteria. In the event that the vibration testing and attended monitoring shows an exceedance of the established vibration criteria, the construction methodology will be reviewed and, if necessary, additional mitigation measures will be implemented. • Where buildings or structures are identified to be at higher risk of vibration impacts, vibration monitoring will be carried out for the duration of the vibration intensive construction activities. Unattended vibration monitors will be used and set to trigger an alarm to warn operators when vibration levels are approaching the established vibration criteria. Where an alarm is triggered, vibration inducing work will cease and the construction methodology will be reviewed and, if necessary, additional mitigation measures will be implemented so that established vibration criteria can be met. • For work scheduled to occur near a building, within the minimum working distance for human comfort but outside the minimum working distance for cosmetic damage, the affected receivers will be notified.		

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
NV7	Minimising construction noise impacts through training and awareness	All employees, contractors and subcontractors will receive noise and vibration awareness training as part of the general site induction process. The induction will include information on: • All relevant Project specific and standard noise and vibration mitigation measures • Relevant licence and / or approval conditions • Permissible hours of work • Any limitations on high noise generating activities • Location of nearest sensitive receivers • Construction employee parking areas and travel arrangements • Designated loading / unloading areas and procedures • Site opening / closing times (including deliveries).	Construction	All
NV8	Minimising night-time construction road traffic noise	Where night-time road traffic noise levels at sensitive receivers are predicted to increase by more than 2 dB(A), alternative construction vehicle haulage routes will be investigated. Where there are no alternative haulage routes available early consultation with the affected sensitive receivers will be undertaken.	Construction	CA, PH, W
NV9	Notifying potentially affected receivers during construction	Sensitive receivers likely to be affected by construction noise and vibration will be notified at least five working days prior to commencing works. The notification will include details of: • The construction activities likely to have noise or vibration impacts • The construction period and construction hours • Any proposed mitigation measures • Contact information for the Project, including out of hours contact details • Complaint, corrective action, and incident procedures and how to obtain further information.	Construction	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
NV10	Minimising noise and vibration impacts during Project operation	The Project will be designed and operated to minimise operational noise and vibration impacts on sensitive receivers. This will include consideration of: • Controlling rail traffic (e.g. limiting speed) • Using track measures (e.g. consideration of track forms and rail fasteners which result in reduced noise and vibration levels) and potential operational maintenance measures (e.g. rail grinding) • Identifying the rolling stock producing noise or vibration above what is reasonably expected and taking maintenance action to rectify this.	Design and operation	All
NV11	Minimising noise and vibration impacts at affected receiver locations	An Operational Noise and Vibration Review (ONVR) will be prepared as part of ongoing design development. The ONVR will update ground-borne noise and vibration and airborne noise estimations in this EIS and will: • Be based on final design details, including detailed light rail vehicle speed profiles and any other design refinements with the potential to influence operational noise and vibration impacts • Where necessary, confirm reasonable and feasible mitigation measures to be implemented as part of the Project, which may include opportunities to minimise light rail vehicle auxiliary noise levels; optimisation of track design to minimise source levels, noise absorptive trackform options and maintenance activities to reduce noise from wheel and rail interface.	Design and operation	All
NV12	Minimising operational noise and vibration through design – from wheel squeal	The light rail vehicle fleet will incorporate flange lubrication to minimise flanging and wheel squeal noise generated by tight curves.	Design and operation	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
NV13	Minimising operational noise and vibration through design – from fixed facilities	Noise from fixed facilities (including public address systems, traction power substations and at the Mitchell Depot) will be designed to comply with relevant criteria including the ACT Zone Noise Standards.	Design and operation	All
NV14	Minimising operational noise and vibration through design – from traction power stations	Traction power substations will be designed to: • Maximise setbacks to sensitive receivers • Locate noise sources, including ventilation openings away from sensitive receivers and/or within an acoustic enclosure.	Design and operation	IS, YG, W
Soils and contamination				
SC1	Minimising contamination risk during construction of the Project	Measures to minimise and manage contamination risks will be detailed in a **Soils and Contamination Management Plan** as part of the CEMP(s) for the Project. The Plan will be prepared in accordance with the requirements outlined in Section 2.12 of Appendix L (Environmental Management Plan outline). The Plan will establish a risk-based contamination baseline for areas likely to be disturbed during construction (including fill, soil, surface water and groundwater as relevant), taking into account the outcomes of a Detailed Site Investigation (refer to mitigation measure SC2).	Construction	All
SC2	Investigating areas of elevated contamination risk	A Detailed Site Investigation (DSI) will be carried out for areas of environmental interest within the Project area identified as posing a medium or greater risk, in accordance with the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (as amended 2013). If the DSI identifies that remediation of contaminated land is required, a Remediation Action Plan (RAP) will be developed and implemented in accordance with relevant guidelines and codes of practice. If required, remediation will be performed as an integrated component of construction and to a standard commensurate with the proposed end use of the land.	Construction	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
SC3	Managing unexpected contamination during construction	An unexpected contamination finds procedure will be developed and implemented during construction of the Project. The unexpected contamination finds procedure will include requirements for cessation of works within the affected area until after: • Inspection of the suspected contamination by a qualified contaminated lands specialist • Collection of soil samples for analysis based on observations • Assessment of results against applicable land use or waste classification criteria in accordance with applicable statutory guidelines • Management of the contamination in accordance with applicable statutory guidelines.	Construction	All
Socioeconomic				
SE1	Minimising and managing impacts on the community during construction	Measures to minimise and manage impacts on the community will be detailed in a **Community Engagement and Social Management Plan** as part of the CEMP(s) for the Project. The Plan will be prepared in accordance with the requirements outlined in Section 2.12 of Appendix L (Environmental Management Plan outline). As part of the Plan, a Community Engagement Strategy, Business and Labour Strategy and a Water User Strategy would be developed.	Construction	All
SE2	Receiving and addressing public grievances during construction	A process to manage public grievances will be established and implemented during construction of the Project, and will include 24-hour telephone support, postal and email addresses for complaints, and mechanisms for communicating in multiple languages. Identified incidents will be dealt with through investigation and implementation of corrective treatments where necessary.	Construction	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
SE3	Minimising socio-economic risks through design	The Project will be designed and operated to reflect the guidance in Crime Prevention through Environmental Design (CPTED) and Gender Sensitive Urban Design (GSUD) principles, including improved lighting, clear wayfinding, and enhanced visibility at facilities and stops to reduce opportunities for antisocial behaviour.	Design and operation	All
SE4	Minimising socio-economic impacts through design	The Project will consider opportunities to augment the community's sense of place and connection. As part of the Community Reference Group established for the project, local users of proposed grade separated stops will be engaged to provide input into the attractive, safe and efficient design that best meet the urban design drivers for the Project.	Design and operation	IS, YG
SE5	Minimising construction impacts to major events	Event impact assessments will be undertaken for major events within or adjacent to the Project area. Tailored mitigation measures will be developed in consultation with event organisers to manage any construction impacts. This could include providing temporary facilities or alternative access arrangements for event related activities if construction impacts are unavoidable.	Construction	All
Sustainability				
SU1	Support the achievement of sustainability objectives through design, construction and operation	A **Sustainability Management Plan** will be prepared as part of the CEMP(s) for the Project in accordance with the requirements outlined in Section 2.12 of Appendix L (Environmental Management Plan outline). In accordance with the requirements outlined in Section 3.7 of Appendix L (Environmental Management Plan outline) a **Sustainability Management Plan** will be prepared as part of the OEMP.	Design, prior to construction, prior to operation	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
Traffic and transport				
TT1	Holistically consider traffic implications of proposed construction activities	A Traffic and Transport Liaison Group (TTLG) will be established for the Project and will oversee and review traffic and multi modal implications of proposed construction activities and network arrangements for the Project. The TTLG will include representation from: • Relevant ACT Government entities responsible for transport planning, roads infrastructure and maintenance, public transport, emergency services • The NCA • Project delivery teams of adjacent developments • Other entities as necessary.	Prior to and during construction	All
TT2	Minimising disruption to the road network during construction	Prior to implementation, Temporary Traffic Management Plans will be endorsed by the Traffic and Transport Liaison Group and have all other necessary approvals in place.	Construction	All
TT3	Minimising traffic and transport impacts during construction	Measures to minimise and manage traffic and transport impacts, including impacts to use of existing pedestrian and cyclist infrastructure, will be detailed in a **Transport Management Plan** as part of the CEMP. The Plan will be prepared in accordance with the requirements outlined in Section 2.12 of Appendix L (Environmental Management Plan outline) and to comply with relevant Territory requirements for traffic management coordination. The plan would be developed in consultation with relevant ACT Government entities.	Construction	All
TT4	Minimise travel disruptions and increase uptake of sustainable modes of travel during the Project's construction	Working with stakeholders across government, a **Traffic Demand Management Strategy** (TDMS) will be developed with the intent of reducing private vehicle trip generation and parking demand (particularly during weekday AM and PM peak hours).	Prior to construction	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
TT5	Maximising awareness of light rail traffic and transport interfaces during construction and operation	The **Community Engagement Strategy** (refer to mitigation measure SE1) will include a public awareness campaign: • Identifying possible disruption to the transport network during construction, and that promotes alternative travel arrangements • To increase road user understanding of new arrangements and interactions between cars, bicycles and pedestrians with light rail during operation	Construction and operation	All
TT6	Minimising impacts on property access during construction	Access to properties will be maintained during construction of the Project. If existing access arrangements cannot be maintained, temporary alternate access will be provided in consultation with the affected property owner or tenant.	Construction	All
TT7	Minimising impacts on parking	Construction worker parking would be limited to specified areas. During detailed construction planning, a **Construction Worker Transportation Strategy** will be developed and will consider initiatives to minimise construction worker parking impacts, such as providing a shuttle bus to transfer construction workers from local hubs to construction sites.	Construction	All
TT8	Maintain accessible parking availability	The Project will be designed, constructed and operated to avoid net loss of accessible (disability) parking.	Design, construction and operation	All
TT9	Minimising traffic and transport impacts during operation	In consultation with the relevant road authority the Project will be designed and operated to: • Optimise the interface between the Project and other transport modes • Minimise adverse impacts on the performance of the surrounding road network and to on- and off-street parking • Optimise the performance of the surrounding road network and key intersections (e.g. refinement of intersection signal phasing to improve light rail, traffic and pedestrian movement efficiency).	Design and operation	All

ID	Objective	Management and mitigation measure	Timing	Relevant precinct(s)[1]
TT10	Minimise instances of park-and-ride activities on surrounding roads.	Work with the relevant road authority and other stakeholders to review and provide suitable kerbside restrictions on roads surrounding light rail stops.	Prior to operation	All

Notes:
1. CA: Commonwealth Avenue precinct; PH: Parliament House precinct; NT: National Triangle precinct; B: Barton precinct; IS: Inner South precinct; YG: Yarra Glen precinct; W: Woden precinct; MD: Mitchell Depot site.

21.3 Interactions between mitigation measures

Some mitigation measures identified to manage potential environmental impacts for one environmental aspect (for example soils and contamination) are also beneficial in managing another environmental impact (for example managing potential soils impacts also manage potential water quality impacts). Table 21-2 identifies this interaction between the proposed mitigation measures for related environmental aspects to demonstrate the robustness of the management and mitigation approach for the Project.

Table 21-2 Interactions between mitigation measures for related environmental aspects

Environmental aspect	Other measures that also support environmental management outcomes
Air quality	• Greenhouse gas and traffic and transport, specifically with measures that manage construction vehicle traffic emissions • Hydrology, flooding, water quality and groundwater, specifically with measures to manage dust during construction
Biodiversity	• Hydrology, flooding, water quality and groundwater, specifically with measures that reduce sediment runoff into aquatic habitats • Materials, waste and resources, specifically with measures that manage weeds
Climate change risk	• Hydrology, flooding, water quality and groundwater, specifically with measures that include climate change projections in drainage sizing and flood planning levels • Hazards and risks, specifically with measures that address emergency management procedures and bushfire management
Greenhouse gas	• Hazards and risks, historic heritage and First Nations heritage, and Landscape character and visual amenity, specifically with measures that seek to minimise vegetation removal, including tree retention and replacement • Air quality and traffic and transport, specifically with measures that manage construction vehicle traffic emissions • Socioeconomic, specifically with measures that seek to reduce operational carbon emissions • Materials, waste and resources, specifically with measures that manage the embodied energy of materials and carbon emissions

Environmental aspect	Other measures that also support environmental management outcomes
Hazards and risks	• Materials, waste and resources, and soils and contamination, specifically with measures that manage the disposal of contaminated material • Socioeconomic, specifically with measures that engage the community regarding safety around construction sites and light rail vehicles • Greenhouse gas, historic heritage and First Nations heritage, and Landscape character and visual amenity, specifically with measures that seek to minimise vegetation removal, including tree retention and replacement • Landscape character and visual amenity, and materials, waste and resources, specifically with measures that manage the general cleanliness of construction sites • Climate change risk, specifically with measures that address emergency management procedures and bushfire management
Heritage (First Nations and historic)	• Landscape character and visual amenity, specifically with measures that reflect heritage values in landscaping • Hazards and risks, greenhouse gas and landscape character and visual amenity, specifically with measures that seek to minimise vegetation removal, including tree retention and replacement • Landscape character and visual amenity, and socioeconomic, specifically with measures that utilise local artists for heritage interpretation and enhancement of visual amenity
Hydrology, flooding, water quality and groundwater	• Climate change risk, specifically with measures that include climate change projections in drainage sizing and flood planning levels • Biodiversity, specifically with measures that reduce sediment runoff into aquatic habitats • Air quality, specifically with measures to manage dust during construction • Soils and contamination, specifically with measures to prevent spillage of contaminated water during construction • Socioeconomic, specifically with measures to manage users of water sources within the Project area
Land use and property	Nil
Landscape character and visual amenity	• Hazards and risks, historic heritage and First Nations heritage, and greenhouse gas, specifically with measures that seek to minimise vegetation removal, including tree retention and replacement • Historic heritage and First Nations heritage, specifically with measures that reflect heritage values in landscaping • Socioeconomic, and historic heritage and First Nations heritage, specifically with measures that utilise local artists for heritage interpretation and enhancement of visual amenity • Materials, waste and resources, and hazards and risks, specifically with measures that manage the general cleanliness of construction sites

Environmental aspect	Other measures that also support environmental management outcomes
Materials, waste and resources	• Biodiversity, specifically with measures that manage weeds • Hazards and risks, and soils and contamination, specifically with measures that manage the disposal of contaminated material • Greenhouse gas, specifically with measures that manage the embodied energy of materials and carbon emissions • Landscape character and visual amenity, and hazards and risks, specifically with measures that manage the general cleanliness of construction sites
Noise and vibration	• Traffic and transport, specifically with measures that address potential road traffic noise • Socioeconomic, specifically with measures that seek to reduce noise and vibration impacts at affected sensitive receivers
Soils and contamination	• Hydrology, flooding, water quality and groundwater, specifically with measures to prevent spillage of contaminated water during construction • Hazards and risks, and materials, waste and resources, specifically with measures that manage the disposal of contaminated material
Socioeconomic	• Landscape character and visual amenity, and historic heritage and First Nations heritage, specifically with measures that utilise local artists for heritage interpretation and enhancement of visual amenity • Traffic and transport, specifically with measures that address traffic impacts during construction, including local events and loss of parking • Hydrology, flooding, water quality and groundwater, specifically with measures to manage users of water sources within the Project area • Greenhouse gas, specifically with measures that seek to reduce operational carbon emissions • Noise and vibration, specifically with measures that seek to reduce noise and vibration impacts at affected sensitive receivers • Hazards and risks, specifically with measures that engage the community regarding safety around light rail vehicles
Traffic and transport	• Noise and vibration, specifically with measures that address potential road traffic noise • Air quality and greenhouse gas, specifically with measures that manage construction vehicle traffic emissions • Socioeconomic, specifically with measures that address traffic impacts during construction, including local events and loss of parking

21.4 Consideration of cost effectiveness of proposed measures

The proposed environmental management and mitigation measures listed in Table 21-1 have been developed to manage or mitigate the environmental impacts discussed in Part B (Environmental impact assessment). The suite of measures that are proposed are typical for large infrastructure projects, and would be accounted for in cost estimates for further design, construction and operation phases of the Project.

Some proposed measures would represent an increase to capital, operational or maintenance costs for the Project, for example:

- Replacing and maintaining trees and landscaping fixtures
- Upgrades to drainage infrastructure
- Increasing the level of stakeholder and community engagement.

A detailed cost analysis of these proposed measures has not been undertaken. The mitigation measures identified in Table 21-1 respond to the unique nature and location of the Project but are broadly commensurate with other similar major infrastructure projects. The expected or predicated effectiveness of these measures is presented in Appendix J (Environmental risk assessment).

21.5 Residual risk

Appendix J (Environmental risk assessment) considers the preliminary and residual (post mitigation) risks of the Project. This appendix has been divided into Project-wide risks and those specific to non-Designated Areas, reflecting two assessments being carried out for the Project under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) (Project-wide) and the *Planning Act 2023* (ACT) (those parts of the Project that would be located in non-Designated Areas). Following assessment of each of the identified environmental impacts (refer to Chapter 11 to Chapter 20), the pre-mitigation risks were re-assessed with consideration of the effects of implementing the proposed mitigation measures. The results of the residual risk assessment are summarised in Table 21-3.

Table 21-3 Summary of residual risks

Residual risk rating	Number of risks during construction		Number of risks during operation	
	Project Wide	Non-Designated Areas	Project Wide	Non-Designated Areas
Significant	0	0	0	0
Very high	6	3	1	1
High	14	16	9	7
Medium	14	11	5	3
Less than medium	42	46	38	41

21.5.1 Biodiversity offsets

An offset strategy has been prepared to supplement Technical Report 2 – Biodiversity. The offset strategy describes the approach to offset residual impacts on biodiversity-related matters of national environmental significance from the Project. The offset strategy has been provided as an appendix to Technical Report 2 – Biodiversity.

Offsetting is not proposed for other environmental aspects, which would be managed through the mitigation measures listed in Table 21-1.

21.5.2 Historic heritage

Options to avoid and mitigate impacts have been implemented to date through the design development process and consideration of various design options / alternatives. Nevertheless, significant residual impacts remain.

As part of ongoing design development, opportunities would be considered to further refine the design to avoid and / or mitigate impacts as outlined in Table 21-1.

22.0 Summary of assessment and residual impacts

This chapter provides a summary of the assessment outcomes and residual impacts, with respect to matters relevant to the assessment of this EIS under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) and the *Planning Act 2023* (ACT) (Planning Act). This chapter has been prepared to support the assessment of this EIS by both the Australian and Territory governments.

Two potential alignments for the Project are being considered through the National Triangle and around Parliament House, and have been assessed in this Environmental Impact Statement (EIS). The final EIS will describe only one alignment option, and will identify potential environmental impacts and benefits of that option. Through further design development and the selection of a single, final alignment option, environmental impacts are expected to be further minimised.

22.1 Assessment under the EPBC Act

As described in Chapter 8 (Legislation and policy), an EPBC Act referral (EPBC 2023/09753) was made to the Commonwealth Minister for the Environment and Water. The view of the Territory was that the Project would need assessment and approval under the EPBC Act and this was confirmed on 3 April 2024 when the delegate of the Minister determined that the Project is a 'controlled action' (i.e. that the Project is likely to have a significant impact on MNES) and required assessment by EIS.

The relevant controlling provisions are:

- National heritage places
- Listed threatened species and ecological communities
- Commonwealth land, including the 'whole of the environment'.

A summary of the environmental assessment outcomes and residual impacts, with respect to each controlling provision, is provided in the following sections.

22.1.1 National Heritage places

A summary of assessment outcomes for the whole of the environment, of relevance to National Heritage places is provided in Table 22-1.

Table 22-1 Assessment summary – National Heritage places

Item	Summary	Further detail
Environmental context	Two National Heritage items are listed on the National Heritage List near the Project area: Old Parliament House and Curtilage, and The High Court and National Gallery Precinct (including High Court of Australia and National Gallery of Australia). These items are located in the National Triangle precinct. The location of the items is shown in Figure 14-13 in Chapter 14 (National Triangle precinct). The National Triangle precinct's heritage character arises from its position at the centre of the National Triangle and the Parliament House Vista along the Land Axis (formed by the view line between Capital Hill and Mount Ainslie). The precinct is highly sensitive to change due to the landscape being of outstanding national importance, the central expression of the Griffin Plan and through its implementation by subsequent custodians. **Old Parliament House and Curtilage** Old Parliament House and Curtilage is a nationally significant heritage place with historical, rarity, research, and characteristic heritage values. It has aesthetic and social heritage value to the	Section 14.5.1 of Chapter 14 (National Triangle precinct) Section 5.4.1 of Technical Report 3 – Heritage

Item	Summary	Further detail
	Australian community, is an expression of creative and technical achievement, and is associated with many significant people. It is located centrally in the National Triangle, acting as a physical representation of democracy in the nation. **The High Court and National Gallery Precinct** The High Court and National Gallery Precinct, located north of King Edward Terrace, is significant for demonstrating the development of the National Triangle as a home for national institutions. It is visually prominent in the National Triangle due to the buildings' monumental Brutalist architecture on the eastern side of the Land Axis.	
Potential impacts	Construction and operation of the State Circle East alignment option would not have any impacts on heritage places on the National Heritage List. Potential impacts associated with the National Triangle-Barton alignment option are summarised below. **Old Parliament House and Curtilage (construction and operation)** The National Triangle-Barton alignment option would pass directly in front of Old Parliament House on King George Terrace. The heritage impact assessment concluded that there would be a minor temporary construction impact to the Old Parliament House and Curtilage. While there would be no direct impacts to this heritage place, minor visual impacts to the view from Federation Mall towards Old Parliament House and from Old Parliament House towards Mount Ainslie from temporary construction works and construction traffic are anticipated. Additionally, there is potential for vibration intensive equipment to be operated near the Old Parliament House and Curtilage within the minimum working distance for cosmetic damage to heritage structures, which would require management to avoid potential impacts. During operation of the National Triangle-Barton alignment option, a moderate to significant impact to the heritage values of Old Parliament House and Curtilage is anticipated. No direct or vibration impacts would occur. The visual setting would be impacted as Project infrastructure and light rail vehicles (LRVs) would be in the direct line of sight of the Land Axis and would pass in front of Old Parliament House. This would modify the expression of the original historic landscape design of this place. Moderate positive outcomes for the heritage values of Old Parliament House would also result from the proposed removal of parking bays in front of Old Parliament House, as the visual impact of parked vehicles occurs over a longer duration than the passing visual impacts of the LRVs. **The High Court and National Gallery Precinct (construction and operation)** The National Triangle-Barton alignment (including tracks) would be over 200 metres from the curtilage of the item, with only minor traffic adjustments required adjacent to the curtilage of the item. The anticipated construction and operation impact is nil.	Section 14.5.2 and Section 14.5.3 of Chapter 14 (National Triangle precinct) Section 6.2.5 of Technical Report 3 – Heritage

Item	Summary	Further detail
	This entails no direct, visual setting, and vibration impacts to this heritage place.	
Mitigation approach	Environmental management for this Project is detailed in Chapter 21 (Environmental management and mitigation measures). This includes construction and operational mitigation measures to manage historic heritage impacts. Key mitigation measures to address potential impacts to National Heritage places include the following: • Mapping of heritage values and use of specialist advice to avoid/mitigate impacts to heritage values, to develop design responses that integrate the Project into the surrounding heritage landscape, and to implement heritage interpretation in design (refer to mitigation measures NH1, NH2, NH3, NH6 and NH8) • Implementation of a Conservation Management Plan as part of the Construction Environmental Management Plan(s) (CEMP(s)) for the Project, with controls to protect heritage values during construction (refer to mitigation measure NH7) • Application of protective buffers and demarcation around areas, items or trees with heritage value during construction (refer to mitigation measure NH4) • Additionally, construction vibration management measures (mitigation measure NV6) include methods to manage risk of vibration to heritage items including condition surveys, establishment of minimum working distances for vibration intensive activities, vibration testing and monitoring • Archival recording of heritage values where there is potential for them to be impacted by the Project (refer to mitigation measure NH5).	Chapter 21 (Environmental management and mitigation measures) Section 2.12 of Appendix L (Environmental Management Plan outline)
Residual impacts	**Construction** Implementing mitigation and management measures would reduce the magnitude of potential visual impacts to Old Parliament House and Curtilage, however temporary visual impacts to its setting would still occur where works are carried out in the vicinity (associated with the National Triangle-Barton alignment option only). Risk of cosmetic damage would be adequately managed through mitigation measures and is therefore unlikely to occur. There is limited potential for residual impacts to The High Court and National Gallery Precinct, with no direct, visual setting, and vibration impacts to this heritage place predicted to occur. **Operation** For the National Triangle-Barton alignment option, further development of design responses that integrate the Project into the surrounding heritage landscape would reduce the magnitude of permanent visual impacts to the setting of Old Parliament House and Curtilage. Notwithstanding, the visual setting would continue to be impacted as Project infrastructure and LRVs would be in the direct line of sight of the Land Axis and would pass in front of Old Parliament House. Moderate positive outcomes for the heritage values of Old Parliament House and	Technical Report 3 – Heritage Section 3.2 of Appendix J (Environmental risk assessment)

Item	Summary	Further detail
	Curtilage would continue to also result from the proposed removal of parking bays in front of Old Parliament House, and design development may identify further opportunities to enhance heritage values. There is limited potential for residual impacts to The High Court and National Gallery Precinct, with no direct, visual setting, and vibration impacts to this heritage place predicted to occur.	
Offsetting	No offsetting is proposed. Potential impacts would be managed to an acceptable level through the proposed mitigation measures and management plans.	N/A

22.1.2 Listed threatened species and ecological communities

A summary of assessment outcomes for listed threatened species and ecological communities is provided in Table 22-2.

Table 22-2 Assessment summary – listed threatened species and ecological communities

Item	Summary	Further detail
Environmental context	Much of the original native biodiversity endemic to the central Canberra area has been removed and fragmented through historic development of the city. Notwithstanding, important areas of remnant native vegetation exist, particularly on undeveloped sites, in protected areas, and along infrastructure corridors. The north-south transport corridor along Commonwealth Avenue, around State Circle and along Adelaide Avenue and Yarra Glen, includes some of these important remnant areas of native vegetation and potential habitat for threatened species. Through the National Triangle and Barton areas, vegetation is more typically planted native and non-native landscaping aligned with the planned geometries for these areas. Biodiversity values within and around the Project area have been confirmed through vegetation and habitat surveys, and targeted surveys for individual threatened species. Threatened (and listed) fauna habitat identified in the Project area includes the following: • Golden Sun Moth (*Synemon plana*) (vulnerable under both the EPBC Act and the NC Act) – the Project area supports 17.99 ha of potential Golden Sun Moth habitat, as identified through field survey • Gang-gang Cockatoo (*Callocephalon fimbriatum*) (endangered under both the EPBC Act and the NC Act) – 20.52 ha of foraging habitat was identified through field survey. The assessment of hollow-bearing trees in the Project area has confirmed that 85 are suitable Gang-gang Cockatoo breeding trees • Superb Parrot (*Polytelis swainsonii*) (vulnerable under both the EPBC Act and the NC Act) – the Project area supports 20.52 ha of Superb Parrot foraging habitat, as identified through field survey • Diamond Firetail (*Stagonopleura guttata*) (vulnerable under both the EPBC Act and the NC Act) – patches of Landscape Planting – Native across the Project area (except for the Mitchell Depot site) may provide suitable	Section 11.2.1 of Chapter 11 (Project-wide issues) Section 4.4 of Technical Report 2 – Biodiversity

Item	Summary	Further detail
	habitat (19.87 ha), however these are not likely to be high quality • Swift Parrot (*Lathamus discolor*) (critically endangered under both the EPBC Act and the NC Act) – the Parliament House precinct supports two mature Mugga ironbark trees and two mature yellow box tree, which are preferred foraging species for the Swift Parrot • Perunga Grasshopper (*Perunga ochracea*) (endangered under the NC Act) – two small patches (0.01 ha) of moderate quality grassland (ACT01.2) within the Inner South precinct could be considered potential habitat for the Perunga grasshopper • The Striped Legless Lizard (*Delma impar*) (vulnerable under both the EPBC Act and the NC Act) – two small patches (0.01 ha) of moderate quality grassland (ACT01.2) within the Inner South precinct could be considered potential habitat for the striped legless lizard. • The Grey-headed Flying-fox (*Pteropus poliocephalus*) (vulnerable under both the EPBC Act and the NC Act) – a colony of Grey-headed Flying-fox occurs within Commonwealth Park, adjacent to the northern shoreline of Central Basin and approximately 350 m east of Commonwealth Avenue precinct • The Murray Cod (*Maccullochella peelii*) (vulnerable under the EPBC Act) – fish survey in 2012 demonstrated that there are populations of large bodied native fish in Lake Burley Griffin, however the population of Murray Cod within Lake Burley Griffin is not recognised as an important population of the species, and has therefore not been assessed further. The greatest concentration of habitat for the Golden Sun Moth, Superb Parrot, Gang-gang Cockatoo, and Diamond Firetail is present in the Parliament House precinct (along State Circle), the Inner South precinct (along Adelaide Avenue), and the Yarra Glen precinct (along Adelaide Avenue and Yarra Glen). Patches of habitat are also present in the Mitchell Depot site and the Woden precinct, including a concentration of mature native trees. All but one of the hollow-bearing trees identified as suitable breeding habitat for the Gang-gang Cockatoo are located in the Parliament precinct, with one habitat tree also located in the Inner South precinct. Vegetation in the National Triangle and Barton precincts is mainly planted landscaping. No threatened or rare flora species have been recorded in the Project area. Impacts to threatened or rare flora species are therefore not anticipated and have not been assessed further.	
Potential impacts	The Project design has been developed with the aim of avoiding direct and indirect impacts to MNES and other conservation values in the landscape. Through this process, a clearance footprint has been defined, as shown on Figure 11-33 to Figure 11-40 of Chapter 11 (Project-wide issues). Vegetation clearing would not be permitted outside this clearance footprint.	Sections 11.2.2 and 11.2.3 of Chapter 11 (Project-wide issues) Section 4.5.5 of Technical

Item	Summary	Further detail
	Potential impacts on threatened species would occur mostly during the construction stage primarily due to habitat clearing, where it is not able to be avoided. Key potential impacts include: • Golden Sun Moth (*Synemon plana*) (vulnerable under both the EPBC Act and the NC Act) – The Project would impact 9.88 ha or 9.60 ha of Golden Sun Moth habitat, for the State Circle East and National Triangle-Barton alignment options, respectively. Assuming that all potential habitat is occupied by the species, it is likely that the Project would adversely affect habitat critical to the survival of the Golden Sun Moth, resulting in a significant impact to the species • Gang-gang Cockatoo (*Callocephalon fimbriatum*) (endangered under both the EPBC Act and the NC Act) – The Project would impact 5.64 ha or 5.06 ha of suitable Gang-gang Cockatoo habitat for the State Circle East and National Triangle-Barton alignment options, respectively. The Project would also impact six or five suitable Gang-gang Cockatoo breeding trees, that occur in the State Circle East and National Triangle-Barton alignment options, respectively. Removal of this habitat would interfere with the recovery of the species and would result in a significant impact on the Gang-gang Cockatoo • Superb Parrot (*Polytelis swainsonii*) (vulnerable under both the EPBC Act and the NC Act) – The Project would impact 5.64 ha or 5.06 ha of suitable Superb Parrot habitat for the State Circle East and National Triangle-Barton alignment options, respectively. Removal of this habitat may therefore interfere with the recovery of the species and may result in a significant impact on the Superb Parrot • Diamond Firetail (*Stagonopleura guttata*) (vulnerable under both the EPBC Act and the NC Act) – The Project would impact 5.64 ha or 5.06 ha of potential Diamond Firetail habitat for the State Circle East and National Triangle-Barton alignment options, respectively. This habitat has an understorey that is regularly mowed, and the species is most likely to use the clearance footprint as transitory habitat on its way to other higher quality patches of habitat in the landscape • Swift Parrot (*Lathamus discolor*) (critically endangered under both the EPBC Act and the NC Act) – The Project is likely to impact one of the four trees within the Project area that are considered critical to the survival of the Swift Parrot, being a mature Mugga ironbark tree located in the Parliament House precinct. While options to retain this tree would be considered during ongoing design development and construction planning for the Project, due to the generally low visitation of the species to the ACT, the removal of this single isolated tree is unlikely to significantly impact the species • The Grey-headed Flying-fox (*Pteropus poliocephalus*) (vulnerable under both the EPBC Act and the NC Act) – The Project may temporarily and indirectly disrupt the Grey-headed Flying-fox colony at Commonwealth Park during construction, particularly through noise, vibration, and lighting impacts. Based on a precautionary significant	Report 2 (Biodiversity)

Item	Summary	Further detail
	impact assessment for the species, it is unlikely that the Project would significantly impact the Grey-headed Flying-fox. Field surveys have determined that the clearance footprint does not support the Perunga Grasshopper and Striped Legless Lizard habitats.	
Mitigation approach	Environmental management for this Project is detailed in Chapter 21 (Environmental management and mitigation measures). This includes construction and operational mitigation measures to manage impacts to threatened species. Key mitigation measures to address potential impacts to listed threatened species include the following: • Implementation of a Biodiversity Management Plan as part of the CEMP(s) for the Project (refer to mitigation measure BD1) • Clear mapping of the final clearance footprint and biodiversity values, and demarcation of biodiversity-sensitive areas during construction (refer to mitigation measures BD2 and BD3) • Presence of qualified ecologist(s) and fauna spotter on site during activities with the potential to affect protected species, communities, populations and their habitats for the duration of the Project construction period, to advise on preventative and corrective actions (refer to mitigation measures BD4, BD5 and BD8) • Limiting clearing periods for trees adjacent to Gang-gang Cockatoo (*Callocephalon fimbriatum*) breeding trees to times outside of breeding periods, unless under the guidance of a suitably qualified ecologist (refer to mitigation measure BD6) • Measures to manage indirect impacts, through noise, vibration, surface water runoff, lighting and fauna strikes have also been specifically considered to minimise the Project's overall impact on biodiversity (refer to mitigation measures BD7, BD11, and BD12) • Review and implementation of opportunities to enhance habitat and connectivity through Project landscaping and ongoing design development. Consideration would be given to the potential use of locally endemic native plant species appropriate for the Golden Sun Moth, Superb Parrot and Gang-gang Cockatoo, as well as other native species, balanced with the landscaping requirements for protection and reinforcement of land use planning and heritage values through central Canberra (refer to mitigation measures BD9 and BD10).	Chapter 21 (Environmental management and mitigation measures) Section 2.12 of Appendix L (Environmental Management Plan outline)
Residual impacts	**Construction** After implementing mitigation and management measures, the risk of impacts on threatened fauna and native habitat assessed in the EIS would be managed and potentially reduced. Notwithstanding, significant impacts to the Golden Sun Moth, Gang-gang Cockatoo and Superb Parrot are still likely to occur due to the vegetation clearance required to construct and operate the Project. Impacts would be offset as described below.	Section 3.1 of Appendix J (Environmental risk assessment)

Item	Summary	Further detail
	Operation After implementing mitigation and management measures, the risk of fauna strike by LRVs or collision with over-head wiring would be reduced, however may still occur. Design development of the Project may also reduce the risk of indirect impacts from operational lighting.	
Offsetting	A Biodiversity Offset Strategy has been developed for the Project and would be updated to reflect any further avoidance or minimisation of biodiversity impacts achieved through ongoing design development. The Strategy focuses on sustainable habitat offsets for the Golden Sun Moth, Superb Parrot and Gang-gang Cockatoo, integrated with offset approaches developed and delivered for the broader Canberra Light Rail network (refer to mitigation measure BD14).	Chapter 21 (Environmental management and mitigation measures) Appendix B of Technical Report 3 – Biodiversity

22.1.3 Whole of the environment (Commonwealth land)

The Project by its nature, scale and location has the potential to significantly impact on the wider values associated with the Commonwealth land in proximity to the Project.

The Significant impact guidelines 1.2 (Department of Sustainability, Environment, Water, Population and Communities, 2013) consider the whole of the environment impacts to be the "total adverse impact of the action in the context of the environment which will be impacted, particularly those elements of the environment which are sensitive or valuable."

This section provides a summary of the potential impacts of the Project on matters relevant to the "whole of the environment", which have been identified based on the specific assessment requirements in the EIS Guidelines and with reference to the assessment of environmental considerations in the Significant impact guidelines 1.2. The summary considers Commonwealth land as well as the whole of the environment within which the Project (action) would be carried out.

22.1.3.1 Plants and animals

A summary of assessment outcomes of relevance to plants and animals is provided in Table 22-3.

Table 22-3 Assessment summary – plants and animals

Item	Summary	Further detail
Environmental context	**Flora within the Project area** Native and non-native vegetation within the Project area is comprised of five communities: • ACT01.2 Tablelands Dry Tussock Grassland – natural temperate grassland (Moderate diversity) (located in the Inner South precinct) • Non-Local Native Groundcover (predominantly in the Parliament House precinct) • Landscape Plantings – Native (predominantly in the Parliament House, Inner South, and Yarra Glen precincts) • Landscape Plantings – Exotic (predominantly in the Commonwealth Avenue, Barton, and Yarra Glen precincts) • Exotic grassland (predominantly in the Parliament House and Yarra Glen precincts).	Section 11.2.1 of Chapter 11 (Project-wide issues)

Item	Summary	Further detail
	There are no threatened ecological communities listed under EPBC Act or NC Act present within the Project area. The total extent of ACT01.2 is below the minimum threshold to be classified as EPBC Act or NC Act Natural temperate grassland. Nine pest plants declared under the *Pest Plants and Animals Act 2005* (ACT) have been recorded within the Project area including Chilean needlegrass and serrated tussock. Both of these plants are Weeds of National Significance, and are common throughout the Project area. **Fauna within the Project area** Biodiversity surveys have identified threatened fauna habitats for the Golden Sun Moth (*Synemon plana*), Superb Parrot (*Polytelis swainsonii*), Gang-gang Cockatoo (*Callocephalon fimbriatum*) and Diamond Firetail (*Stagonopleura guttata*) throughout the Project area. The greatest concentration of habitat for these species is present in the Parliament House precinct (along State Circle), the Inner South precinct (along Adelaide Avenue), and the Yarra Glen precinct (along Adelaide Avenue and Yarra Glen). Patches of habitat are also present in the Mitchell Depot site and the Woden precinct, including a concentration of mature native trees. All but one of the hollow-bearing trees identified as suitable breeding habitat for the Gang-gang Cockatoo are located in the Parliament precinct, with one habitat tree also located in the Inner South precinct. Two small patches of moderate quality grassland within the Inner South precinct provide potential habitat for the Perunga Grasshopper (*Perunga ochracea*), the Striped Legless Lizard (*Delma impar*), and the Canberra Raspy Cricket (*Coorabookorama canberrae*). Other threated fauna species identified in the Project area are summarised in Table 22-2.	
Potential impacts	**Vegetation within the clearance footprint** The following areas of vegetation communities would be removed. ACT01.2 Tablelands Dry Tussock Grassland would not be removed as it is located outside the clearance footprint.	Sections 11.2.2 and 11.2.3 of Chapter 11 (Project-wide issues) Section 4.5 of Technical Report 2 (Biodiversity)

<table>
<tr><th>Item</th><th>Summary</th><th>Further detail</th></tr>
<tr><td></td><td>
<table>
<tr><th rowspan="2">Vegetation community</th><th colspan="2">Alignment option</th><th rowspan="2">Commonwealth land (ha)</th></tr>
<tr><th>State Circle East (ha)</th><th>National Triangle-Barton (ha)</th></tr>
<tr><td>Non-local native ground cover</td><td>0.08</td><td>0.08</td><td>0.08</td></tr>
<tr><td>Landscape plantings – Native</td><td>5.64</td><td>5.06</td><td>2.55</td></tr>
<tr><td>Landscape plantings – Exotic</td><td>3.36</td><td>4.40</td><td>1.67</td></tr>
<tr><td>Exotic grassland</td><td>21.42</td><td>21.39</td><td>5.76</td></tr>
</table>
The Project is likely to impact 126 or 116 mature native trees in the State Circle East and National Triangle Barton alignment options, respectively. This would include impact to 19 or 15 hollow bearing trees.

Fauna

Impacts to threatened fauna species identified in the Project area are summarised in Table 22-2.</td><td></td></tr>
<tr><td>Mitigation approach</td><td>Environmental management for the Project is detailed in Chapter 21 (Environmental management and mitigation measures). This includes construction and operational mitigation measures to manage impacts to biodiversity (flora and fauna).

Relevant mitigation measures to address potential impacts to flora and fauna are summarised in Table 22-2.</td><td>Chapter 21 (Environmental management and mitigation measures)

Section 2.12 of Appendix L (Environmental Management Plan outline)</td></tr>
<tr><td>Residual impacts</td><td>Construction

After implementing mitigation and management measures, the risk of impacts on threatened fauna and native habitat assessed in the EIS would be managed and potentially reduced. Notwithstanding, significant impacts to the Golden Sun Moth, Gang-gang Cockatoo and Superb Parrot are still likely to occur due to the vegetation clearance required to construct and operate the Project. Impacts would be offset as described below.

Operation

After implementing mitigation and management measures, the risk of fauna strike by LRVs or collision with over-head wiring would be reduced, however may still occur. Design development of the project may also reduce the risk of indirect impacts from operational lighting.</td><td>Section 3.1 of Appendix J (Environmental risk assessment)</td></tr>
</table>

Item	Summary	Further detail
Offsetting	A Biodiversity Offset Strategy has been developed for the Project and would be updated to reflect any further avoidance or minimisation of biodiversity impacts achieved through ongoing design development. The Strategy focuses on sustainable habitat offsets for the Golden Sun Moth, Superb Parrot and Gang-gang Cockatoo, integrated with offset approaches developed and delivered for the broader Canberra Light Rail network (refer to mitigation measure BD14).	Chapter 21 (Environmental management and mitigation measures)

22.1.3.2 Pollutants, chemicals and toxic substances

A summary of assessment outcomes for the whole of the environment, of relevance to pollutants, chemicals and toxic substances is provided in Table 22-4.

Table 22-4 Assessment summary – pollutants, chemicals and toxic substances

Item	Summary	Further detail provided in:
Environmental context	Current land use within the Project area primarily consists of roadways, pavements, public open spaces, and grassed parks. The Commonwealth Avenue precinct also includes Lake Burley Griffin under the existing Commonwealth Avenue road bridges. The Mitchell Depot site is currently operational as a light rail depot. The surrounding land use is primarily commercial and civic uses within Commonwealth Avenue, Parliament House, National Triangle, Barton, the southern extent of Yarra Glen, and Woden precincts, and north and west of the Mitchell Depot site. Parklands and agricultural land are present to the south and east of the Mitchell Depot site. The surrounding land use of the remaining Project area is primarily residential. Key sources of pollutants, chemicals and toxic substances within the Project area and surrounds include earthworks at transport hubs in the Woden precinct and the Mitchell Depot site, chemicals from businesses, pesticides, pollution from vehicles and road materials, and operation of petrol stations throughout the Project area.	Section 11.6.1 of Chapter 11 (Project-wide issues) Section 4 of Technical Report 5 – Contamination
Potential impacts	**Construction** A Phase 1 environmental site assessment has been carried out for land potentially affected by the Project, including a review of historical land use and contamination data, existing land use and development patterns, contaminated land registers and other available contaminated land data. Areas of environmental concern (AECs) have been identified for land within or in proximity to the Project area based on current and historical land uses, and contaminated sites registered with the ACT Environment Protection Authority. Contaminants that may be present within these AECs include a series of anthropogenic contaminants commonly identified in urban environments, such as: • Asbestos • Total recoverable hydrocarbons (TRH) • Benzene, toluene, ethylbenzene, and xylene (BTEX)	Section 11.6.2 and 11.6.3 of Chapter 11 (Project-wide issues) Section 4 of Technical Report 5 – Contamination

Item	Summary	Further detail provided in:
	• Semi-volatile and volatile organic compounds (SVOCs and VOCs) • Heavy metals • Polycyclic aromatic hydrocarbons (PAHs) • Phenols • Organochlorine pesticides (OCP) / Organophosphorus Pesticides (OPP) • Chlorinated solvents • Nutrients (lake sediments) • Tributyltin (lake sediments). No sites with extensive, migrating, or intractable contamination issues have been identified within or in proximity to the Project area. More detailed site investigations have been identified and would be carried out for areas of greater contamination risk. These investigations would be carried out to further inform Project design and construction planning, and where relevant, to develop site contamination approaches (including consideration of remedial works, if required). **Operation** Operational impacts are anticipated to be restricted to those arising from accidental spills or leakage, primarily from stabling and maintenance activities at the Mitchell Depot, or from LRVs travelling along the alignment. Unless carefully managed, the soils in these areas could become contaminated with hazardous materials (such as fuels, lubricants, and hydraulic oils) during maintenance activities. However, with the implementation of mitigation measures, the risk of contamination from operation of the Project is anticipated to be negligible.	
Mitigation and management approach	Environmental management for this Project is detailed in Chapter 21 (Environmental management and mitigation measures). This includes construction and operational mitigation measures to manage impacts associated with pollutants, chemicals, and toxic substances. Key relevant mitigation measures include the following: • Implementation of a Soils and Contamination Management Plan as part of the CEMP(s) for the Project. The Plan will establish a risk-based contamination baseline for areas likely to be disturbed during construction (including fill, soil, surface water and groundwater as relevant), taking into account the outcomes of a Detailed Site Investigation (refer to mitigation measures SC1 and SC2) • Preparation of a Detailed Site Investigation (DSI) would be carried out for areas of environmental interest within the Project area identified as posing a medium or greater risk, to inform the need for potential Remediation Action Plans (refer to mitigation measure SC2) • Implementation of unexpected finds procedures for contamination (refer to mitigation measure SC3).	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline)

Item	Summary	Further detail provided in:
Residual impacts	**Construction** After implementing mitigation and management measures, residual contamination risks would be limited. The key residual risk of potentially encountering contaminated land would remain, and would be managed through unexpected finds procedures. **Operation** After implementing mitigation and management measures, residual risks associated with contamination during operation would be negligible.	Section 3.8 of Appendix J (Environmental risk assessment)
Offsetting	No offsetting is proposed for impacts associated with pollutants, chemicals or toxic substances. Potential impacts would be managed to an acceptable level through the proposed mitigation measures and management plans.	N/A

22.1.3.3 People and communities

A summary of assessment outcomes of relevance to people and communities is provided in Table 22-5.

Table 22-5 Assessment summary – people and communities

Item	Summary	Further detail
Environmental context	The ACT, with its relatively young and educated population, exhibits economic strengths alongside significant challenges related to housing affordability and financial stress. The population living in closest proximity to the Project reflects a diverse community with a slightly older demographic and higher median incomes, yet also faces housing pressures and varying levels of technology access among residents. The workforce primarily comprises sectors such as public administration and safety, professional, scientific, technical services, retail trade, accommodation and food services, and health care and social assistance. Throughout the Project area are community facilities, urban parks, recreational areas, and educational institutions. Informal and formal social activities take place throughout the Project area, with Lake Burley Griffin in the Commonwealth Avenue precinct being a key place for recreation.	Sections 11.7.1 and 11.8.1 of Chapter 11 (Project-wide issues) Sections 6.3, 6.4, and 6.5 of Technical report 6 – Socioeconomic
Potential impacts	**Construction** Taking into account the matters listed in Appendix A of the Significant impact guidelines 1.2 (Department of Sustainability, Environment, Water, Population and Communities, 2013), potential impacts to people and communities would include the following: • Construction of the Project would require the use of water, energy, and waste disposal. This would be managed appropriately to avoid impact to the availability of these resources for the community. Additionally, the Project would increase demand on construction labour which may reduce resources available for other construction projects	Sections 11.12.2, 11.1.2, 11.1.3, and 11.7.2 of Chapter 11 (Project-wide issues) Sections 11.9.2 and 11.9.3 of Chapter 11 (Project-wide issues)

Item	Summary	Further detail
	• The Project would lead to disruptions to road users due to construction traffic, road network changes, and increases in congestion and travel times, which would impact upon access and connectivity • Amenity related impacts would be experienced by people and communities within proximity to the Project area, including construction noise, dust emissions, and visual amenity impacts. These would be addressed through management plans and mitigation measures. Impacts to community members from changes to air quality are also described in Table 22-8 • Construction would generate greenhouse gas emissions, with estimates of 102,900 tonnes CO_2-equivalent for the State Circle East alignment and 98,700 tonnes for the National Triangle-Barton alignment. Efforts to reduce emissions would focus on minimising fuel use and selecting sustainable materials • The Project would temporarily impact the community's cultural identity, social organisation, and community resources due to construction works disrupting public amenity including events and cultural festivals, recreational facilities, heritage sites, and educational institutions. • The majority of the Project would be carried out within existing road reserves. While there would be minor encroachments into some privately-leased properties, the Project would not involve residential or private property acquisition that would physically displace individuals or communities. **Operation** During operation, the following impacts to people and communities would occur: • The Project would enhance transport capacity, accommodating an additional 2,400 people per hour in each direction while improving pedestrian and cycling connectivity by providing new bridges, shared paths, and bike parking. The Project would require minor modifications to the existing road network, including lane adjustments, intersection upgrades, and some road closures. Some of these road network changes, combined with population growth and increased congestion, would result in travel time changes and delays for road users (including bus services), impacting upon access and connectivity. While the Project would provide a reliable alternative to driving, reducing reliance on congested roads, it is just one component of a larger integrated transport strategy • Improved travel reliability relative to the surrounding road network would result in more time to enjoy social, cultural, educational and recreational activities across the Project area leading to improved intergenerational equity • The Project would use 100% renewable electricity from the ACT grid, and would generate relatively low emissions compared to the construction phase	Section 11.8.2 of Chapter 11 (Project-wide issues) Sections 11.7.2 and 11.7.3 of Chapter 11 (Project-wide issues) Section of Technical report 6 – Socioeconomic

Item	Summary	Further detail
	• Some amenity-related impacts may be experienced by nearby receivers, including increased noise levels at some places of worship, and changes to visual amenity.	
Mitigation approach	In addition to specific environmental management and mitigation measures tailored to individual impacts (e.g. traffic, parking, noise and vibration, heritage, biodiversity, which are outlined in Chapter 21 (Environment management and mitigation)), an overarching Community Engagement and Social Management Plan would be developed and implemented (refer to mitigation measure SE1). The plan would include several subcomponents, outlined further in Appendix L (Environmental Management Plan outline): • A Community Engagement Strategy • A Business and Labour Strategy • A Water User Strategy. Additionally, during construction, tailored mitigation measures would be developed in consultation with event organisers to minimise construction impacts to major events (refer to mitigation measure SE5).	Chapter 21 (Environmental management and mitigation measures)
Residual impacts	**Construction** Implementing mitigation and management measures would reduce the magnitude of potential impacts to people and communities (including impacts to access, resource use and amenity related impacts), however these temporary disruptions are still likely to be experienced during construction, consistent with other major transport projects of this scale. **Operation** The majority of impacts to people and communities would be managed during operation. While operation of the Project would contribute to reduced traffic congestion, other factors outside of the Project's control could worsen congestion. Long-term, additional investments in public transport, road network improvements, and policies that promote active and sustainable transport would also be necessary to mitigate Canberra's projected increase in congestion.	Section 3.7 of Appendix J (Environmental risk assessment)
Offsetting	No offsetting is proposed. Potential impacts would be managed to an acceptable level through the proposed mitigation measures and management plans.	N/A

22.1.3.4 Natural and physical resources

A summary of assessment outcomes of relevance to natural and physical resources is provided in Table 22-6.

Table 22-6 Assessment summary – natural and physical resources

Item	Summary	Further detail
Environmental context	The Project would be located across four subcatchments that drain through Lake Burley Griffin into the Molongolo River and eventually into the Murrumbidgee River: • Acton subcatchment – covering the portion of the Project north of Lake Burley Griffin (Commonwealth Avenue precinct) • Capital Hill subcatchment – covering the portion of the Project south of Lake Burley Griffin to around Adelaide Avenue (Commonwealth Avenue, Parliament House, National Triangle, Barton and Inner South precincts) • Adelaide Avenue subcatchment – covering the portion of the Project generally along Adelaide Avenue (Inner South and Yarra Glen precincts) • Yarralumla Creek subcatchment – covering the portion of the Project from Yarra Glen south to Woden (Yarra Glen and Woden precincts). The Mitchell Depot site drains separately via Sullivans Creek into Lake Burley Griffin. Consistent with the highly developed urban environments across central Canberra, water quality in each of these subcatchments is degraded and affected by common urban runoff pollutants. Water quality monitoring carried out under the Lake Burley Griffin Management Plan presents consistent trends of elevated electrical conductivity, which typically indicates elevated water pollution. Groundwater table depth is dependent on location and hydrogeological conditions. The groundwater table level within the Project area is estimated to range between 2 m and 8 m below ground level with varying degrees of permeability and water movement through the Project area.	Section 11.5.1 of Chapter 11 (Project-wide issues) Section 3 of Technical Report 4 – Hydrology, flooding and water quality
Potential impacts	**Construction** *Groundwater* There is some potential for the Project to intercept perched groundwater during construction, particularly larger scale excavation activities. These may include the excavation required to construct the covered section between Commonwealth Avenue and State Circle (State Circle East alignment option only), trenching for utility works and embankment cuttings. This excavated ground may fill with rainwater or groundwater and contain high concentrations of suspended soils, hydrocarbons from plant, and other contaminants such as metals (e.g. iron, copper) and salts from groundwater. If not managed appropriately, dewatering of excavations may cause impacts to downstream receptors. Potential impacts to groundwater are likely to be temporary, localised, and relatively small given the	Sections 11.5.2 and 11.5.3 of Chapter 11 (Project-wide issues) Sections 4 and 5 of Technical Report 4 – Hydrology, flooding and water quality

Item	Summary	Further detail
	limited areas and depth of excavation proposed compared to the scale of the groundwater flow systems. *Turbidity and water quality* The Project is unlikely to involve excavation of a scale that would result in subsidence, instability or substantial erosion. Certain construction activities and locations within the Project area risk surface water pollution such as utilities work, earthworks, construction of bridges, vegetation removal, works within and/or adjacent to the main channel of Yarralumla Creek, and at construction compounds located adjacent to key stormwater drainage assets or waterways. Further, construction activities may increase the risk of pollution incidents caused by spills of fuels or chemicals. Project works within Lake Burley Griffin required to construct the new light rail bridge between the existing Commonwealth Avenue road bridges have the potential to affect the quality of water within the lake through disturbance of sediment and accidental spills and leaks. *Flooding* Structures such as construction compounds, fencing, and material storage can create blockages or diversions to the existing flood flow paths and drainage infrastructure that results in changes in flow characteristics. Blocking or diverting stormwater flows can also push water into spaces or drainage assets that do not have the capacity to manage the additional volume of water. While this may not necessarily cause flooding, it can lead to a number of detrimental impacts. These include changes to flow conditions at discharge points, such as increased scour and erosion, reduced headroom in the existing stormwater drainage network, and extended waterlogging in public spaces due to increased volume of runoff. **Operation** *Groundwater* The covered section between Commonwealth Avenue and State Circle may require intermittent dewatering due to potential seasonal groundwater rise and / or perched water ingress. It is likely that the covered section invert would be above the local groundwater level, and the risk of groundwater ingress would therefore be low. However, as further site investigations would be required to confirm groundwater levels, a conservative assessment of groundwater ingress has been adopted for the Project. *Water quality* Operational infrastructure required for the Project would increase impervious surfaces across the Acton, Capital Hill, Adelaide Avenue and Yarralumla subcatchments. The Model for Urban Stormwater Improvement Conceptualisation (MUSIC) has been used to estimate potential increases in surface water pollutant loads from an increase in impervious surface area created by the Project, including gross pollutants, total suspended solids, total nitrogen and total phosphorous. The model indicates	

Item	Summary	Further detail
	around a 5-6% increase in each of these pollutants for the State Circle East alignment option, and around a 3% increase for the National Triangle-Barton alignment option. *Flooding* The Project has been designed to avoid and minimise adverse changes to hydrology, including local and regional level flooding characteristics. In most cases, changes in flood depths would be very low (in the order of centimetres) and within the levels of conservatism inherent in the flood modelling carried out for the Project. More detailed evaluation of greater increases in flood depths (in the order of tens of centimetres) indicates that these increases would be relatively small compared with predicted flood depths without the Project.	
Mitigation approach	**Groundwater** Groundwater would be managed in accordance with the Surface Water and Groundwater Plan (refer to mitigation measures HF1 and HF3). **Water quality** Construction of the Project would be managed with application of common erosion and sedimentation control measures typically applied to major construction sites. The surface water quality management approach during construction of the Project would be developed and documented as part of the CEMP(s) (refer to mitigation measure HF1). The CEMP(s) for the Project would include more detailed measures to monitor and manage water quality, to protect Lake Burley Griffin during construction (refer to mitigation measure HF4). Opportunities to integrate water sensitive urban design into the Project have been considered, and would continue to be reviewed as part of ongoing design development, with the aim of minimising additional pollutant release into the surrounding catchments from impervious operational infrastructure (refer to mitigation measure HF6). **Flooding** Measures to minimise the risks and impacts of flooding, during construction will be detailed in the Surface Water and Groundwater Plan as part of the CEMP(s) for the Project (refer to mitigation measure HF5). Ongoing design development would seek to minimise material adverse changes in flood characteristics along and around the Project. This would be confirmed through updated flood assessments based on the final Project design, taking into account design and flood planning standards applicable to the catchments traversed by the Project (refer to mitigation measure HF7).	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline)
Residual impacts	Implementing mitigation and management measures would reduce the magnitude of impacts described above. However, due to construction and operational requirements, impacts would not be removed altogether and would be managed through the CEMP(s) and further design refinements.	Section 3.7 of Appendix J (Environmental risk assessment)

Item	Summary	Further detail
Offsetting	No offsetting is proposed. Potential impacts would be managed to an acceptable level through the proposed mitigation measures and management plans.	N/A

22.1.3.5 Heritage

A summary of assessment outcomes for heritage is provided in Table 22-7.

Table 22-7 Assessment summary – heritage

Item	Summary	Further detail
Environmental context	In the Project area are places of cultural (First Nations and historic) and natural heritage significance. Various heritage places and items are listed or nominated on Commonwealth and/or Territory heritage registers. As well as individual places, the heritage context includes landscape-level significance to First Nations people, which is not constrained by place boundaries. Natural heritage values are similarly associated with habitats and natural features in the Project area. Canberra's Central National Area is nationally significant as a designed cultural landscape of symbolism, formality, and ceremony. The heritage attributes and values of the Project area, both tangible and intangible, come together to create a cultural landscape that is greater than the sum of its parts. The significant heritage places and attributes include the underlying geometry and symbolism of the Griffin Plan for Canberra, the connections and relationships between places, landscape design elements such as lakes, trees, and use of topography, road layouts, views and vistas, significant buildings, memorials and structures, and their positioning in relation to other elements. This landscape as a whole is an identified heritage place with recognised values. In addition, numerous individual places within the Project area and broader landscape have specific heritage values relating to their history and contemporary importance.	Historic heritage chapters in Part B (Environmental impact assessment) First Nations heritage chapters in Part B (Environmental impact assessment) Sections 4 and 5 of Technical Report 3 – Heritage
Potential impacts	**First Nations heritage (construction and operation)** The lack of recorded or anticipated archaeological sites and sensitivity zones combined with significant historical disturbance within the Project area indicates that direct archaeological impacts would not be expected during construction. In accordance with mitigation measure AH1 of Chapter 21 (Environmental management and mitigation measures), an unexpected finds protocol would be developed and enacted in the event that an item of First Nations heritage significance is encountered during construction. The Project has the potential to indirectly affect the closest listed sites with First Nations cultural heritage significance (including the Aboriginal Tent Embassy), particularly through landscape and visual amenity impacts, and noise and vibration, particularly during construction.	Historic heritage chapters in Part B (Environmental impact assessment) Aboriginal cultural heritage chapters in Part B (Environmental impact assessment) Section 6 of Technical

Item	Summary	Further detail
	Beyond individual heritage sites, possible indirect impacts may occur to the cultural storyline relating to the Molonglo River, due to the presence of light rail bridge construction works along Commonwealth Avenue over Lake Burley Griffin. During operation there would be no additional impact on First Nations archaeological or cultural values. The Project would not impact the First Nations cultural landscape because of the high degree of development of the landscape already. However, Representative Aboriginal Organisations (RAOs) consulted as part of the assessment considered that the addition of more infrastructure would result in an ongoing accumulation of impact to the cultural landscape, albeit to a landscape that is already highly modified. **Historic heritage (construction and operation)** The Project has been designed to avoid and minimise impacts to historic heritage places and values where possible. This has resulted in direct impacts within the boundaries of only four listed heritage items: • Parliament House Vista (Commonwealth Heritage List) (Project-wide), including the Aboriginal Tent Embassy – loss of historic curved section of road that links Walpole Crescent and King George Terrace and the removal of trees between Commonwealth Avenue and Langton Crescent as part of the National Triangle-Barton alignment option (only). Trees would be replaced as outlined in the Public Domain Master Plan for the Project. The addition of light rail infrastructure would also affect the Land Axis • Lake Burley Griffin and Adjacent Lands (Commonwealth Heritage List) (Commonwealth Avenue precinct), including the Commonwealth Avenue Bridge – construction of a new light rail bridge across Lake Burley Griffin, between the existing Commonwealth Avenue road bridges. Direct impacts would include the new light rail bridge, its piers within Lake Burley Griffin and connections with the northern and southern lake foreshores. These impacts would be unavoidable, but have been minimised through design principles for the bridge and implementation of the Public Domain Master Plan • Canberra Croquet Clubhouse and Lawns (ACT Heritage Register) (Commonwealth Avenue precinct) – one tree (an *Ulmus procera*) within the boundary of the heritage place would require removal as part of the State Circle East alignment option (only). Opportunities would be investigated during ongoing design development and construction to potentially retain this tree, and if not possible, replacing the tree as outlined in the Public Domain Master Plan for the Project. No direct impacts would occur to the fabric of the Clubhouse • Hotel Kurrajong (ACT Heritage Register) (Barton precinct – National Triangle-Barton alignment option only) – removal of the mature oak trees along the Bligh Street and National Circuit frontages would be required. Opportunities would be investigated during ongoing design development and construction to potentially retain these trees, and if not	Report 3 - Heritage

Item	Summary	Further detail
	possible, replacing the trees as outlined in the Public Domain Master Plan for the Project. No direct impacts would occur to the fabric of the hotel. More than 30 heritage sites, listed on the Commonwealth Heritage List, National Heritage List and/or ACT Heritage Register have been identified within relative proximity to the Project area. Most are located around the northern extent of the Project, including the Commonwealth Avenue, Parliament House, National Triangle and Barton precincts. These sites have the potential to be indirectly affected by the Project during construction and operation due to changes in the landscape and visual setting around the sites, and through vibration caused by construction activities or the movement of LRVs during operation.	
Mitigation approach	**First Nations heritage** Key mitigation measures to address potential impacts to First Nations heritage include the following: • Implementation of Unexpected Heritage Items Procedure, including for items of potential First Nations cultural heritage significance, would be implemented as part of the CEMP(s) for the Project (refer to mitigation measure AH1) • Cultural awareness inductions with those working on the Project to outline the significance of areas of the route to First Nations people and specifically the Traditional Custodians of the area and to alert construction personnel to the possibility of unexpected finds (refer to mitigation measure AH2). **Historic heritage** Table 22-2 includes a summary of mitigation measures relevant to the management of historic heritage impacts. These measures would be applied to the management of heritage listed places on all registers, where relevant. As part of ongoing design development and construction, opportunities to soften, shield and reduce the scale of temporary visual intrusions would be considered, particularly for heritage items with direct lines of site to construction areas. Heritage-related mitigation and management measures, including interpretive signage, landscaping relevant to heritage sites and values, heritage-sensitive operational lighting, and other public domain measures relevant to heritage values would be implemented and maintained during operation.	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline)
Residual impacts	**Construction** After implementing mitigation and management measures, the risk of direct and indirect impacts on listed heritage places during construction would continue to be high, albeit reduced compared to a scenario without management measures. Risk of impacts to Aboriginal heritage artefacts, burial sites and historical archaeology would be low.	Section 3.2 of Appendix J (Environmental risk assessment)

Item	Summary	Further detail
	Operation After implementing mitigation and management measures, the risk of visual impacts on heritage items and vistas, and impact to landscape character, buildings, and structures would continue to be high, albeit reduced compared to a scenario without management measures.	
Offsetting	No offsetting is proposed. Potential impacts would be managed to an acceptable level through the proposed mitigation measures and management plans.	N/A

22.1.3.6 General environmental impacts

A summary of assessment outcomes for general environmental impacts is provided in Table 22-2.

Table 22-8 Assessment summary – general environmental impacts

Item	Summary	Further detail
Environmental context	With reference to Section 6.3.6 of the EIS Guidelines (Appendix C), key components of the existing environment relevant to general environmental impacts include the following: **Noise and vibration** The Project area is partially situated within busy transport corridors, where existing background noise levels are already elevated due to traffic and urban activities. The Project area also traverses areas where sensitive recreational and residential receivers are present. **Air quality** While the Project area is within an urbanised area, the existing background air quality is within acceptable levels reviewed against the existing National Environment Protection (Ambient Air Quality) Measure (2021) standards. **Lighting** All precincts have been identified as having a high to medium district brightness. Precincts that are within or near the National Triangle and Parliament House feature wide avenues with well-lit, landmark focal points (most notably Parliament House) at their apex. **Recreational areas** Formal and informal recreation facilities currently exist along or within close proximity to the Project area, including Lake Burley Griffin in the Commonwealth Avenue precinct. In addition to these facilities, several open space areas are zoned for recreational land uses along the length of the Project. **Hazards and risks** The existing environment of the Project encompasses roads, urban areas, recreational areas, and Lake Burley Griffin. There are inherent risks in the existing environment including: • Potential for road accidents • Potential for pedestrian/cyclist accidents • Extreme weather	Section 2 of Technical report 9 – Noise and vibration Section 11.9.1 of Chapter 11 (Project-wide issues) Night-time visual impact assessment sections of Technical report 10 – Landscape character and visual amenity Section 11.8.1 of Chapter 11 (Project-wide issues) Section 11.13.1 of Chapter 11 (Project-wide issues)

Item	Summary	Further detail
	• Proximity to electricity services (such as high voltage power lines).	
Potential impacts	**Construction** The Project would cause the following general environmental impacts during construction: • Noise and vibration impacts on the community and natural environment. A large number of receivers, primarily residential, are predicted to be moderately to highly noise-affected at times during construction. The construction noise and vibration assessment results are presented without the application of mitigation measures (referred to as unmitigated). Construction traffic would increase road traffic noise levels along some haulage routes. While the Project has the potential to generate noise and vibration over a prolonged period during construction, which may be intensive at times, thereby impacting nearby fauna, the majority of the Project works would be adjacent to major roadways that already produce a considerable amount of noise. Construction noise may indirectly impact breeding Gang-gang Cockatoos and the Grey-headed Flying fox colony in Commonwealth Park • Impacts on air quality. Dust generation is anticipated from construction activities such as earthworks, demolition, construction, and track-out. The overall sensitivity rating for all precincts was determined to be high based on the number of highly sensitive receptors within 20 m and 50 m of the Project area boundary • Lighting impacts on the community and natural environment. The introduction of construction lighting, particularly within Commonwealth Avenue, National Triangle, and Barton precincts, may result in increased light spill affecting adjacent residential properties and open spaces. This could lead to a noticeable reduction in visual amenity during night-time hours. Further, changes in light pollution from the Project has the potential to impact fauna including their flying, foraging, and breeding activities. However, the changes in light pollution are likely to be relatively minor • Changes in recreational use and amenity of natural and urban areas. Construction of the Project has the potential to result in impacts to recreational facilities and their use due to the following: - Direct impacts such as temporary occupation of part of a recreational facility for the purposes of establishing a construction work area, resulting in part of the facility being temporarily unavailable for use. Recreational facilities include parks, Lake Burley Griffin, and Yarralumla Creek - Indirect amenity impacts from works within the vicinity of a facility, for example construction noise, air quality or visual impacts, which may detract from the use of and enjoyment of the facility • Social, economic, and cultural impacts. These are described in Table 22-5	Sections 5 and 6 of Technical report 9 – Noise and vibration Sections 11.9.2 and 11.9.3 of Chapter 11 (Project-wide issues) Section 4 of Technical report 10 – Landscape character and visual amenity Sections 11.8.2 and 11.8.3 of Chapter 11 (Project-wide issues) Sections 11.13.2 and 11.13.3 of Chapter 11 (Project-wide issues)

Item	Summary	Further detail
	• Hazards and risks to people or property. Key potential risks and hazards during construction of the Project would be associated with worker health and safety, public safety and security, risks to utilities, and bushfire risks. **Operation** The Project would cause the following general environmental impacts during operation: • The operational road traffic noise levels would generally be within acceptable limits. However, specific areas in the Parliament House, Barton, Inner South, and Woden precincts may experience relative increases in noise levels, particularly during peak traffic periods. Vibration levels are not predicted to exceed the nominated vibration human comfort criteria and cosmetic damage criteria for either the State Circle East or the National Triangle-Barton alignment options • Potential air quality emissions attributed to the operation of the Project from general operation and routine maintenance work would be negligible and would be unlikely to have any adverse air quality impacts. Minor fine dust emissions are anticipated from operation of the light rail but the impacts and risks associated with respirable crystalline silica would be very low • The Project would introduce additional lighting along the light rail corridor, including new lighting at light rail stops and along tracks. This would enhance safety for passengers but may also increase light spill into surrounding areas. For most precincts the night-time visual impact would be minor adverse, except for Barton, where there would be a high adverse impact, due to the initial extensive tree removal. Additionally, increased light pollution from the Project is unlikely to result in a significant impact on biodiversity values. The proposed mitigation approach would involve minimising direct light spill and ensuring that post development light levels are not significantly higher than predevelopment levels • The permanent footprint of the Project would be largely within existing transport corridors, and is not anticipated to result in permanent changes to recreational facilities. Access to all existing recreation facilities would be maintained during the operation of the Project • Risks and hazards to people or property due to the operation of the Project would include risks to public safety and security, risks associated with electric and magnetic fields, and bushfire risks.	
Mitigation approach	**Construction** Noise and vibration impacts would be managed by implementing measures detailed in a Noise and Vibration Management Plan, minimising high noise generation outside of standard construction hours.	Chapter 21 (Environmental management and mitigation measures)

Item	Summary	Further detail
	Air quality impacts would be managed by minimising dust generation with the potential to affect off-site receivers during construction of the Project, including a Dust Management Plan. Impacts from lighting due to construction would be temporary and managed, where necessary, with measures developed within a Light Spill Plan as part of the CEMP(s). These measures will include the use of full cut-off light fittings to minimise light spill and direct lighting appropriately to reduce impacts on surrounding areas. Impacts to recreational facilities and amenities would be managed by minimising Project footprint and occupation of land during construction as well as rehabilitating affected land that is not required for permanent operational infrastructure. Risks and hazards to people and property would be mitigated by implementing various management plans, managing potentially affected utilities, conducting detailed safety reviews, and consulting relevant land custodians/lessees of buildings or sites. Other specific measures to manage general environmental impacts are identified in Chapter 21 (Environmental management and mitigation measures). **Operation** Operational noise and vibration impacts would be largely mitigated through design measures, and an Operational Noise and Vibration Review would be prepared as part of ongoing design development to update the ground-borne noise and vibration and airborne noise estimations in this EIS. During operation the Project would seek to be generally consistent with existing lighting levels, where possible. Measures to minimise the obtrusive effects of light spill on adjacent properties would be detailed in a Light Spill Plan. Risks and hazards to people and property would be mitigated by implementing various management plans, managing potentially affected utilities, conducting detailed safety reviews, and consulting relevant land custodians/lessees of buildings or sites. Air quality impacts and recreational facilities/amenities would be limited and appropriately managed through design development. Other specific measures to manage general environmental impacts are identified in Chapter 21 (Environmental management and mitigation measures).	
Residual impacts	Implementing mitigation and management measures would reduce the magnitude of impacts described above. However, due to construction and operational requirements, impacts would not be removed altogether and would be comparable to other major transport and infrastructure projects of this scale.	Appendix J (Environmental risk assessment)
Offsetting	No offsetting is proposed for general environmental impacts. Potential impacts would be managed to an acceptable level through the proposed mitigation measures and management plans.	N/A

22.2 Assessment under the Planning Act

As described in Chapter 8 (Legislation and policy), under the Planning Act, an EIS is required to be prepared to inform assessment of a Development Application for the Project.

The Territory Planning Authority (TPA) issued an EIS Scoping Document on 4 March 2024, which identified the matters to be addressed by the EIS. The EIS Scoping Document is provided in Appendix B (Scoping Document). Matters identified in the EIS Scoping Document are addressed throughout the EIS.

The following sections provide a summary of the outcomes of the environmental impact assessment carried out in this EIS with respect to the matters identified in the EIS Scoping Document. This includes a summary of the potential impacts associated with each aspect, mitigation and management approaches, and the likely residual risks following the application of mitigation measures.

The majority of the Project area is located on Designated Areas. As shown on Figure 22-1, non-Designated Areas within the Project area includes the entirety of the Woden precinct and Mitchell Depot site, and the majority of the Yarra Glen precinct. There are also discrete areas of non-Designated Areas at the boundaries of the Inner South and Barton precincts.

The following summary is therefore applicable to a relatively small portion of the Project on non-Designated Areas. A summary of the total scope of impacts is provided in relation to the EPBC Act in Section 22.1.

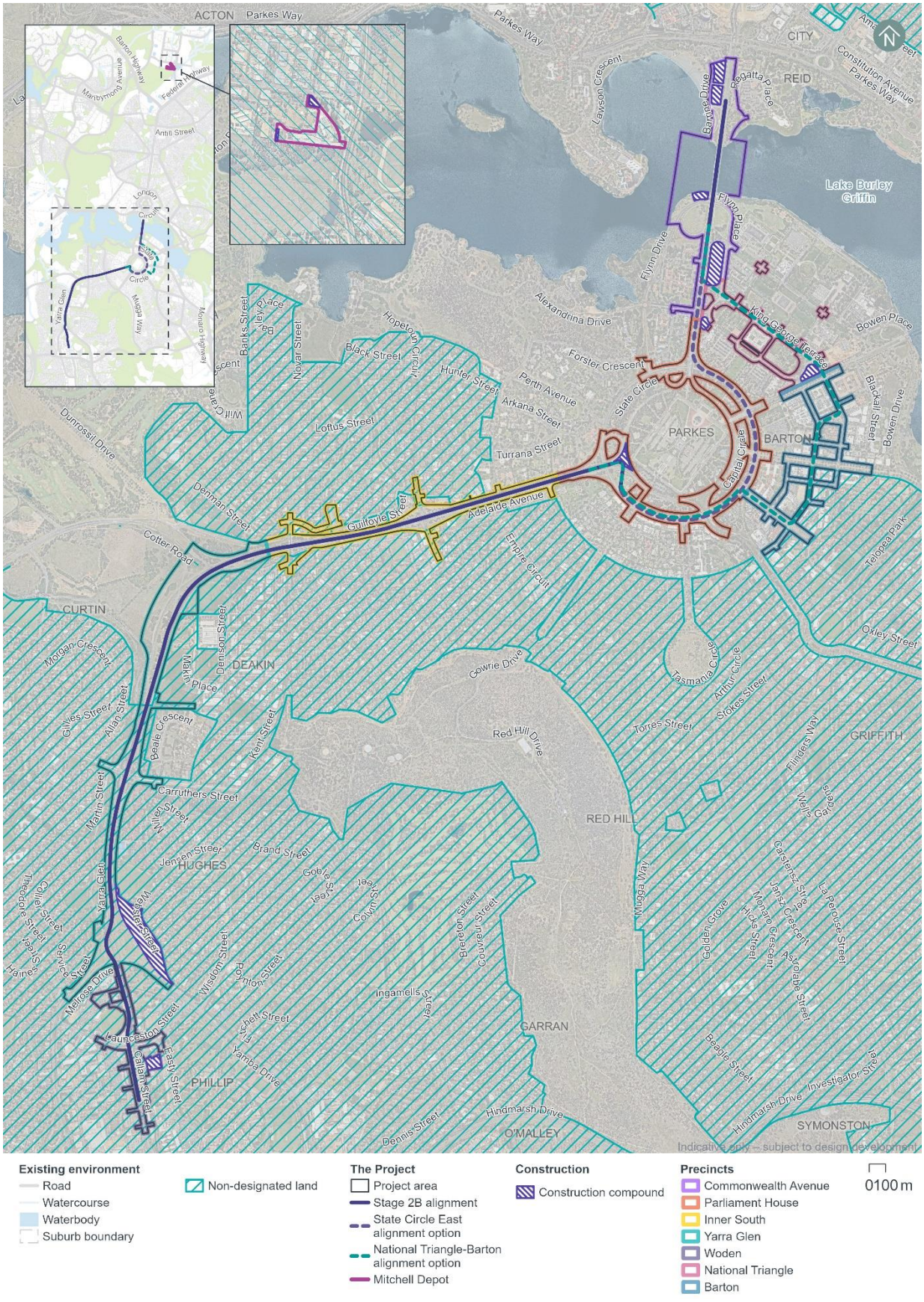


Figure 22-1 Location of non-Designated Areas in relation to the Project

22.2.1 Biodiversity and trees

A summary of assessment outcomes for biodiversity and trees is provided in Table 22-9.

Table 22-9 Assessment summary – biodiversity and trees

Item	Summary	Further detail
Environmental condition and values	Much of the original native biodiversity endemic to the central Canberra area has been removed and fragmented through historic development of the city. Notwithstanding, important areas of remnant native vegetation exist, particularly on undeveloped sites, in protected areas, and along infrastructure corridors. Of the vegetation communities identified in the Project area (which are summarised in Table 22-3), native and non-native vegetation on non-Designated Areas in the Project area generally comprises: • Exotic grassland (predominantly in the Yarra Glen precinct and around the boundary of the Mitchell Depot site) • Landscape Plantings – Native (predominantly in the Yarra Glen precincts and around the boundary of the Mitchell Depot site) • Landscape Plantings – Exotic (to a lesser extent, dispersed throughout the Yarra Glen and Woden precincts). There are no threatened ecological communities listed under EPBC Act or NC Act present within the Project area (including on non-Designated Areas). Of relevance to non-Designated Areas, threatened (and listed) fauna habitat identified in the Project area includes the following: • Golden Sun Moth (*Synemon plana*) (vulnerable under both the EPBC Act and the NC Act) • Gang-gang Cockatoo (*Callocephalon fimbriatum*) (endangered under both the EPBC Act and the NC Act) • Superb Parrot (*Polytelis swainsonii*) (vulnerable under both the EPBC Act and the NC Act) • Diamond Firetail (*Stagonopleura guttata*) (vulnerable under both the EPBC Act and the NC Act). Suitable foraging habitat for the threatened species listed above is present on non-Designated Areas in the Inner South precinct, Yarra Glen precinct, Woden precinct and Mitchell depot site. Breeding trees for Gang-gang Cockatoo have also been identified on non-Designated Areas in the Inner South precinct. These areas are shown on Figure 4-16 of Technical Report 2 – Biodiversity.	Section 11.2.1 of Chapter 11 (Project-wide issues) Section 4.4 of Technical Report 2 – Biodiversity
Investigation	The assessment methodology was to: • Carry out a desktop review to identify any known biodiversity values of relevance to the Project area • Conduct field surveys (by qualified ecologists) to confirm the presence and extent of native vegetation and the ecological communities, species, and species habitat that occur or have the potential to occur within the Project area • Describe the ecological values within and adjacent to the Project area • Assess the potential direct and indirect impacts of the Project on biodiversity and identified ecological values during construction and operation	Chapter 10 (Assessment methodologies) Section 3 of Technical Report 2 – Biodiversity

Item	Summary	Further detail
	• Document how the design process has avoided biodiversity impacts to date • Identify mitigation and management measures which can be applied to minimise biodiversity impacts, as well as offsetting requirements.	
Potential impacts	**Flora – direct impacts** The Project design has been developed with the aim of avoiding direct and indirect impacts to biodiversity values in the landscape. Through this process, a clearance footprint has been defined, as shown on Figure 11-33 to Figure 11-40 of Chapter 11 (Project-wide issues). Vegetation clearing would not be permitted outside this clearance footprint. Vegetation removal on non-Designated Areas would involve removal of exotic grassland, and landscape plantings (both native and exotic). Thirty hollow-bearing trees and 180 mature native trees within the Project area are located on non-Designated Areas, some of which would be impacted by the Project. The potential for the Project to result in a key threatening process is assessed in Technical Report 2 – Biodiversity. The assessment has identified that the Project would increase the level of threats to the ecological function of the local landscape as described in the *Loss of Mature Native Trees Key Threatening Process Action Plan* (EPSDD, 2023). **Fauna – direct impacts** The Project has the potential to have significant adverse impacts on the following threatened species: • The Golden Sun Moth: The Project would impact around 7.15 ha of suitable habitat (for both alignment options) on non-Designated Areas • The Superb Parrot and Gang-gang Cockatoo: The Project would impact around 2.80 ha of suitable foraging habitat (for both alignment options) on non-Designated Areas. Impacts to habitat for other threatened species (that would not be significantly impacted) are discussed in Technical Report 2 – Biodiversity. **Indirect impacts** Native vegetation and habitat adjacent to the Project area (including non-Designated Areas), and species using air space within the Project area may be indirectly impacted by the proposed works if appropriate mitigation and management measures are not implemented (during both construction and operational phases). Potential indirect impacts are associated with the spread of invasive species, noise and vibration, erosion and sedimentation, dust, and waste generation during construction. There is also the potential for increased mortality of birds due to collisions with over-head lines and collision construction and the light rail vehicles.	Sections 11.2.2 and 11.2.3 of Chapter 11 (Project-wide issues) Section 4.5.5 of Technical Report 2 – Biodiversity

Item	Summary	Further detail
Mitigation and offsets	Opportunities to avoid and minimise impacts on native biodiversity have been carefully considered through the design and construction planning for the Project. Key mitigation measures to address potential impacts to listed threatened species include the following: • Implementation of a Biodiversity Management Plan as part of the CEMP(s) for the Project, with measures to minimise the impacts on native biodiversity values (refer to mitigation measure BD1) • Clear mapping of the final clearance footprint and biodiversity values, and demarcation of biodiversity-sensitive areas during construction (refer to mitigation measures BD2 and BD3) • Presence of qualified ecologist(s) and fauna spotter on site during activities with the potential to affect protected species, communities, populations and their habitats for the duration of the Project construction period, to advise on preventative and corrective actions (refer to mitigation measures BD4, BD5 and BD8) • Limiting clearing periods for trees adjacent to Gang-gang Cockatoo (*Callocephalon fimbriatum*) breeding trees to times outside of breeding periods, unless under the guidance of a suitably qualified ecologist (refer to mitigation measure BD6) • Measures to manage indirect impacts, through noise, vibration, surface water runoff, lighting, spread of invasive species and fauna strikes to minimise the Project's overall impact on biodiversity (refer to mitigation measures BD7, BD11, BD12, and B13) • Review and implementation of opportunities to enhance habitat and connectivity through Project landscaping and ongoing design development (refer to mitigation measures BD9 and BD10). A Biodiversity Offset Strategy has been developed for the Project and would be updated to reflect any further avoidance or minimisation of biodiversity impacts achieved through ongoing design development. The Strategy focuses on sustainable habitat offsets for the Golden Sun Moth, Superb Parrot and Gang-gang Cockatoo, integrated with offset approaches developed and delivered for the broader Canberra Light Rail network (refer to mitigation measure BD14).	Chapter 21 (Environmental management and mitigation measures) Section 2.12 of Appendix L (Environmental Management Plan outline) Appendix B of Technical Report 3 – Biodiversity

Item	Summary	Further detail
Residual risks	**Construction:** After implementing mitigation and management measures, the risk of impacts on threatened fauna and native habitat assessed in the EIS would be managed and potentially reduced. Notwithstanding, significant impacts to the Golden Sun Moth, Gang-gang Cockatoo and Superb Parrot are still likely to occur due to the vegetation clearance required to construct and operate the Project. Impacts would be offset as described above. **Operation:** After implementing mitigation and management measures, the risk of fauna strike by LRVs or collision with over-head wiring would be reduced, however may still occur. Design development of the Project may also reduce the risk of indirect impacts from operational lighting.	Section 4.1 of Appendix J (Environmental risk assessment)

22.2.2 Heritage (First Nations and Historic)

A summary of heritage assessment outcomes is provided in Table 22-10.

Table 22-10 Assessment summary – heritage

Item	Summary	Further detail
Environmental condition and values	In the Project area are places of cultural (First Nations and historic) and natural heritage significance. Various heritage places and items are listed or nominated on Commonwealth and/or Territory heritage registers. Heritage places in the study area for the heritage assessment that are listed on the ACT Heritage Register include: • Commonwealth Avenue precinct: Albert Hall, Hotel Canberra, Canberra Croquet Clubhouse and Lawns • Parliament House precinct: Surveyors Hut, St Andrews Church Precinct • National Triangle precinct: National Rose Gardens, examples of Canberra's pre-cast concrete bus shelters • Barton precinct: Hotel Kurrajong, Barton Conference centre (nominated heritage place), Barton Housing precinct, Brassey Hotel, Telopea Park High School, Wesley Uniting Church Complex (nominated heritage place), St Andrews Church Precinct • Woden precinct: Callam Offices • Mitchell Depot: Aboriginal Places – Amaroo, Gungahlin and Kaleen (BHDS2). While some of these items are located in a Designated Area, they are managed and listed on the ACT Heritage Register. As well as individual places, the heritage context includes landscape-level significance to First Nations people, which is not constrained by place boundaries.	Historic heritage chapters in Part B (Environmental impact assessment) First Nations heritage chapters in Part B (Environmental impact assessment) Sections 4 and 5 of Technical Report 3 – Heritage
Investigation	The assessment methodology was to: • Assess the potential direct and indirect impacts of the Project on identified heritage and natural heritage values during construction and operation. Consideration of potential impacts includes direct/indirect, cumulative, temporary/permanent, reversible/irreversible, visual,	Chapter 10 (Assessment methodologies) Section 3 of Technical

Item	Summary	Further detail
	physical, social, and cultural impacts that may occur as a result of the Project • Determine a heritage impact statement considering degree and intensity of impacts, and the relative level of severity of the potential impacts in terms of scale, intensity, timing, duration and frequency • Describe the potential impacts of the Project on identified First Nations cultural heritage values.	Report 3 – Heritage
Potential impacts	**First Nations heritage (construction and operation)** The lack of recorded or anticipated archaeological sites and sensitivity zones combined with significant historical disturbance within the Project area indicates that direct archaeological impacts would not be expected during construction or operation. An unexpected finds protocol would be developed and enacted in the event that an item of First Nations heritage significance is encountered during construction. **Historic heritage (construction and operation)** The Project has been designed to avoid and minimise impacts to historic heritage places and values where possible. Several heritage places or objects registered on the ACT Heritage Register under the *Heritage Act 2004* (ACT) have the potential to be affected by the Project. Potentially significant adverse impacts have been identified at the following ACT Heritage Register-listed or nominated places: Albert Hall (in the Commonwealth Avenue precinct) and Hotel Kurrajong (in the Barton Precinct). Other impacts to ACT Heritage place are predicted to occur however they are not expected to be 'moderate to significant' in nature. Potentially significant adverse impacts to heritage for the State Circle East alignment option are as follows: • Albert Hall (impacts assessed as **moderate to significant** during both construction and operation) - During construction there would be impacts to Albert Hall's setting from the removal of historic trees on the median of Commonwealth Avenue. There would also be potential for vibration intensive equipment to be operated near Albert Hall within the minimum working distance for cosmetic damage, however risk of potential damage would be appropriately managed through mitigation measures - During operation there would no direct or vibration impacts to Albert Hall. Albert Hall Stop would alter historic views from Albert Hall to Commonwealth Avenue and obscure the historical significance of Albert Hall as an early landmark building of Canberra. Further, tree replacement with a different species would be visually inconsistent with the historic plantings.	Historic heritage chapters in Part B (Environmental impact assessment) Aboriginal cultural heritage chapters in Part B (Environmental impact assessment) Section 6 of Technical Report 3 - Heritage

Item	Summary	Further detail
	For the National Triangle-Barton alignment option: • Albert Hall (**moderate to significant** during construction only) – impacts would be as described above for the State Circle East alignment option • Hotel Kurrajong (**significant** impacts during both construction and operation) - During construction there would be potential indirect impacts to Hotel Kurrajong's setting from the removal of historical trees along the northern and western edges of the Hotel Kurrajong Garden City block. There would also be the potential for vibration intensive equipment to be operated near Hotel Kurrajong within the minimum working distance for cosmetic damage, however risk of potential damage would be appropriately managed through mitigation measures - During operation the historic road geometry and grassed settings of Hotel Kurrajong's north-western corner would change. The Bligh Street Stop would be partially within the boundary of the heritage place, within the verge area to be converted to hard surface, which would adversely impact the expression of the heritage values of the Hotel Kurrajong as demonstrated via its landscaped garden setting.	
Mitigation and offsets	**Mitigation approach** Key mitigation measures to address potential impacts to First Nations heritage include the following: • Implementation of Unexpected Heritage Items Procedure (refer to mitigation measure AH1) • Cultural awareness inductions with those working on the Project (refer to mitigation measure AH2). Key mitigation measures relevant to the management of historic heritage impacts include the following: • Mapping of heritage values and use of specialist advice to avoid/mitigate impacts to heritage values, to develop design responses that integrate the Project into the surrounding heritage landscape, and to implement heritage interpretation in design (refer to mitigation measures NH1, NH2, NH3, NH6 and NH8) • Implementation of a Conservation Management Plan as part of the CEMP(s) for the Project, with controls to protect heritage values during construction (refer to mitigation measure NH7) • Application of protective buffers and demarcation around areas, items or trees with heritage value during construction (refer to mitigation measure NH4) • Additionally, construction vibration management measures (mitigation measure NV6) include methods to manage risk of vibration to heritage items including condition surveys, establishment of minimum working distances for vibration intensive activities, vibration testing and monitoring	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline)

Item	Summary	Further detail
	• Archival recording of heritage values where there is potential for them to be impacted by the Project (refer to mitigation measure NH5). As part of ongoing design development and construction, opportunities to soften, shield and reduce the scale of temporary visual intrusions would be considered, particularly for heritage items with direct lines of site to construction areas.	
Residual risks	**Construction:** After implementing mitigation and management measures, the risk of direct and indirect impacts on listed heritage places during construction would continue to be high, albeit reduced compared to a scenario without management measures. Risk of impacts to Aboriginal heritage artefacts, burial sites and historical archaeology would range from low to negligible in non-Designated Areas. **Operation:** After implementing mitigation and management measures, the risk of visual impacts on heritage items and vistas, and impact to landscape character, buildings, and structures would continue to be very low to negligible, in non-Designated Areas.	Section 4.2 of Appendix J (Environmental risk assessment)

22.2.3 Noise and vibration

A summary of assessment outcomes for noise and vibration is provided in Table 22-11. Impacts relating to lighting are summarised in Section 22.2.4, as they relate to landscape and visual amenity.

Table 22-11 Assessment summary – noise and vibration

Item	Summary	Further detail
Environmental condition and values	The Project area is partially situated within busy transport corridors, where existing background noise levels are already elevated due to traffic and urban activities. The Project area also traverses areas where sensitive recreational and residential receivers are present. Noise catchment areas have been determined based on the general ambient noise environment of the area, and the types of receivers and land uses potentially affected by the Project. These are shown in noise and vibration chapters in Part B (Environmental impact assessment). Most of the noise catchment areas intersect areas of non-Designated Areas.	Noise and vibration chapters in Part B (Environmental impact assessment) Section 2 of Technical Report 9 – Noise and vibration
Investigation	The assessment methodology was to: • Identify noise and vibration sensitive receivers and suitable noise catchment areas • Carry out noise monitoring along the Project corridor to characterise the existing noise environment • Determine appropriate noise and vibration assessment levels for application to the Project • For construction: - Calculate construction noise emissions based on worst case construction scenarios, plant, and equipment	Chapter 10 (Assessment methodologies) Section 4 of Technical Report 9 – Noise and vibration

Item	Summary	Further detail
	- Assess unmitigated construction noise impacts at potentially affected receiver locations, having regard to noise assessment levels - Derive 'safe working distances' to achieve applicable vibration criteria at structures and vibration sensitive locations, and for human comfort, and consider potential achievement of these distances - Quantitatively assess construction traffic noise based on construction traffic volumes and haulage routes • For operation: - Calculate operational noise emissions from LRVs - Assess unmitigated operational vibration, groundborne noise, and LRV noise emissions - Calculate operational road traffic noise changes (associated with changes to the road network proposed as part of the Project) for any key new or realigned road - Assess unmitigated operational traffic noise emissions - Calculate noise emissions from fixed facilities • Identify mitigation and management measures which can be applied to minimise noise and vibration impacts.	
Potential impacts	**Construction** As is typically the case with construction of major infrastructure projects in urban environments, exceedances of construction noise management levels have been predicted across all Project precincts (including on non-Designated Areas) during most construction activities. A large number of receivers would be 'moderately' or 'highly' noise affected at times. Impacted receivers would be primarily residential in nature, but non-residential receivers near the Project area may also be impacted by elevated noise levels during construction. Of the receivers on non-Designated Areas, those around the Inner South and Yarra Glen precincts would be most affected by elevated noise levels, mainly due to the number of residential receivers along this part of the Project corridor. High noise levels are generally unavoidable given the extent of the proposed works, density of sensitive receivers in the surrounding areas, the proximity of works to the receivers, and the noisy nature of peak works required for an infrastructure project of this scale. The Project would be subject to a detailed noise and vibration management measures as part of the (CEMP(s) including activity- and site-specific measures to minimise the generation of noise, adoption of minimum working distances for vibration intensive equipment, engagement with affected stakeholders and scheduling of noise intensive activities to minimise works during noise sensitive periods and with appropriate respite periods. Most construction works would be carried out during standard construction hours, with high noise intensity works prioritised to be conducted during the day time where possible. The Project construction traffic would generally not result a perceptible increase in road traffic noise along routes in non-Designated Areas.	Noise and vibration chapters in Part B (Environmental impact assessment) Sections 5 and 6 of Technical Report 9 – Noise and vibration

Item	Summary	Further detail
	Operation Operational airborne noise levels and ground-borne noise and vibration levels would be compliant with relevant noise trigger levels at the majority of receivers. There are two residential buildings, both on non-Designated Areas, where noise levels are predicted to exceed the airborne noise trigger levels by 1 dB(A). This includes one receiver in the Inner South precinct and one receiver in the Woden precinct (for both alignment options). Changes in noise level by up to 2 dB(A) are not considered to be perceptible by the average listener. There are eight non-residential buildings on non-Designated Areas where noise levels may exceed the airborne noise trigger levels by greater than 2 dB(A). This includes five buildings in the Inner South precinct (both alignment options) and three buildings in the Woden precinct (both alignment options). Noise mitigation for these buildings would be considered as part of ongoing design development. Vibration levels are not predicted to exceed the nominated vibration human comfort criteria and cosmetic damage criteria for either alignment option. Changes in road traffic noise levels have been predicted at sensitive receiver locations where the Project would implement substantial road modifications or there are substantially greater traffic volumes for the years 2031 and 2041. Traffic volumes and therefore road traffic noise levels are predicted to decrease at most locations due to the Project. No exceedances of criteria were identified in the assessment. Fixed facilities proposed for the Project include traction power substations (TPSs), Public Address (PA) systems at light rail stops as well as adjustments to the existing Mitchell Depot. Qualitative assessments of the fixed facilities have been conducted to determine the risk of adverse community impact as a result of the operation of the facilities. These assessments concluded that the noise impacts of these facilities would be minor and managed through detailed design development.	
Mitigation and offsets	Key mitigation measures to address potential noise and vibration impacts include the following: • Implementation of a Noise and Vibration Management Plan as part of the CEMP(s) for the Project (refer to mitigation measures NV1 and NV2) • Scheduling construction activities to minimise noise and vibration impacts (refer to mitigation measures NV2, NV3 and NV4). This would include - Maximising the undertaking of noise and/or vibration generating construction activities during standard construction hours in residential areas or near noise sensitive receivers - Establing a case-by-case approval process for works outside of standard construction hours • Where possible, configuring construction sites and equipment in a manner that minimises noise impacts e.g. maximising the distance between noisy plant and	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline)

Item	Summary	Further detail
	equipment and sensitive receivers (refer to mitigation measure NV5) • Establishing minimum working distances for vibration intensive construction so that vibration criteria for buildings and structures can be met (refer to mitigation measures NV1 and NV6) • Notifying potentially noise and vibration-affected receivers during construction at least five working days prior to commencing works (refer to mitigation measure NV9) • Designing and operating the Project in a manner which minimises operation noise and vibration impacts to sensitive receivers, for example through potential selection of track from that results in reduced noise levels, use of light rail fleet with measures that reduce wheel squeal, and designing TPSs to comply with noise standards (refer to mitigation measure NV10, NV12, NV13 and NV14) • Carrying out an Operational Noise and Vibration Review during ongoing design development, which would involve update to the assessment in this EIS based on final design details (refer to mitigation measure NV11).	
Residual risks	**Construction:** After implementing mitigation and management measures, the risk of direct and indirect impacts from vibration during construction would continue to be high, although reduced compared to a scenario without management measures. Risks associated with an increase in noise impacts would be low in non-Designated areas. Risks would continue to be managed to an acceptable level through the mitigations described above. **Operation:** After implementing mitigation and management measures, the risk of the impacts of noise and vibration during operation would be high, although reduced compared to before mitigation, in non-Designated areas. Risks would continue to be managed to an acceptable level through the mitigations described above.	Section 4.3 of Appendix J (Environmental risk assessment)

22.2.4 Landscape character and visual amenity (including lighting)

A summary of assessment outcomes for landscape character and visual amenity (including lighting) is provided in Table 22-12.

Table 22-12 Assessment summary – landscape character and visual amenity (including lighting)

Item	Summary	Further detail
Environmental condition and values	In areas of non-Designated Areas, key landscape and visual features include: • The Yarra Glen road corridor, which is a dual carriageway road with a broad turf median, and travels past the low-rise residential neighbourhoods of Curtin and Hughes, representative buildings such as the Australian Mint, and the employment area of West Deakin • Yarralumla Creek corridor, a formalised (concrete channel) in low-lying land surrounded by grass and low lying vegetation, and active travel paths • Woden Town Centre, featuring a mix of high-rise residential towers, commercial buildings with retail uses at the ground	Landscape character and visual amenity (Environmental impact assessment) Section 3 of Technical Report 10 – Landscape

Item	Summary	Further detail
	floor, and major attractors such as the new Canberra Institute of Technology campus and the Woden Town Centre Public Transport Interchange • Industrial setting around the Mitchell depot site.	character and visual amenity
Investigation	The assessment methodology was to: • Analyse the regional and local context surrounding the Project, including describing the landscape character of the Project precincts • Identify representative viewpoints to assess visual impacts • Evaluate landscape character impacts for each precinct, with respect to sensitivity to change and the magnitude of change that is likely to occur as a result of permanent (construction and operational) changes and infrastructure associated with the Project • Evaluate potential visual impacts based on the sensitivity of each viewpoint (i.e. the visual receivers that it represents) to change and the magnitude of change likely to occur as a result of the Project during construction and operation • Evaluate potential night-time (lighting) visual impacts during construction and operation • Identify mitigation and management measures which can be applied to minimise landscape character and visual impacts.	Chapter 10 (Assessment methodologies) Section 2 of Technical Report 10 – Landscape character and visual amenity
Potential impacts	**Construction** Construction of the Project would be visually prominent, extensive in scale and extent. Temporary construction infrastructure (compounds, plant and equipment) would result in adverse landscape and visual impacts. However, construction would be limited in duration, and these adverse impacts would only be temporary. Areas disturbed during construction and not required for permanent infrastructure would be rehabilitated and landscaped upon completion of the relevant construction works. On non-Designated Areas, up to 'high to moderate adverse' landscape and visual impacts have been predicted during construction, particularly in the Yarra Glen and Inner South precincts. This is generally due to the close proximity to residential properties to substantial construction work planned in these areas. Receivers in the Woden precinct would experience up to 'moderate adverse' impacts due to the presence of construction activity. The low number of heritage items within the precinct and commercial land use (with substantial areas currently under construction in the Woden Town Centre) would result in a relatively lower sensitivity to the area to temporary change. The Mitchell Depot site would experience negligible landscape and visual impacts due to its industrial setting, which would be relatively less sensitive to change. The introduction of construction lighting where night works are proposed (which would be necessary to provide a safer working environment) may result in increased light spill affecting adjacent residential properties and open spaces. However, impacts would	Landscape character and visual amenity sections in Part B (Environmental impact assessment) Section 4 of Technical Report 10 – Landscape character and visual amenity

Item	Summary	Further detail
	be readily manageable through best practice mitigation measures. **Operation** Strategies to avoid and minimise potential landscape and visual impacts associated with operational Project infrastructure have been a key consideration in ongoing design development. Recognition of the significance of the Project's setting has been foremost in developing its design, including a formal Public Domain Master Plan, and supporting Connecting with Country Framework, Landscape Plan and Tree Succession Plan. The Project would introduce a new element into the landscape which would have an impact on the character of both the landscape in which it would be located (i.e. the existing transport corridor), but also surrounding landscapes with visual access to the new infrastructure. Key areas of the Project that may experience a beneficial landscape and visual outcome would include: • Along the entire Project alignment, the opportunity to provide landscape to reinforce heritage geometries, replace trees in declining condition, and where appropriate supplement and enhance existing landscape patterns • Opportunity to increase landscaping and tree cover in the Inner South and Yarra Glen precincts, relative to current vegetation cover • Through a Designing with Country approach, the opportunity to embed Aboriginal cultural heritage values and recognition of Country into the landscape. Notwithstanding, both alignment options of the Project at operation are considered to result up to moderate adverse landscape and visual effects on the southern precincts (from Inner South to Woden, where the majority of non-Designated Areas near the Project is located). The addition of light rail infrastructure would alter the character and increase the visual prominence of transport corridors in these precincts. There would be no appreciable change to landscape character or visual amenity at the Mitchell Depot site due to the Project during operation. Assessment of night time (lighting) visual impacts from the Project has also concluded with a likely adverse impact, for similar reasons to anticipated day time visual impacts. Opportunities to minimise lighting from the Project while ensuring safety and adequate operational performance would be considered during ongoing design development.	
Mitigation and offsets	Key mitigation measures to address potential impacts to landscape character and visual amenity include the following: • Implementation of a Visual Impact Management Plan as part of the CEMP(s) for the Project, including a Light Spill Plan (refer to mitigation measures LV6 and LV8). The CEMP would include measures to manage impacts, which may include measures to screen construction sites from surrounding visual receiver locations though construction	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental

Item	Summary	Further detail
	site layout, hoardings or other screenings, or early implementation of landscaping measures • Adoption of urban design principles and strategies outlined in the Public Domain Masterplan, and consulting with key stakeholders throughout design development (refer to mitigation measure LV1 and LV2) • Review of opportunities to soften landscape and visual impacts on the Phillip / Woden area and Mint Oval (refer to mitigation measures LV3 and LV4) • Protection of trees identified to be retained during construction of the Project (refer to mitigation measure LV5) • Adopting a Project design which minimises minimise visual clutter and maximises visual integration of Project operational elements into the surrounding visual setting (refer to mitigation measure LV7).	Management Plan outline)
Residual risks	**Construction:** After implementing mitigation and management measures, the risk of impacts on visual amenity during demolition and construction would continue to be high, albeit reduced compared to a scenario without management measures. Risks would continue to be managed to an acceptable level through the mitigations described above. **Operation:** Implementing mitigation and management measures would reduce most operation-phase risks. A high residual risk would remain, associated with the addition of new infrastructure to the visual landscape. However, risks would be managed to an acceptable level through the mitigations described above.	Section 4.4 of Appendix J (Environmental risk assessment)

22.2.5 Traffic and transport

A summary of assessment outcomes for traffic and transport is provided in Table 22-13.

Table 22-13 Assessment summary – traffic and transport

Item	Summary	Further detail
Environmental condition and values	**Existing conditions in the Project area** The road network within and surrounding the Project varies from low speed (40-60 km/h) urban roads with high-place value to high-speed arterial roads (70-80 km/h), particularly Adelaide Avenue, Yarra Glen and Yamba Drive. Bus services are the primary mode of public transport that services the Project area. Rapid bus routes operate along Yarra Glen. Adelaide Avenue, Capital Circle and/or Commonwealth Avenue. Bus stops along these key roads are generally serviced by a bus service every couple of minutes, particularly in peak periods. Several other standard bus services with varying frequencies throughout the day also support the Project area. **Future conditions without the Project** Despite the broad coverage of the bus network, there is a limit to its capacity to meet the needs of a growing city. Significant year on year population growth is projected in the ACT through to 2041, leading to increased travel demand across the ACT. The ABS data highlights that car travel is the predominant transport	Section 11.1 of Chapter 11 (Project-wide issues) Traffic and transport sections in Part B (Environmental impact assessment) Section 3 of Technical Report 1 – Traffic and transport

Item	Summary	Further detail
	mode for journeys to and from work in Canberra now and into the future. Therefore, majority of the forecast travel demand growth would be via private vehicle travel, resulting in increased traffic demand (and pressure) on the ACT road network. ACT would face a highly congested road network during weekday peak hours by 2031. Without changes in government policy to alter trip behaviours and patterns, coupled with major transport infrastructure investment, future development within the Commonwealth Park to Woden corridor is anticipated to lead to a decline in traffic speeds, increasing travel time and impeding access to employment opportunities, community facilities, and social and recreational activities.	
Investigation	The assessment methodology was to: • Define a study area for the assessment, based on the Project area with an additional buffer incorporated • Describe the baseline traffic and transport conditions for the study area, including road network and intersection performance, public transport network and travel times, active transport conditions, on-street and off-street parking, kerbside uses and access and road safety • Carry out traffic modelling to consider representative future traffic scenarios for 2031 and 2041 with and without the Project for construction and operation, and summarise the outcomes of the modelling • For construction: - Assess the impact of the proposed construction worker parking arrangements - Qualitatively assess the impacts of construction on property access, local area access (including for mobility impaired people), active transport, public transport, on-street and off-street parking, and road safety • For operation: - Multi-modal assessment of the forecast traffic and transport conditions, including road network, public transport, active transport, parking, property access, and local area access • Discuss the likely impact of the Project on road safety within the study area • Identify mitigation and management measures which can be applied to minimise traffic and transport impacts.	Chapter 10 (Assessment methodologies) Section 3 of Technical Report 1 – Traffic and transport
Potential impacts	**Construction** While several changes to the transport network (during both construction and operation) would occur on Designated Areas, they have the potential to affect the broader transport network and movements from areas in non-Designated Areas. Construction of the Project would cause temporary disruptions to the existing road network due to increased construction traffic, altered site access, changes to parking arrangements, and partial or full road closures (most of which would occur on	Section 11.1 of Chapter 11 (Project-wide issues) Traffic and transport sections in Part B (Environmental impact assessment)

Item	Summary	Further detail
	Designated Areas in the Project's northern precincts, with flow on effects for the broader transport network). These disruptions would redistribute traffic across surrounding routes, leading to decreased volumes on major roads near construction sites and increased volumes on parallel and arterial roads such as King Edward Terrace, Flynn Drive, Tuggeranong Parkway, and Monaro Highway. A Travel Demand Management Strategy would be implemented to reduce peak-hour traffic by five to ten percent, encouraging alternative travel modes and off-peak travel. The Project would also affect parking supply, with a reduction in available spaces during both construction and operation. Most of the reduction in parking supply would be temporary during construction and associated with the location of construction compounds on land currently used for off-street parking areas. The majority of this parking removal would occur on Designated Areas around the Commonwealth Avenue, National Triangle and Barton precincts. All accessible parking spaces removed by the Project would be replaced with equivalent parking spaces in the same area. Other permanent parking space loss would be replenished through ongoing market supply. Modifications to the road network and access limitations in the Project area would also impact pedestrian and cycling paths during construction of the Project. Alternative access arrangements for pedestrians and cyclists would be maintained throughout the construction works with minimal diversion from the desire line. **Operation** Once operational, the Project would enhance transport capacity, accommodating an additional 2,400 people per hour in each direction while improving pedestrian and cycling connectivity by providing new bridges, shared paths, and bike parking. The Project would require modifications to the existing road network, including lane adjustments, intersection upgrades, and some road closures, including the removal of the Yarra Glen roundabout. Traffic modelling indicates that most travel time changes would be under five minutes, though some routes, particularly in the AM peak, may experience longer delays due to background traffic growth and changes in traffic patterns. Bus services along Adelaide Avenue may experience minor delays, though these are linked more to broader congestion trends than the Project. While the Project would provide a reliable alternative to driving, reducing reliance on congested roads, it is just one component of a larger integrated transport strategy. Long-term, additional investments in public transport, road network improvements, and policies that promote active and sustainable transport would also be necessary to mitigate Canberra's projected increase in congestion.	Sections 5 and 6 of Technical Report 1 – Traffic and transport

Item	Summary	Further detail
Mitigation and offsets	Key mitigation measures to address potential impacts to traffic and transport include the following: • Establishment of a Traffic and Transport Liaison Group for the Project to oversee and review traffic and multi modal implications of proposed construction activities and network arrangements for the Project (refer to mitigation measure TT1 and TT2) • Implementation of a Transport Management Plan as part of the CEMP(s), which would include measures to minimise and manage traffic and transport impacts, and would be developed in consultation with relevant ACT Government entities (refer to mitigation measure TT3) • Development of a Traffic Demand Management Strategy with stakeholders across government, the intent of reducing private vehicle trip generation and parking demand during the Project's construction (refer to mitigation measure TT4) • A public awareness campaign to increase understanding of road network changes during both construction and operation (refer to mitigation measure TT5) • Development of a Construction Worker Transportation Strategy with initiatives to minimise construction worker parking impacts, such as providing a shuttle bus to transfer construction workers from local hubs to construction sites (refer to mitigation measure TT7) • Development of a Project design and operations approach which optimises the interface between the Project and other transport modes (refer to mitigation measure TT9).	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline)
Residual risks	**Construction:** Implementing mitigation and management measures would reduce construction-phase risks to a low or very low rating. Some high and medium residual risks would remain: • Reduced road network performance during demolition and construction • Disruption to property access along alignment • Disruptions to pedestrians/cyclists during demolition and construction • Disruptions to existing public transport routes during demolition and construction • Changes to established journey patterns/routines. These risks would be managed to an acceptable level through the mitigations described above. **Operation:** Implementing mitigation and management measures would reduce most operational risks to a low risk level. One high risk remains which involves risk of a reduced road network performance during operation. Risks would continue to be managed to an acceptable level through the mitigations described above.	Section 4.5 of Appendix J (Environmental risk assessment)

22.2.6 Air quality

A summary of assessment outcomes for air quality is provided in Table 22-14.

Table 22-14 Assessment summary – air quality

Item	Summary	Further detail
Environmental condition and values	While the Project area is within an urbanised area, the existing background air quality is within acceptable levels reviewed against the existing National Environment Protection (Ambient Air Quality) Measure (2021) standards.	Section 11.9 of Chapter 11 (Project-wide issues)
Investigation	The assessment methodology was to: • Carry out a construction dust risk assessment to assess the potential dust risk associated with dust spoiling and human health impacts to human receptors as well as ecological receptors • Assess the potential combustion emissions from mobile and plant equipment from construction activities • Assess the potential air quality impacts from operation • Identify mitigation and management measures to address potential air quality impacts during construction and operation.	Chapter 10 (Assessment methodologies)
Potential impacts	Impacts to air quality have been assessed at a 'Project-wide' level in Chapter 11 (Project-wide issues) of the EIS. Most of these potential impacts would be similar across the Project area, including both Designated areas and non-Designated Areas. **Construction** Potential dust generating activities during construction have been assessed broadly as demolition, earthworks, construction (infrastructure and buildings) and dirt track-out from construction sites. Dust impacts have been considered in terms of soiling (i.e. dust deposition on land around construction sites), as well as potential impacts on human and ecological receivers. The assessment identifies several high (unmitigated) risks of potential dust impacts on non-Designated Areas: • Dust soiling from excavation and construction works. These risks would result from both the scale and intensity of excavation and construction works, and the sensitivity of surrounding land • Dust soiling from track out (including in the Inner South and Yarra Glen precincts) based on the location of construction sites and compounds, anticipated access points and construction routes, and the sensitivity of affected roads • For human receivers in relation to demolition works in the Woden precinct, due to the proximity of residential receivers to works within the precinct. Other construction activities and locations have been assessed as having no greater than a medium dust impact risk, and in many cases a negligible to low risk. **Operation** Potential air quality emissions attributed to the operation of the Project from general operation and routine maintenance work would be negligible and would be unlikely to have any adverse air quality impacts. Minor fine dust emissions are anticipated from operation of the light rail, but the impacts and risks associated with respirable crystalline silica would be very low.	Section 11.9 of Chapter 11 (Project-wide issues)

Item	Summary	Further detail
Mitigation and offsets	Key mitigation measures to address potential impacts to air quality include the following: • Implementation of a Dust Management Plan as part of the CEMP(s) with measures to measures to minimise the generation and emission of dust (refer to mitigation measure AQ1) • Various best practice measures to minimise dust emissions from construction vehicles travelling to and from the Project area such as covering dust generating loads (refer to mitigation measure AQ2) • Measures to minimise air emissions from construction plant and equipment (refer to mitigation measure AQ3).	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline)
Residual risks	**Construction:** Implementing mitigation and management measures would reduce most construction-phase risks. Medium residual risks would remain, associated with the increase in air pollution during demolition and construction and the impact of construction activities on sensitive receivers. These risks would be managed to an acceptable level through the mitigation measures described above. **Operation:** Implementing mitigation and management measures would reduce all operational risks to a low risk level. Risks would continue to be managed to an acceptable level through the mitigation measures described above.	Section 4.6 of Appendix J (Environmental risk assessment)

22.2.7 Hydrology, flooding, water quality, and groundwater

A summary of assessment outcomes for hydrology, flooding, water quality and groundwater is provided in Table 22-15.

Table 22-15 Assessment summary – hydrology, flooding, water quality and groundwater

Item	Summary	Further detail
Environmental condition and values	The Project would be located across four subcatchments that drain through Lake Burley Griffin into the Molongolo River and eventually into the Murrumbidgee River: • Acton subcatchment – covering the portion of the Project north of Lake Burley Griffin (Commonwealth Avenue precinct) • Capital Hill subcatchment – covering the portion of the Project south of Lake Burley Griffin to around Adelaide Avenue (Commonwealth Avenue, Parliament House, National Triangle, Barton and Inner South precincts) • Adelaide Avenue subcatchment – covering the portion of the Project generally along Adelaide Avenue (Inner South and Yarra Glen precincts) • Yarralumla Creek subcatchment – covering the portion of the Project from Yarra Glen south to Woden (Yarra Glen and Woden precincts). Each of these subcatchments extend beyond the Project area into areas of non-Designated Areas. The Mitchell Depot site drains separately via Sullivans Creek into Lake Burley Griffin.	Section 11.5 of Chapter 11 (Project-wide issues) Section 3 of Technical Report 4 – Hydrology, flooding and water quality

Item	Summary	Further detail
	Consistent with the highly developed urban environments across central Canberra, existing water quality in each of these subcatchments is degraded and affected by common urban runoff pollutants. Existing groundwater table depth is dependent on location and hydrogeological conditions. The groundwater table level within the Project area is estimated to range between 2 m and 8 m below ground level with varying degrees of permeability and water movement through the Project area.	
Investigation	The assessment methodology was to: • Characterise the existing climate, topography, soils, geology, hydrology, hydrogeology, water quality, groundwater, and sensitive receiving environments • Identify how catchments would potentially be impacted by the Project and review existing flood studies and flood behaviour for existing conditions • For hydrology and water quality: assess potential impacts of construction and operational activities on surface water environments, and changes to hydrology within the catchments • For flooding: - Identify of potential impacts of construction activities on existing flow paths and flooding - Identify changes to flooding conditions as a result of operational Project infrastructure, including potential changes to flood depths, extents, hazards and private property affectation. This includes assessment of 1% Annual Exceedance Probability (AEP), 5% AEP, and 1% AEP with 20% factor for climate change events • For groundwater: identify potential impacts on groundwater resources, considering components of Project construction and operation that have the potential to intercept groundwater • Identify mitigation, monitoring and management measures to manage potential hydrological, flooding, water quality, and groundwater impacts.	Chapter 10 (Assessment methodologies) Section 2 of Technical Report 4 – Hydrology, flooding and water quality
Potential impacts	Hydrology, water quality and flooding and groundwater related impacts have been assessed at a 'Project-wide' level in Chapter 11 (Project-wide issues) of the EIS. Some of these potential impacts and risks would be applicable to the Project as a whole, including components of the Project on both Designated areas and non-Designated Areas. **Construction** The Project area subcatchments feature discharge points with direct connections into Lake Burley Griffin and the Molonglo River. Without the implementation of mitigation measures, construction activities (such as utilities work, earthworks, construction of bridges and vegetation removal) could increase the risk of stormwater pollution within these sensitive receiving environments. Construction in flood-prone areas could also disrupt hydrological conditions, alter drainage pathways, and increase flood risks.	Section 11.5 of Chapter 11 (Project-wide issues) Sections 4 and 5 of Technical Report 4 – Hydrology, flooding and water quality

Item	Summary	Further detail
	Structures such as construction compounds, fencing, and material storage can create blockages or diversions to the existing flood flow paths and drainage infrastructure that results in changes in flow characteristics. Potential impacts include changes to flow conditions at discharge points, such as increased scour and erosion, reduced headroom in the existing stormwater drainage network, and extended waterlogging in public spaces due to increased volume of runoff. There is some potential for the Project to intercept perched groundwater during construction, particularly during larger scale excavation activities such as piling works for new bridges and at Phillip Oval Stop, or trenching for new or realigned stormwater drainage and utilities. Excavated ground may fill with rainwater or groundwater and contain high concentrations of suspended soils, hydrocarbons from plant, and other contaminants such as metals (e.g. iron, copper) and salts from groundwater. **Operation** The Project would result in increased impervious surfaces, leading to higher surface runoff and pollutant loads across several subcatchments. Modelling indicates a 5-6% increase in total suspended solids, nitrogen, and phosphorus for the State Circle East alignment, and 3-5% for the National Triangle-Barton alignment (for the Project as a whole). Water-sensitive urban design measures would be integrated to minimise additional pollutant discharge. Flood modelling has assessed potential impacts up to a 1% AEP (major flood event) and a climate change scenario (+20% rainfall), with generally small increases in flood depths at a few locations, typically within a few centimetres. Flood levels are not expected to increase at any properties, except for one in the Inner South precinct, which may experience a negligible increase.. In some areas, flood levels are expected to decrease due to improved drainage provided by the Project. Ongoing design refinements and updated flood assessments would help manage and minimise adverse flood risks, and help maintain Canberra's existing hydrological balance.	
Mitigation and offsets	Key mitigation measures to address potential impacts to hydrology, flooding, water quality, and groundwater include the following: • Implementation of a Surface Water and Groundwater Plan as part of the CEMP(s), with measures to minimise erosion and sedimentation, manage surface water and flooding, and protect local water quality during construction (refer to mitigation measure HF1 and HF4) • Further investigation of groundwater conditions at locations that are expected to be at high risk of groundwater interception (refer to mitigation measure HF2) • Design of the Project to meet the requirements of stormwater quality targets as defined in the Waterways: Water Sensitive Urban Design General Code (ACT 2020) (refer to mitigation measure HF6)	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline)

Item	Summary	Further detail
	• Establishment of an inter-agency catchment working group to support Project design development that is consistent with wider catchment strategic planning, and to minimising flood risks during operation (refer to mitigation measure HF7).	
Residual risks	**Construction:** Implementing mitigation and management measures would reduce most construction-phase risks to a low or very low risk level. A medium residual risk would remain, associated with construction activities that may change the existing hydrological conditions drainage pathways. This risk would be managed to an acceptable level through the mitigations described above. **Operation:** Implementing mitigation and management measures would reduce most operational risks to a low or very low risk level. Flooding impacting services during operation would present a medium residual risk, however this would be managed to an acceptable level through the mitigations described above.	Section 4.7 of Appendix J (Environmental risk assessment)

22.2.8 Contamination, soils, and geology

A summary of assessment outcomes for contamination, soils and geology is provided in Table 22-16.

Table 22-16 Contamination, soils and geology

Item	Summary	Further detail
Environmental condition and values	Non-Designated Areas within the Project area is generally characterised as Williamsdale and Ginninderra Creek soil landscapes. This includes transferral (generally older and more weathered rocks that have eroded into soils and moved downslope) and alluvial (generally younger deposits of unweathered soils, formed by flowing water) soils. Most of the land has been mapped as having an extremely low to low probability of occurrence of acid sulfate soils.	Section 11.6 of Chapter 11 (Project-wide issues) Section 4 of Technical Report 5 – Contamination
Investigation	The assessment methodology was to: • Identify existing soil landscapes and review regulatory frameworks, guidelines, and publicly available data • Undertake a site inspection to ground truth information collected during the desktop assessment and review current land uses and condition • Develop a conceptual site model and assessment of potential contamination risks and potential impacts to existing contamination and exposure risks to environmental and human health receptors • Identify low, medium, and high risk sites including recommendations for additional investigations and/or management based on the site risk rating, and with consideration to the intended land use/future exposure scenarios at the relevant location • Identify the potential to disturb acid sulfate and saline soils, and potential impacts associated with erosion and sedimentation during construction	Chapter 10 (Assessment methodologies)

Item	Summary	Further detail
	• Identify management and mitigation measures to address potential soils and contamination impacts.	
Potential impacts	**Construction** Construction of the Project would temporarily expose the natural ground surface and subsurface through the removal of vegetation and excavation of topsoil. The temporary exposure and stockpiling of soil to water runoff and wind could increase soil erosion potential. There is the potential that exposed soils and other unconsolidated materials (such as spoil, sand, and other aggregates) could be transported from the Project area into surrounding areas and waterways via stormwater runoff. Erosion controls would be implemented and managed in accordance with relevant guidelines to manage this risk. Areas of environmental concern (AECs) have been identified and assessed for land within or in proximity to the Project disturbance footprint based on current and historical land uses, and contaminated sites registered with the ACT Environment Protection Authority. AECs on non-Designated Areas generally relate to areas of uncontrolled fill, current and former service stations, construction activities in Woden, and the Mitchell Depot site. Contaminants that may be present within these AECs include a series of anthropogenic contaminants commonly identified in urban environments such as asbestos and heavy metals. No sites with extensive, migrating or intractable contamination issues have been identified within or in proximity to the Project area. More detailed site investigations have been identified and would be carried out for areas of greater contamination risk. These investigations would be carried out to further inform Project design and construction planning, and where relevant, to development site contamination approaches (including consideration of remedial works, if required). Construction activities could potentially result in soil or surface water contamination from the following activities if unmitigated, for example from spills of oils, fuels or chemicals from plant and equipment in the Project area. **Operation** Operational impacts are anticipated to be restricted to those arising from accidental spills or leakage causing contamination, primarily from stabling and maintenance activities at the Mitchell Depot, or from LRVs travelling along the alignment. Unless carefully managed, the soils in these areas could become contaminated with hazardous materials (such as fuels, lubricants, and hydraulic oils) during maintenance activities. However, with the implementation of mitigation measures, the risk of contamination from operation of the Project is anticipated to be negligible.	Section 11.6 of Chapter 11 (Project-wide issues) Section 4 of Technical Report 5 – Contamination

Item	Summary	Further detail
Mitigation and offsets	Key mitigation measures to address potential impacts to contamination, soils, and geology include the following: • Implementation of a Soils and Contamination Management Plan as part of the CEMP(s) as well as a unexpected contaminated finds procedure (refer to mitigation measure SC1 and SC3) • Preparation of a Detailed Site Investigation (DSI) for areas of environmental interest within the Project area identified as posing a medium or greater risk in accordance with relevant standards (refer to mitigation measure SC2). Based on the outcomes of the DSI, a Remediation Action Plan may be developed and implemented.	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline)
Residual risks	**Construction:** Implementing mitigation and management measures would reduce most construction-phase risks to a very low risk level. A high residual risk would remain, associated with encountering an unexpected contaminated land. This risk would be managed to an acceptable level through the mitigations described above. **Operation:** Implementing mitigation and management measures would reduce most operational risks to a very low risk level. This risk would still be managed to an acceptable level through the mitigations described above.	Section 4.8 of Appendix J (Environmental risk assessment)

22.2.9 Socioeconomic and health

A summary of assessment outcomes for socioeconomic and health is provided in Table 22-17.

Table 22-17 Assessment summary - socioeconomic and health

Item	Summary	Further detail
Environmental condition and values	The ACT, with its relatively young and educated population, exhibits economic strengths alongside significant challenges related to housing affordability and financial stress. The population living in closest proximity to the Project reflects a diverse community with a slightly older demographic and higher median incomes, yet also faces housing pressures and varying levels of technology access among residents. The workforce primarily comprises sectors such as public administration and safety, professional, scientific, technical services, retail trade, accommodation and food services, and health care and social assistance. Throughout the Project area are community facilities, urban parks, recreational areas, and educational institutions.	Sections 11.7 of Chapter 11 (Project-wide issues) Sections of Technical report 6 – Socioeconomic
Investigation	The assessment methodology was to: • Establish the social and economic baseline for the Project and analyse the results of community consultation • Scope the potential socioeconomic impacts of the Project, based on review of technical studies carried out for the EIS, results of community and stakeholder consultation, literature and other comparable projects • Determine likelihood and magnitude of each impact when unmitigated, considering the likely population to be affected,	Chapter 10 (Assessment methodologies)

Item	Summary	Further detail
	impact characteristics, and the potential level of significance of the potential impact • Identify and assess socioeconomic benefits of the Project • Evaluate economic impacts to adjacent businesses, with consideration of business survey results conducted for the Project • Identify mitigation, monitoring and management measures to manage potential socioeconomic and health impacts.	
Potential impacts	**Construction** Several socioeconomic impacts relating to the construction of the Project would be experienced at a broader level, by the whole corridor and regional locality. This includes a range of stakeholders from a regional spatial extent including workers, visitors to the area and commuters. Key adverse socioeconomic outcomes requiring mitigation during construction would include the following: • Resource strain and increased demand on labour (skilled labour availability) • Health and wellbeing (disruptions to local amenity during construction) • Disruptions to road users (construction traffic, road network changes, implications of congestion and travel times) • Disruptions to businesses, services, and workplaces from parking impacts • Economic impacts to local businesses • Impacts to heritage (landscape and visual, noise and vibration, removal of trees) • Community concern (environmental impacts including visual, heritage and biodiversity) • Economic impacts and disruption to events and cultural festivals. The socioeconomic impacts would be experienced by receivers and stakeholders across a broad area, including those on non-Designated Areas (such as residents of residential areas in these locations).Several mitigation strategies are proposed to manage these impacts to an acceptable level. Some socioeconomic benefits are also predicted during construction, such as construction workforce employment opportunities and flow-on economic effects associated with investment in construction and labour. **Operation** The Project would contribute to positive social impacts during operation, by providing an efficient transport option connecting people between their homes, places of work and social infrastructure. These benefits would be regional in nature, impacting stakeholders and receivers on both non-Designated Areas and designated areas. In the future, improved travel times and travel reliability relative to the surrounding road network would contribute more time to enjoy social, cultural, educational and recreational activities across the city. This in turn would support health and wellbeing outcomes for Canberra's residents and visitors. Improved amenity provided by the Project along its	Sections 11.7 of Chapter 11 (Project-wide issues) Socioeconomic assessment sections in Part B (Environmental impact assessment) Sections 6.3 to 6.5 of Technical report 6 – Socioeconomic

Item	Summary	Further detail
	alignment, by reducing road vehicle noise and emissions, would also contribute to the ongoing liveability and desirability of Canberra. Potential adverse impacts may be experienced (including by stakeholders on non-Designated Areas) are particularly associated with the following: • Health and wellbeing (community safety and potential antisocial behaviour around light rail stops) • Road network changes (implications for congestion and travel times) • Disruptions to the road network and parking (National Triangle-Barton alignment option only) • Operational noise (potential decline in social amenity and impact on noise sensitive receivers). With appropriate mitigation and management, potential adverse impacts could be limited to low to medium risk. Key socioeconomic benefits would relate to the following: • Health and wellbeing (with the design to reflect Gender Sensitive Urban Design (GSUD) principles) • Urban revitalisation (associated with improved transport connectivity and potential for urban development) • Access to and use of social infrastructure, jobs, businesses, educational facilities and services • Intergenerational equity • Landscape and visual changes (improvements to the aesthetic value of the area).	
Mitigation and offsets	Key mitigation measures to address potential socioeconomic and health impacts include the following: • Implementation of Community Engagement and Social Management Plan as part of the CEMP(s). As part of the Plan, a Community Engagement Strategy, Business and Labour Strategy and a Water User Strategy would be developed and implemented (refer to mitigation measure SE1) • Establishment of a community complaint / public grievance process for the duration of construction. Identified incidents would be dealt with through investigation and implementation of corrective treatments where necessary (refer to mitigation measure SE2) • Adoption of a Project design which reflects the guidance in Crime Prevention through Environmental Design (CPTED) and GSUD principles (refer to mitigation measure SE3) • Event impact assessments for major events within or adjacent to the Project area. Tailored mitigation measures would be developed in consultation with event organisers to manage construction impacts (refer to mitigation measure SE5).	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline)

Item	Summary	Further detail
	Other mitigation measures in Chapter 21 (Environmental management and mitigation measures) proposed to mange amenity-related impacts (such as noise and vibration, air quality and visual impacts) would also contribute to the effective management of socioeconomic and health impacts.	
Residual risks	**Construction:** Implementing mitigation and management measures would reduce most construction-phase risks to a low or very low risk level. One medium residual risk would remain, associated with impacts to amenity during demolition and construction. This risk would be managed to an acceptable level through the mitigations described above. **Operation:** Implementing mitigation and management measures would reduce most operational risks to a very low or beneficial risk level.	Section 4.9 of Appendix J (Environmental risk assessment)

22.2.10 Materials, waste, and resources

A summary of assessment outcomes for materials, waste and resources is provided in Table 22-18.

Table 22-18 Assessment summary – materials, waste and resources

Item	Summary	Further detail
Environmental condition and values	Design and construction planning for the Project has adopted and would continue to adopt the waste management hierarchy specified in the *ACT Waste Management Strategy 2011-2025*: avoid, reduce, reuse, recycle, recover, and then dispose (landfill).	Section 11.12 of Chapter 11 (Project-wide issues)
Investigation	The assessment methodology was to: • Identify indicative resource use requirements of the Project during construction and operation • Identify of potential waste and material types, and preliminary waste classification in accordance with relevant legislation and guidelines • Estimate quantities of excess spoil from preliminary cut and fill estimates • Identify of environmental issues and consequences if demand for resources or waste generation is not managed appropriately. • Identification of waste and materials management and mitigation measures, including measures to avoid, reduce, and manage wastes and material use in accordance with circular economy principles.	Chapter 10 (Assessment methodologies)
Potential impacts	Impacts associated with materials, waste and resources have been assessed at a 'Project-wide' level in Chapter 11 (Project-wide issues) of the EIS. The majority of these potential impacts would be applicable to the Project as a whole, including components of the Project on both Designated areas and non-Designated Areas.	Section 11.12 of Chapter 11 (Project-wide issues)

Item	Summary	Further detail
	Construction Consistent with other similar major transport infrastructure projects, the main types of materials required to construct the Project would include concrete (such as premix concrete and precast concrete pipes and conduits), aggregates and asphalt (such as road sub-base and structural fill) and metals (such as steel rails, structural steel, steel reinforcement, over-head wiring, prefabricated steel furniture and signage). Other materials that would be required in relatively smaller quantities would include timber/ plywood, structural fill, pavement finishes, polyvinyl chloride (PVC) conditions, high density polyethylene (HDPE) materials, fuel (diesel), lubricating oils and prefabricated items such as railings, stop infrastructure, LRV components. With appropriate planning, these materials would be readily available, and the Project would be unlikely to adversely affect market availability. The need for utilities such as electricity and water supply during construction and operation would be minimised through design, with opportunities considered to improve efficiency of use. The largest and most significant waste stream likely to be generated during construction of the Project would be excess spoil. Opportunities to minimise and reuse this excess spoil would be considered further during ongoing design development. Other waste streams likely to be generated during construction would include: • Demolition and general construction waste • Green waste • Liquid waste • Dangerous goods and hazardous substances • Domestic and office waste. **Operation** Resource consumption during operation would be limited to maintenance activities. This would typically involve LRV maintenance materials (cleaning chemicals, oils, lubricants, and degreasers), traction sanding devices in light trail vehicles, and asphalt and concrete for track maintenance. Refurbishment of infrastructure may also be required from time to time. Suppliers with sufficient capacity to respond to the Project's needs currently exist, and with careful planning would be able to satisfy Project demands without adversely affecting market supply. It is anticipated that a relatively small quantity of waste would be generated by the Project once it is operational. Key waste streams during operation would include maintenance and repair wastes; waste generated by staff and passengers; and green waste from vegetation and green track maintenance.	

Item	Summary	Further detail
Mitigation and offsets	**Mitigation approach** Key mitigation measures to address potential impacts to associated with materials, waste and resource use include the following: • Implementation of a Spoil and Waste Management Plan as part of the CEMP(s) for the Project (refer to mitigation measure MR1) • Identification and implementation of opportunities to reduce water consumption and to reuse and recycle water within the Project (refer to mitigation measure MR2) • The Project will be designed, constructed and operated according to an energy consumption hierarchy • Operational waste, including general litter clean up, will be managed consistently with the broader Light Rail network Operation Environmental Management Plan and the waste hierarchy principles contained in the *ACT Waste Management Strategy 2011-2025.*	Chapter 21 (Environmental management and mitigation measures)
Residual risks	**Construction:** Implementing mitigation and management measures would reduce most construction-phase risks to a low or very low risk level. **Operation:** Implementing mitigation and management measures would reduce most operational risks to a low or very low risk level.	Section 4.10 of Appendix J (Environmental risk assessment)

22.2.11 Planning and land status

A summary of assessment outcomes for planning and land status is provided in Table 22-19.

Table 22-19 Assessment summary – planning and land status

Item	Summary	Further detail
Environmental condition and values	The Project would be located within an urbanised environment, generally within existing road corridors surrounded by a range of commercial, civic, and residential land uses. Those parts of the Project generally from Carruthers Street, Curtin south to Woden, and works at the Mitchell Depot would be subject to the Territory Plan 2023 under the *Planning Act 2023* (ACT) (Planning Act).	Section 11.8 of Chapter 11 (Project-wide issues)
Investigation	The methodology for the assessment was to: • Determine the planning context, existing and future land uses, key recreational uses, and planning and development status of the Project area and surrounds • Assess of potential impacts to properties, recreational facilities and property amenity, and changes to land use during construction and operation stages • Identify mitigation measures to address potential land use and property impacts.	Chapter 10 (Assessment methodologies) Appendix K (Property and land use planning)
Potential impacts	**Construction** The majority of the Project would be carried out within existing road reserves. While there would be minor encroachments into some privately-leased properties, the Project would not involve	Section 11.8 of Chapter 11 (Project-wide issues)

Item	Summary	Further detail
	residential or private property acquisition that would physically displace individuals or communities. Construction compounds would also be established within the Project area for the duration of construction. During construction, land uses within the Project area would temporarily change from their existing land use to construction works areas or compounds. Public access to this land (where it is currently available) would be restricted for the duration of its use as a construction work area or compound. Temporary work areas and compounds would be restored and returned to public use (where it is presently available) as far as practicable when works are complete. Demolition and construction activities for the Project may adversely affect the amenity of some adjoining land uses due to impacts such as noise, vibration and dust generated by construction activities; traffic disruption associated with construction traffic and potential temporary road closures; and visual impacts associated with tree removal, stockpiles, and construction vehicles/equipment. Amenity-related impacts on adjacent properties would be most noticeable in areas where residential properties or other sensitive land uses (such as educational receivers) are either located directly adjacent to construction activities (predominantly within the vicinity of the light rail stops) or where receivers have an unscreened view of the construction areas. **Operation** As noted above, the majority of the Project area and operational infrastructure would be located on land owned and managed by the ACT and Australian Government. Permanent impacts would occur to a limited number of privately leased blocks. Privately leased blocks within the Project area on non-Designated Areas include: • Block 4, Section 79, Division of Phillip: minor encroachment into the western boundary of the block would be required to facilitate delivery of active travel arrangements • Blocks 9 and 10, Section 79, Division of Phillip: the light rail corridor would be located within these blocks, which adjoin Yarralumla Creek • Block 16, Section 79, Division of Phillip: temporary works associated with utilities are proposed along the western boundary of the block currently occupied by Canberra College. Minor permanent encroachment into the western boundary of the block would be required for active travel and associated infrastructure. Existing buildings or infrastructure on the block would not be directly affected • Block 2, Section 16, Division of Mitchell: Portions of this block would be used to accommodate the expansion of the Mitchell Depot and construction activities. Properties close to the light rail alignment and associated infrastructure may experience changes in amenity as a result of the Project. This could include minor increases in noise levels as a result of the operation of LRVs; increased commuter traffic	Appendix K (Property and land use planning)

Item	Summary	Further detail
	(primarily pedestrian) within the local area; and visual impacts where properties have direct views to operational infrastructure. These amenity impacts would be managed in accordance with mitigation measures for the Project that have been identified to respond to the specific impacts listed above (refer to Chapter 21 (Environmental management and mitigation measures)). The operation of the Project is also anticipated to result in positive amenity impacts for some adjoining land uses through the encouragement of a shift away from private vehicle to public and active transport options (light rail, walking, cycling etc.) thereby reducing traffic impacts on the existing local and arterial network. In the long term, the implementation of the Project is likely to increase the desirability of land and development, particularly around stop locations. This in turn may contribute to a shift over time in the mix development types delivered around stop location and surrounding land use catchments. The Project has been assessed as generally consistent with the aims, objectives, strategic land use planning direction and relevant development controls in the Territory Plan. This is underpinned by the fact that the Project would be mainly located within existing transport corridors rather than alignment elsewhere with direct impacts on non-transport zoned land. Where the Project would encroach into adjacent non-transport zoned land, these land areas would be small and would not fundamentally undermine the potential use of the affected land for permissible uses.	
Mitigation and offsets	Key mitigation measures to land use and property impacts include the following: • Identification of opportunities reduce the extent and duration of land required to construct and operate the Project (refer to mitigation measure LP1) • Community and stakeholder to notify the community of potential land use and amenity issues associated with the Project, particularly for sensitive land uses in the immediate vicinity of the Project (refer to mitigation measure LP2) • Rehabilitation of land occupied for construction activities, where it is not required for permanent operational infrastructure, in consultation with the relevant land custodian (refer to mitigation measure LP3).	Chapter 21 (Environmental management and mitigation measures)
Residual risks	**Construction:** Implementing mitigation and management measures would reduce most construction-phase risks to a low risk level. High residual risks would remain, associated with Impacts on public property during demolition and construction and the potential for delays in the completion of the project. These risks would be managed as far as practicable through the mitigations described above and construction planning. **Operation:** Implementing mitigation and management measures would reduce most adverse operational risks to a low to negligible risk level. Identified benefits include a potential for increase in property amenity and value.	Section 4.11 of Appendix J (Environmental risk assessment)

22.2.12 Climate change and greenhouse gas

A summary of assessment outcomes for climate change and greenhouse gas is provided in Table 22-20.

Table 22-20 Assessment summary – climate change and greenhouse gas

Item	Summary	Further detail
Environmental condition and values	Australia is already experiencing impacts from climate change. This includes a greater frequency and severity of extreme weather events, an increase in the number of extreme heat days, a decrease in the number of extreme cold days, and increases in global greenhouse gas concentrations. The Project would be increasingly exposed to numerous climate hazards as a result of climate change. The key climate hazards that are identified in Canberra, which have the potential to impact the Project are: • Project increases in average annual temperatures • Projected increases in the intensity and frequency of extreme heat events and bushfires • Projected decreases in the volume of average annual rainfall, which could increase the length of droughts • Projected increases in the intensity of extreme rainfall, flooding and extreme storms.	Section 11.10 of Chapter 11 (Project-wide issues) Section 3 and Section 4 of Technical Report 7 – Climate change risk
Investigation	Impacts and risks associated with climate change and greenhouse gas have been assessed at a 'Project-wide' level in Chapter 11 (Project-wide issues) of the EIS. These potential impacts and risks would be applicable to the Project as a whole, including components of the Project on both Designated areas and non-Designated Areas. **Climate change risk** The methodology for the climate change risk assessment was to: • Present climate projections for a baseline and two future time horizons (near-future and far future), reflective of the climate projections available and the design life of the Project • Analyse climate projections to understand exposure and vulnerability to climate change hazards • Develop a climate change risk register and assessment using a risk evaluation matrix, consequence, and likelihood criteria • Consider the Project's potential contributions to climate change, including greenhouse gas emissions, urban heat, and local microclimate changes • Identify adaptation measures for highly probable and consequential natural disaster risks through design, construction, and operation • Reassess climate change risks to understand residual risk levels after implementing adaptation actions.	Chapter 10 (Assessment methodologies) Section 2 of Technical Report 7 – Climate change risk Section 3 of Technical Report 8 – Greenhouse gas

Item	Summary	Further detail
	Greenhouse gas The methodology for the greenhouse gas assessment was to: • Summarise relevant legislative and strategic context including international, national, and ACT policies • Calculate greenhouse gas inventory for Scope 1, Scope 2, and Scope 3 emissions, including: - Combustion of liquid fuels from stationary and mobile plant equipment and international shipping of key construction components such as steel rails and light rail vehicles (LRVs) - Power consumption from the electricity grid (noting electricity in the ACT is 100% renewable and effective greenhouse gas emissions would be negligible) - Embodied energy of materials, construction and demolition waste, and additional LRVs and batteries - Vegetation (including tree) removal - Replanting of trees and vegetation (carbon sink). • Identify management and mitigation measures to minimise greenhouse gas emissions.	
Potential impacts	**Climate change risk (construction and operation)** The Project has been designed to be resilient in response to anticipated changes in climate, including increased rainfall, more severe storms, increased ambient temperatures and high rates of environmental hazards, such as bushfires. The Project design has been informed by a formal risk assessment for climate change factors, which has identified key climate change risks including: During construction: • Extreme rainfall and flooding – impacts to construction program and cost • Extreme heat events – impacts to construction program, construction worker health and safety, and cost. During operation: • Extreme rainfall and flooding – implications for drainage infrastructure capacity, disruption of evacuation procedures, increased stormwater treatment requirements, increased surface runoff, and inundation of Project infrastructure and surrounding areas • Extreme storms – damage to Project infrastructure, impacts to the health and safety of passengers and staff, disruption of evacuation procedures, and damage to surrounding land and infrastructure • Extreme heat events – potential for track buckling, impacts to the health and safety of passengers and staff, and disruptions to the electricity supply network • Increases in annual average temperatures – reduced efficiency and/ or damage to project infrastructure, adverse impacts to landscaping plantings, increase potential for fires, deterioration of green track, and increased electricity loads required to cool LRVs for passenger comfort • Bushfires – damage to Project infrastructure from bushfire smoke and dust, damage to Project infrastructure from fires,	Section 11.10 and Section 11.11 of Chapter 11 (Project-wide issues) Section 5 of Technical Report 7 – Climate change risk Section 4 and Section 5 of Technical Report 8 – Greenhouse gas

Item	Summary	Further detail
	embers and ash, damage to electricity supply, and safety implications if the Project corridor is used as a public evacuation route • Changes in average annual rainfall – impacts to landscape planting and green track as a result of decreased water supply. A total of 39 risk statements have been assessed for the future (year 2045) and longer term (year 2090). Without the application of adaptation measures, 12 high risk climate change outcomes have been identified in 2045, increasing to 18 high and two very high outcomes in 2090. Though a focused development of design- and management-related adaptation measures, these outcomes are anticipated to reduce to no high or very high risk outcomes in 2045, and 11 high risk outcomes in 2090. Ongoing design development would continue to focus on opportunities to minimise climate change risks to the Project, and to build on the series of adaptation measures already identified for the Project. **Greenhouse gas (construction and operation)** Construction would generate greenhouse gas emissions, mainly resulting from fuel consumption, vegetation clearing, and the embodied energy of construction materials (Scope 1 and Scope 3). Greenhouse gas emissions are estimated to be 102,900 tonnes CO_2-equivalent for the State Circle East alignment and 98,700 tonnes for the National Triangle-Barton alignment. Efforts to reduce emissions would focus on minimising fuel use and selecting sustainable materials. The operational phase of the Project, compared with the construction phase, would generate low levels of greenhouse gas emissions, primarily from fuel use for maintenance and transport (Scope 1) and embodied energy in replacement materials (Scope 3). As the Project will use 100% renewable electricity from the ACT grid, it would not produce Scope 2 emissions.	
Mitigation and offsets	Key mitigation measures to address climate change risk include the following: • Incorporation of climate change adaptation measures into the Project's design and construction approach (refer to mitigation measure CC1) • Review and update of the climate change risk assessment and management approach over the course of the Project (refer to mitigation measure 22) • Development of management responses to construction-related climate change risks (e.g. heatwaves or increased frequency and severity of extreme rainfall events) as part of the CEMP(s) (refer to mitigation measure CC3). Key mitigation measures to address greenhouse gas include the following: • Implementation of Carbon/Energy Management Plans as part of the CEMP(s) and OEMP(s) for the Project, with strategies to minimise and a process for reporting on, direct	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline) Section 6.1 of Technical Report 7 – Climate change risk

Item	Summary	Further detail
	(Scope 1) and indirect (Scope 2 and Scope 3) greenhouse gas emissions associated with the Project (refer to mitigation measure GG1) • The Project would also be designed and constructed to maximise the use of materials with lower embodied energy values where they are a reasonable substitute, and to minimise vegetation clearance (refer to mitigation measure GG2 and GG3).	
Residual risks	**Construction:** Implementing mitigation and management measures would reduce climate change impacts on construction to a low risk level. High residual risks would remain, associated with the contribution of the Project to climate change during demolition and construction through emissions from vehicles, plant and equipment. This risk would be minimised as far as practicable and would be managed to an acceptable level through the mitigations described above. **Operation:** With mitigation and adaptation measures, Project infrastructure would have a very high residual risk of being affected by climate change hazards, albeit a reduced risk compared to an unmitigated scenario.	Section 4.12 of Appendix J (Environmental risk assessment)

22.2.13 Hazards and risk (including utilities and services, and bushfire)

A summary of assessment outcomes for hazards and risk is provided in Table 22-21.

Table 22-21 Assessment summary – hazards and risk

Item	Summary	Further detail
Environmental condition and values	The existing environment of the Project encompasses roads, urban areas and recreational areas. There are inherent risks in the existing environment including: • Potential for road accidents • Potential for pedestrian/cyclist accidents • Extreme weather • Proximity to electricity services (such as high voltage power lines).	Section 11.13 of Chapter 11 (Project-wide issues)
Investigation	The assessment methodology was to: • Identify hazards and risks that may be present in the Project area and surrounds, and sensitive receivers that may be affected by Project-related hazards • Identify and assess construction and operational activities of the Project with the potential to cause impacts to receivers • Assess potential risk of the surrounding environment on the Project • Identify management and mitigation measures to address the identified potential hazards and risks.	Chapter 10 (Assessment methodologies)
Potential impacts	Hazards and risks have been assessed at a 'Project-wide' level in Chapter 11 (Project-wide issues) of the EIS. The majority of risks and potential impacts would be similar across the Project area, including both Designated areas and non-Designated Areas.	Section 11.13 of Chapter 11 (Project-wide issues)

Item	Summary	Further detail
	Construction Key potential risks and hazards during construction of the Project would be associated with worker health and safety, public safety and security, risks to utilities, and bushfire risks. These hazards and risks are typical of a major infrastructure project within an urban environment and would not affect the suitability of the Project area for construction of the Project. The identified hazards and risks would be readily managed through the implementation of the mitigation measures outlined in Chapter 21 (Environmental management and mitigation measures). **Operation** Key hazards during operation would include collisions with pedestrians, cyclists, and vehicles. This risk would be minimised through physical separation of tracks, signage, lighting, and public education programs. The Project would incorporate comprehensive safety and risk management measures to ensure public and environmental safety during operation.	
Mitigation and offsets	Key mitigation measures to address potential impacts to hazards and risk include the following: • Implementation of a Work Health Safety (WHS) Management Plan for the Project, with controls to manage construction safety for Project staff and the public (refer to mitigation measure HR1) • Implementation of an Emergency Response Plan which identifies potential construction phase emergency situations and how to respond to them, including universal accessibility considerations (refer to mitigation measures HR2 and HR10) • Preparation of a Bushfire Assessment Report to inform bushfire management procedures to be included in the CEMP(s) (refer to mitigation measure HR3) • Identification of potentially affected utilities prior to commencing construction at each location, and application of measures to protect, isolate, remove, relocate or otherwise manage the utility (refer to mitigation measure HR4) • Application of relevant design standards and safety reviews during ongoing design development to manage operational safety risks such as collisions and other incidents between LRVs, motor vehicles, cyclists and pedestrians during operation (refer to mitigation measures HR7 and HR8) • Use of targeted road safety campaigns to raise awareness around the operation of LRVs and promote safe behaviours in and around the Project (refer to mitigation measure HR9).	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline)

Item	Summary	Further detail
Residual risks	**Construction:** Implementing mitigation and management measures would reduce most construction-phase risks to a low or very low risk level. Medium residual risks would remain, associated with construction safety such as injury or fatality due to collisions with pedestrians or vehicles during demolition and construction. This risk would be managed to an acceptable level through the mitigations described above. **Operation:** Implementing mitigation and management measures would reduce most operational risks to a low or very low risk level. Injury or fatality due to collisions with vehicles during operation would present a medium residual risk, however this would be managed to an acceptable level through the mitigations described above.	Section 4.13 of Appendix J (Environmental risk assessment)

23.0 Justification and conclusion

This chapter summarises the justifications and conclusions presented in this Environmental Impact Statement (EIS), and provides a summary of consistency with principles of ecologically sustainable development and objectives of the *Environment Protection and Biodiversity Conservation Act* 1999 (Cth) (EPBC Act).

23.1 Project justification

The Project is identified as a priority project in various strategic land use and transport planning policies and supports growth planned for the City to Woden corridor.

Connecting centres over a 25 km Light Rail network (which would be achieved with the combination of Light Rail State 1 (LRS1), Light Rail Stage 2A (LRS2A) and the Project) would offer Canberra a plan to reduce predicted private vehicle based congestion, and release capacity for a broader range of road users, while improving journey time reliability for public transport users.

The Project would increase the people-carrying capacity of the City to Woden corridor, providing capacity for an additional 2,400 person trips per hour in each direction (in comparison, major avenues currently provide an estimated capacity for around 4,000 to 4,400 vehicles per hour). The Project would also enhance existing public transport services by providing a reliable and attractive option between Commonwealth Park and Woden that is less affected by forecast traffic congestion, compared to buses that share road space with general traffic.

As described in Chapter 2 (Need for the Project), the Project would assist in addressing current and future transport, land use, sustainability and liveability challenges in Canberra. These challenges include:

- **Traffic congestion and constraints on existing public transport**: Car travel is the dominant mode of commuting to work in Canberra, and with forecast population growth, this trend is likely to continue, worsening road congestion and impacting local economic productivity. Despite the broad coverage of the Canberra's existing bus network, there is limited capacity to support a growing city and its performance will also be affected by worsening road congestion
- **Sustainable city development**: The ACT's population is projected to exceed 750,000 by 2060, an increase of over 330,000 persons compared with 2021 data (ACT Government, 2022). Existing low residential densities and the dispersed nature of activity centres and employment in Canberra do little to improve productivity of the Canberra economy, reduce car dependency, sustain efficient public transport operations or reduce greenhouse gas emissions. Low densities result in increased car dependency, placing upward pressure on per capita costs for providing public transport and community services over larger areas and raising social exclusion and service access issues
- **Net zero carbon emissions:** The ACT Government aims to reduce emissions by 100% from 1990 levels by 2045. High car use, combined with population growth is likely to lead to increased carbon emissions in the future if viable transport alternatives, including public transport, are not provided. Compared with public transport alternatives, private car use also contributes to other adverse environmental impacts
- **Wellbeing and accessibility**: In 2022 Canberrans spent 70 minutes commuting to and from work on average per day. Minimising the amount of time spent travelling for work on a daily basis, and improving the reliability of travel, contributes to wellbeing. Wellbeing is also linked to social connection and social inclusion and the ability to easily travel to connect with family, friends and the community. A failure to continue to improve public transport infrastructure is unsustainable for a growing city in the long term and does not support key wellbeing and accessibility needs of the community.

These challenges, which reinforce the need for the Project, are dealt with to varying degrees by the Project. In particular, the Project provides the following benefits:

- **Greater access and opportunities:** The Project would connect people with Canberra's lakeside, cultural institutions, festivals, education and events precincts. It would support vibrant towns and local centres which can house Canberra's growing population while limiting extra pressure on the transport network or green spaces on the edges of Canberra
- **Delivering a city-wide network:** Canberra's population growth requires a transport network that provides choice by linking the city and suburbs. The Project would create a frequent and reliable transport option that better connects major town centres and residential employment hubs, including direct connection for North Woden and Inner South districts
- **Good for the environment:** Light Rail Stage 1 is fully electric and connected to the ACT grid, which has been 100% renewable since 2019. Travel by light rail is free of greenhouse gas emissions, making it one of the cleanest travel options in Canberra and providing an attractive alternative to car travel
- **Provides an efficient transport option:** In comparison to buses, light rail provides greater capacity to move passengers, making it a more efficient transportation option by moving more people with fewer vehicles
- **Social and economic benefits:** Construction of the Project would support local jobs, while facilitating further job creation into the future. The Project would support an estimated peak construction workforce of around 900 to 1000 people (as identified in Section 6.6.2 of Chapter 6 (Construction)), as well as additional jobs during the pre-construction period (such as advisory and professional services roles), and in the Project operations phase. In operation, the Project is also estimated to deliver broader economic benefits for Canberra by improving overall productivity due to improved journey time reliability and reduced congestion delays. Design principles for the Project, including gender sensitive urban design principles, would contribute to creating attractive spaces that foster a safer and more inclusive public transport experience
- **Keeping Canberra competitive:** Linking Canberra's north and south, the Project would support reliable and efficient transport that provides direct connections to key activity centres outlined in the National Capital Plan (NCP) and the ACT District strategies; supports building more vibrant precincts and places; encourages business growth and tourism; transports people of all abilities safely; and would support active travel over greater distances.

The implications of not proceeding with the Project means Canberra will experience an increasingly congested transport network over time, and there would be no improvement in transport connectivity, capacity or choice. The challenges outlined above would not be addressed and the social, economic and environmental benefits of the Project would not be delivered.

23.2 Ecologically sustainable development (ESD)

23.2.1 Adoption of ESD principles

The design and development of the Project has adopted Ecological Sustainable Development (ESD) principles (Section 9 of the *Planning Act 2023* (ACT) and Section 3A of the *Environment Protection and Biodiversity Conservation Act* 1999 (Cth) (EPBC Act)) considering both long-term and short-term economic development, social development, and environmental protection. The Project's consistency with ESD principles is detailed in Section 7.5. In summary:

- Decision-making processes regarding the Project have integrated long-term and short-term economic, environmental, social and equitable considerations. The Project would enhance the provision of public transport opportunities, and potential implications of not proceeding with the Project would include continued reliance on private vehicles, increased journey times on the road network, and poorer access to employment opportunities, community facilities, and social and recreational activities

- The Project has and would continue to be designed and planned to incorporate initiatives which would contribute to improved intergenerational equity. Chapter 7 (Sustainability) of the EIS documents the Project's approach to sustainability. Through the ESG-integration framework, and particularly the integration of social sustainability initiatives (such as the application of gender sensitive urban design frameworks for designing safe and inclusive places), the Project would provide for the long-term well-being of communities and would respond to the social needs of the growing city into the future. In particular, the Project has considered First Nations heritage through a 'Designing with Country' process and has sought to avoid and minimise direct and indirect impacts to heritage values through ongoing design refinement and a commitment to ongoing mitigation and management. These approached promote intergenerational equity and sustainable prosperity
- The conservation of biological diversity and ecological integrity has been a key consideration for the Project. Biodiversity impacts have been assessed in this EIS, with mitigation measures provided to manage the potential impacts of the Project (refer to Technical Report 2 – Biodiversity and Chapter 21 (Environmental management and mitigation measures). Opportunities for biodiversity sensitive urban design (BSUD) interventions along the light rail alignment would be considered and implemented to protect and enhance the existing biodiversity values, minimise biodiversity threats, strengthen ecological connectivity and resilience, and improve amenity outcomes. The Public Domain Master Plan (Appendix I) provides design guidance to support a Project design that is appropriately sensitive to biodiversity
- Economic viability and value-for-money considerations have been accounted for in the objectives of the Project. These objectives would continue to inform the ongoing development of the Project (such as design development, feasibility studies and business case)
- Chapter 21 (Environmental management and mitigation measures) outlines management and mitigation measures that aim to maintain and enhance the social, economic, and environmental outcomes for the community, through all stages of the Project-lifecycle, for the long-term benefit of future generations. Mitigation measures would be implemented in a timely matter such that environmental impacts are appropriately managed.

23.2.2 Consistency with the objectives of the EPBC Act

The Project would be consistent with the objectives of the EPBC Act as described in Table 23-1.

Table 23-1 Consistency with the objects of the EPBC Act

EPBC Act objectives	Consistency
To provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance; and	This EIS assesses the potential impacts of the Project on the environment, including matters of national environmental significance. The Project includes appropriate mitigation measures to protect these matters and potential impacts to them.
To promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources; and	The Project has adopted ESD principles, as detailed in Section 7.5 and Section 23.2.1. Section 11.12 and Chapter 21 (Environmental management and mitigation measures) include measures to further promote ESD, including through delivery of the Project and the use, reuse and renewal of natural resources.
To promote the conservation of biodiversity; and to provide for the protection and conservation of heritage; and	The Project has been designed, and would continue to be developed to minimise impacts to biodiversity and heritage. The hierarchy of avoidance/conservation, then minimisation of impact and finally offset as a last resort has and would continue to be adopted as part of ongoing design development. Biodiversity impacts have been avoided and minimised through design and assessed in this EIS.

EPBC Act objectives	Consistency
	Mitigation measures have been identified to manage potential impacts and provide for the conservation of biodiversity (refer to Technical Report 2 – Biodiversity). Opportunities for BSUD interventions along the light rail alignment would also be considered and implemented to protect and enhance the existing biodiversity values, minimise biodiversity threats, strengthen ecological connectivity and resilience, and improve amenity outcomes. The Project has been designed to avoid and minimise impacts on matters of Commonwealth and ACT heritage. Technical Report 3 – Heritage addresses the potential impacts of the Project on Commonwealth and ACT heritage and provides measures to manage these impacts. The Public Domain Master Plan (Appendix I) also provides guidance to achieve design outcomes that are appropriately sensitive to biodiversity and heritage.
To promote a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and indigenous peoples; and	The approach to environmental management, as described in Chapter 21 (Environmental management and mitigation measures), allows for a co-operative approach including engagement with the public and regulatory stakeholders. Several measures commit to consultation with stakeholders to confirm the extent of impact and an appropriate management approach. Specific measures have been identified to coordinate changes to the city's transport networks, utilities and land use planning, and to identify, mitigate and manage potential cumulative impacts cooperatively with other development proponents.
To assist in the co-operative implementation of Australia's international environmental responsibilities; and	The design and planning for the Project has directly responded to Australia's international environmental responsibilities, including international obligations relating reductions in greenhouse gas emissions. The approach to environmental management, as described in Chapter 21 (Environmental management and mitigation measures) detail how the proponent would meet relevant environmental responsibilities in relation to the Project.
To recognise the role of Indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity; and To promote the use of Indigenous peoples' knowledge of biodiversity with the involvement of, and in co-operation with, the owners of the knowledge.	As part of the design development process engagement has occurred with Aboriginal community members to identify ways to incorporate Country and culture into the Project. Design themes and recommendations developed through this process are reflected in the Public Domain Master Plan (Appendix I). This has included recommendations of relevance to landscaping and biodiversity outcomes. Landscaping has been identified as a significant opportunity to incorporate cultural knowledge and perspectives of Country. Opportunities to design with Country would continue to be identified during the Project development process (including through ongoing design development, construction planning and operations), in consultation with Aboriginal stakeholders.

23.3 Conclusion

The ACT Government is committed to planning for and delivering an integrated transport system in line with the city's projected growth, thereby supporting Canberra's reputation as one of the most liveable cities in Australia and the world. As part of its transport vision, the ACT Government has proceeded with the delivery of a modern and efficient Light Rail network, integrated with other transport initiatives. The Light Rail network has been carefully planned and implemented in stages, with the first 12 km and 14 stops already in operation.

The Project would provide greater access and opportunities for Canberrans by providing direct connections to major town centres, and residential and employment hubs. In combination with the approved LRS2A, it would extend the benefits of the existing frequent and reliable transport service provided by LRS1. It is a sustainable solution that is good for the environment (100% electric and one of the cleanest travel options in Canberra) and would provide an attractive alternative to car travel. The Project would provide social and economic benefits, keeping Canberra competitive by encouraging business growth and tourism.

The benefits of light rail are clear, having been highlighted recently with the release of *Light Rail Five Years On: Benefits Realisation Report 2024* (TCCS, 2024a). In the roughly five years since commencement of operations for LRS1, it has secured around 20% of all public transport patronage in the ACT and around 40% of light rail customers are new public transport customers. It has increased business growth by over 26% in the Gungahlin district and by almost 20% in the Canberra and Central district. It has delivered these benefits while also having 99.98% of services running on-time and an approximate 95% satisfaction rating from users.

A Commonwealth Joint Standing Committee (JSC) on the National Capital and External Territories inquiry was held into Commonwealth and Parliamentary approvals for Stage 2 of Canberra Light Rail. The JSC Inquiry Report recommendations were agreed, or agreed to in principle, by the Australian Government. The ACT Government resolved to pursue the State Circle East alignment as the ACT Government's preferred alignment option based on in-principle support from the Australian Government as it is wholly consistent with the Inter-Town Public Transport System (Indicative Route) map contained within the National Capital Plan, a plan endorsed by the Commonwealth Parliament, providing access to cultural institutions in the National Triangle and employment areas in Barton.

In response to the JSC recommendation that State Circle East had the in-principle support of the Commonwealth under the NCP, the ACT Government identified State Circle East as the preferred corridor and at the same time, including an alternative alignment through the National Triangle and Barton meant that if the preferred option was not feasible, for whatever reason, the need to recommence the EIS process again with an alternative alignment would be avoided.

The two alignment options have been assessed in this EIS. However, only one alignment option would be constructed. The decision on alignment option for the Project will consider factors including:

- Place outcomes
- Community and stakeholder feedback on the draft EIS
- Potential environmental and social benefits and impacts.

The revised, final EIS will describe only one alignment option, and will identify potential environmental impacts and benefits of that option. By continuing to plan and develop the Project in a way that is sensitive to the ACT's heritage, its natural environment, and the needs of local communities and visitors, Canberrans would be the beneficiaries of a modern, sustainable transport option that would make an essential contribution to the city's liveability, well into the future.

A detailed business case would be developed following completion of necessary environmental approvals outlined in Chapter 8 (Legislation and policy). This approach enables the scope and alignment to be well defined prior to government considering an investment decision. The process would be undertaken in accordance with the Capital Framework and include consideration of technical studies, options analysis, delivery model assessment, economic analysis (including cost-benefit assessment and Wellbeing Impact Assessment) to support an investment decision.

This draft EIS is an essential step to make sure that all relevant environmental considerations and concerns are identified and considered before the Project progresses. The EIS has assessed the environmental and social impacts associated with the Project and has been prepared to address assessment requirements issued under the *Planning Act 2023* (ACT) and the EPBC Act. It has also taken into account other relevant legislation, policies and guidelines.

The Project is expected to have environmental, social and economic benefits, as described in Section 23.1. While some localised adverse impacts would be unavoidable due to the nature of the construction and operation of the Project, the Project has been designed and would be implemented to avoid, minimise and/or manage these impacts as far as practicable.

Detailed mitigation measures have been identified to manage environmental impacts both during construction and operation of the Project as set out in Chapter 21 (Environmental management and mitigation measures). These measures and commitments will be adopted to avoid and/or manage the identified impacts and where relevant, will be incorporated into the construction and operation environmental management plans for the Project (as outlined in Appendix L (Environmental Management Plan outline)).

Residual impacts on biodiversity-related matters of national environmental significance from the Project would be offset, in accordance with an offset strategy (provided as an appendix to Technical Report 2 – Biodiversity). Offsetting is not proposed for other environmental aspects, which would be managed through the mitigation measures listed in Chapter 21 (Environmental management and mitigation measures) and management plans for the Project (as outlined in Appendix L (Environmental Management Plan outline)).

The Project would extend the benefits realised from LRS1 to further connect the city from the north to the south, with an additional 10 km of light rail and nine stops between Commonwealth Park to Woden. The Project would provide the necessary transport infrastructure to realise the benefits of a more liveable, connected city, provide a frequent and reliable transport choice independent of road congestion, deliver broader economic benefits and create opportunities for urban renewal and business growth. The Project design, together with a landscape led approach and place-making opportunities, would also contribute to creating attractive spaces that are sensitive to the surrounding environment, and foster a safer and more inclusive public transport experience for the Canberra community.

Australian Government

BUILDING AUSTRALIA

ACT Government

AECOM

PART D

APPENDICES AND TECHNICAL REPORTS

APPENDIX A – GLOSSARY AND ABBREVIATIONS

Appendix A – Glossary and abbreviations

1.1 Key terms

Key terms	Definition
active travel	Collective term for walking, cycling and scooting/micromobility
AM peak hour	Trips travelling on the road network as defined in Technical Report 1 – Traffic and transport
amenity	Refers to the quality of a place, its appearance, feel and sound, and the way the community experiences the place. Amenity contributes to a community's identity and its sense of place. Aesthetic qualities are an important part of amenity, but the broader concept of amenity is determined also by the physical design of a place and the human activity that takes place within it. A place that has 'amenity' is regarded as pleasant and attractive, as well as convenient and comfortable
background concentration (air quality)	Describes all contributing sources of a pollutant concentration other than road traffic. It includes, for example, contributions from natural sources, industry and domestic activity
background noise	The underlying level of noise present in the ambient noise when extraneous noise (such as transient traffic and dogs barking) is removed. The L90 sound pressure level is used to quantify background noise
biodiversity offsets	The gain in biodiversity values achieved from the implementation of management actions on areas of land, to compensate for losses to biodiversity values from the impacts of development
climate change	A change in the state of the climate that can be identified (e.g., using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer
cumulative impact	Cumulative impacts have the potential to occur when benefits or impacts from a project overlap or interact with those of other projects, potentially resulting in a larger overall impact (positive or negative) on the environment or local communities. Cumulative impacts may occur when projects are constructed or operated concurrently or consecutively
earthworks	Operations involved in loosening, excavating, placing, shaping and compacting soil or rock
greenhouse gas	Gaseous constituents of the atmosphere that absorb and emit infra-red radiation at specific wavelengths within the spectrum of terrestrial radiation emitted by the earth's surface, the atmosphere itself, and by clouds. This radiation generates heat which warms the atmosphere, and therefore greenhouse gases are a key contributor to the changing climate
groundwater dependent ecosystem	Communities of plants, animals and other organisms whose extent and life process are dependent on groundwater, such as wetlands and vegetation on coastal sand dunes
habitat	An area or areas occupied, or periodically or occasionally occupied, by a species, population or ecological community, including any biotic or abiotic component
impact	Influence or effect exerted by a project or other activity on the natural, built and community environment
inner running	Refers to the light rail alignment located on the inner verge of a roadway
intersection level of service	The average total vehicle delay of all movements through an intersection. Level of service is measured on a scale from A to F, with A representing optimal operating conditions and F representing worst operating conditions

Key terms	Definition
Light Rail Stage 1	Stage 1 of the Light Rail network (currently operational), which extends from Gungahlin to City
Light Rail Stage 2A	Stage 2A of the Light Rail network (approved), which extends from the City to Commonwealth Park
Matter of National Environmental Significance	A matter of national environmental significance (MNES) is any of the nine defined components protected by a provision of Part 3 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
median running	Refers to the light rail alignment located on in the median of a roadway. Also referred to as 'centre running'
mitigation	Actions or measures to avoid or reduce the impacts of a project
the National Triangle	The area bound by the triangle formed between Parliament House (Capital Hill), City Hill, and Russell
the National Triangle-Barton alignment option	One of the two Project alignment options assessed in this EIS. This alignment option extends from Commonwealth Avenue along King George Terrace, Macquarie Street, Bligh Street, National Circuit, and Sydney Avenue, before connecting with State Circle to Adelaide Avenue. Refer also to the 'State Circle East alignment option'
PM peak hour	Trips travelling on the road network as defined in Technical Paper 1 – Traffic and transport
precincts	The Project and assessment of its impacts has been separated into seven precincts based on common environmental and stakeholder contexts. Precincts assessed in this EIS include Commonwealth Avenue precinct; Parliament House precinct; National Triangle precinct; Barton precinct; Inner South precinct; Yarra Glen precinct; Woden precinct
the Project	Light Rail Stage 2B – Commonwealth Park to Woden
Project area	The footprint in which construction and operation of the Project would be carried out. The Project area includes temporary works areas, construction compounds and permanent works areas
residual impacts	Impacts of a project that remain after mitigation measures are implemented
Scope 1 emissions	Direct emissions released into the atmosphere as a direct result of activities by a project, for example, the burning of carbon-based fuels on-site and the operation of construction equipment
Scope 2 emissions	Indirect emissions generated in order to produce electricity that is used by a project. However, due to ACT's electricity grid being 100% renewable, the indirect greenhouse gas emissions generated from electricity are considered to be zero
Scope 3 emissions	Indirect emissions other than Scope 2 emissions, that occur as a result of a project, but outside the influence or control of the project. For example, emissions generated in the extraction, production and transport of purchased materials and supplies
social infrastructure	Infrastructure assets that deliver social services and other community uses, including schools, hospitals, childcare centres, libraries, and sport and recreation facilities. The term can also be used to broadly encompass the networks of facilities, places, spaces, programs, projects, and services that sustain a communities' quality of life and wellbeing
the State Circle East alignment option	One of the two Project alignment options assessed in this EIS. This alignment option extends from Commonwealth Avenue along State Circle to Adelaide Avenue. Refer also to the 'National Triangle-Barton alignment option'

Key terms	Definition
trackform	Term used for light rail tracks and the supporting concrete slab. Types of trackform are discussed in Chapter 5 (Project description) of the EIS and include green track, embedded track, and ballast track
waste hierarchy	Approach of prioritising waste avoidance and resource recovery (including reuse, reprocessing, recycling and energy recover) before consideration of waste disposal

1.2 Abbreviations

Abbreviations	Definition
ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
ACTHR	ACT Heritage Register
ACTION Bus	Australian Capital Territory Internal Omnibus Network Bus
AEC	Areas of Environmental Concern
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
ANU	Australian National University
ANZG	Australian and New Zealand guidelines for fresh and marine water quality (2018)
ARR 2019	Australian Rainfall and Runoff guidelines (2019)
AS	Australian Standard
ATO	Australian Taxation Office
AVTG (NSW)	Assessing Vibration: A Technical Guideline (NSW Department of Environment and Conservation, 2006)
BoM	Bureau of Meteorology
BSUD	Biodiversity sensitive urban design
CBD	Central Business District
CCTV	Closed-circuit television
CEMP	Construction Environmental Management Plan
CHL	Commonwealth Heritage List
CIT	Canberra Institute of Technology
CNVMP	Construction Noise and Vibration Management Plan
CO	Carbon monoxide
CO_2	Carbon dioxide
CoPC	Contaminants of Potential Concern
CoRTN	Calculation of Road Traffic Noise
CPTED	Crime prevention through environmental design
CRG	Community Reference Group
CSIRO	Commonwealth Scientific and Industrial Research Organisation

Abbreviations	Definition
CSM	Conceptual Site Model
Cth	Commonwealth
CTMP	Construction Traffic Management Plan
dB	Decibel A logarithmic scale is used to describe the level of sound, referenced to a standard level
dB(A)	A-weighted decibels The A weighting is a frequency filter applied to measured noise levels to represent how the human ear hears sounds. Adjustments are applied between 10Hz and 20 kHz. When an overall sound level is A-weighted it is expressed in units of dB(A) or dBA
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Australian Government)
DDA	*Disability Discrimination Act 1992* (Cth)
DFAT	Department of Foreign Affairs and Trade (Australian Government)
DPE	NSW Department of Planning and Environment
DSAPT	Disability Standard Accessible Public Transport
DSEWPaC	Former Department of Sustainability, Environment, Water, Populations and Communities (Australian Government)
DSI	Detailed Site Investigation
DSPAT	*Disability Standards for Accessible Public Transport Act 2002* (Cth)
EIS	Environmental Impact Statement
EIS Guidelines	The Australian Government Department of Climate Change, Energy, the Environment and Water's Guidelines for the Content of a Draft EIS (EIS Guidelines), dated 25 July 2024
EMF	electric and magnetic fields
EMS	Environmental Management System
EPA	Environment Protection Authority (ACT Government)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
EPP	Environment Protection Policy
EPSDD	Environment, Planning and Sustainable Development Directorate (ACT Government)
ERA	Environmental risk assessment
ESCP	Erosion and Sediment Control Plan
ESD	Ecological Sustainable Development Development which uses, conserves and enhances the resources of the community so that ecological processes on which life depends, are maintained and the total quality of life, now and in the future, can be increased
ESG	Environmental Social Governance
GDE	Groundwater dependent ecosystem
GHG	Greenhouse gas generation
GPs	Gross Pollutants
GSM	Golden Sun Moth
GSP	Gross State Product

Abbreviations	Definition
GSUD	Gender sensitive urban design
HGL	hydrogeological landscapes
IAIA	International Association for Impact Assessment
IAQM	(UK) Institute of Air Quality Management
iCBR	Infrastructure Canberra, formerly Major Projects Canberra (MPC)
ICNG (NSW)	Interim Construction Noise Guideline (NSW Department of Environment and Climate Change, 2009)
IS	Infrastructure Sustainability
ISC	Infrastructure Sustainability Council
JSC	Joint Standing Committee
JSCNCET	Joint Standing Committee on the National Capital and External Territories
km	Kilometre
LAeq	energy averaged noise level
LCZs	Landscape Character Zones
LED	light-emitting diode
LRCAM	Light Rail Commonwealth Avenue Master Plan (AECOM, 2022)
LRS1	Light Rail Stage 1
LRS2A	Light Rail Stage 2A
LRS2B	Light Rail Stage 2B
LRV	Light rail vehicle
m	Metres
MIS08	Municipal Infrastructure Standards 08
MNES	Matters of National Environmental Significance
MNT	Mature Native Trees
MPC	Major Projects Canberra
MUSICX	Model for Urban Stormwater Improvement Conceptualisation Version X
NC Act	*The Nature Conservation Act 2014* (ACT)
NCA	National Capital Authority, established under the *Australian Capital Territory (Planning and Land Management) Act 1988* (Cth)
NCDC	National Capital Development Commission
NCP	National Capital Plan, prepared under the *Australian Capital Territory (Planning and Land Management) Act 1988* (Cth)
NEPM	National Environment Protection (Ambient Air Quality) Measure
NGERS	National Greenhouse and Energy Reporting Scheme
NHL	National Heritage List
NL	Noise Logger
NML	Noise management level
NMM	Noise Measurement Manual

Abbreviations	Definition
NO	Nitrogen oxide
NO_2	Nitrogen dioxide
NPfI (NSW)	Noise Policy for Industry (NSW Environment Protection Authority, 2017)
NSOP	National Security Office precinct
NSW	New South Wales
NVIA	Noise and Vibration Impact Assessment
NZS	New Zealand Standard
OCC	Operation Control Centre
OEMP	Operational Environmental Management Plan
PA system	Public Address system
PALM Act	*Australian Capital Territory (Planning and Land Management) Act 1988* (Cth)
Parliament Act	*Parliament Act 1974* (Cth)
PCT	Plant community type
PDMP	Public Domain Master Plan
PFAS	Per- and polyfluoroalkyl substances
PM	Particulate matter
$PM_{2.5}$	Particulate matter equal to or less than 2.5 microns in diameter
PM_{10}	Particulate matter equal to or less than 10 microns in diameter
Planning Act	*Planning Act 2023* (ACT)
PMST	Protected Matters Search Tool
PP&A Act	*Pest Plants and Animals Act 2005*
PVC	Polyvinyl chloride conduit (ACT)
RANMG	Roads ACT Noise Management Guidelines
RAO	Representative Aboriginal Organisations
RAP	Remediation Action Plan
RBL	Rating background level
RING (NSW)	Rail Infrastructure Noise Guideline (NSW Environment Protection Authority, 2013)
RLC	Raising of London Circuit
RNP (NSW)	Road Noise Policy (NSW Department of Environment, Climate Change and Water, 2011)
RWMP	Resource and Waste Management Plan
SA2	Statistical Area 2 Defined by the ABS as medium-sized general-purpose areas built to represent communities that interact together socially and economically, typically with populations between 3,000 to 25,000 people
SA3	Statistical Area 3 Defined by the ABS for the output of regional data, typically with populations between 30,000 and 130,000 people
Scoping Document	The ACT Government's Environment, Planning and Sustainable Development Directorate Scoping Document requirements dated 4 March 2024

Abbreviations	Definition
SDG	Sustainable Development Goals
SECP	Sediment and Erosion Control Plan
SEIA	Socioeconomic Impact Assessment
SPRAT database	Species Profile and Threats Database
SRP	Site Rehabilitation (or Restoration) Plan
TAPM	The Air Pollution Model
TCCS	Transport Canberra and City Services
TDMS	Traffic Demand Management Strategy
Territory Plan	*Territory Plan 2023* (ACT)
TGSI	Tactile ground surface indicators
TN	Total Nitrogen
TP	Total Phosphorous
TPA	Territory Planning Authority, established under *the Planning Act 2023* (ACT). The functions and powers of the Territory Planning Authority are currently exercised by EPSDD.
TPP	Territory Priority Project
TPS	Traction power substation
TSS	Total Suspended Solids
TTMP	Temporary Traffic Management Plan
UFP	Unexpected Finds Protocol
ULE	Useful Life Expectancy
UNFCC	United National Framework Convention on Climate Change
VHT	Vehicle hours travelled
VISSIM	“Verkehr In Städten – SIMulationsmodell” (VISSIM), which translates to “Traffic in cities - simulation model”
VKT, VHT	Vehicle kilometres travelled
WHS	Work health and safety
WSUD	Water sensitive urban design

APPENDIX B - SCOPING DOCUMENT

ACT Government
Environment, Planning and Sustainable Development

Scoping Document

Under Division 6.3.3 of the *Planning Act 2023*

APPLICATION NUMBER: 202400003	**DATE OF THIS NOTICE:** 4 March 2024
DATE LODGED: 19 January 2024	**EXPIRY OF THIS NOTICE:** 4 September 2025
PROJECT: Light Rail Stage 2B	
ENVIRONMENTAL IMPACT ASSESSMENT TRIGGER: *Planning (General) Regulation 2023*, Schedule 1, Part 1.2, Items 16, 17, 21, 23 and 25	

BLOCK: 1, 2	**SECTION: 112**	**DIVISION: Curtin**
BLOCK: 1	**SECTION: 116**	**DIVISION: Curtin**
BLOCK: 2, 9	**SECTION: 117**	**DIVISION: Curtin**
BLOCK: 4	**SECTION: 65**	**DIVISION: Deakin**
BLOCK: 24	**SECTION: 67**	**DIVISION: Deakin**
BLOCK: 23	**SECTION: 68**	**DIVISION: Deakin**
BLOCK: 1	**SECTION: 70**	**DIVISION: Deakin**
BLOCK: 1	**SECTION: 71**	**DIVISION: Deakin**
BLOCK: 1	**SECTION: 72**	**DIVISION: Deakin**
BLOCK: 1	**SECTION: 73**	**DIVISION: Deakin**
BLOCK: 1	**SECTION: 74**	**DIVISION: Deakin**
BLOCK: 5, 6, 9	**SECTION: 28**	**DIVISION: Hughes**
BLOCK: 3	**SECTION: 16**	**DIVISION: Mitchell**
BLOCK: 8	**SECTION: 6**	**DIVISION: Phillip**
BLOCK: 6, 19, 20	**SECTION: 23**	**DIVISION: Phillip**
BLOCK: 3	**SECTION: 64**	**DIVISION: Phillip**
BLOCK: 3, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16	**SECTION: 79**	**DIVISION: Phillip**
BLOCK: 7, 14, 15, 24, 30, 31, 32, 33, 34,	**SECTION: 80**	**DIVISION: Phillip**

ACT Government
Environment, Planning and Sustainable Development

Scoping Document

Under Division 6.3.3 of the *Planning Act 2023*

BLOCK: 1	**SECTION: 104**	**DIVISION: Phillip**
BLOCK: 14	**SECTION: 66**	**DIVISION: Yarralumla**
BLOCK: 3	**SECTION: 79**	**DIVISION: Yarralumla**
ADDRESS: 91 Flemington Road, Mitchell; and **Option 1:** Commonwealth Avenue, State Circle, Adelaide Avenue, Yarra Glen, Callam Street; or **Option 2:** Commonwealth Avenue, King George Terrace, across Kings Avenue, Macquarie Street, Bligh Street, National Circuit, Sydney Avenue, State Circle, Adelaide Avenue, Yarra Glen, Callam Street		
PROPONENT: Major Projects Canberra		
APPLICANT: Ashley Cahif, Project Director – Major Projects Canberra		
LESSEE/LAND CUSTODIAN: Various ACT Government Agencies and Private Lessees/Land Custodians - details provided in Attachment C.		

SCOPING DOCUMENT

The Territory Planning Authority (the Authority) within the Environment, Planning and Sustainable Development Directorate (EPSDD) received your application under section 109(1) of the *Planning Act 2023* (the Planning Act) for Scoping of an Environmental Impact Statement (EIS) for the above proposed development. Pursuant to section 109(2) of the Planning Act, the Authority has:

a) identified the matters that are to be addressed by an EIS in the relation to the development proposal; and

b) prepared a document (the ***scoping document***) of the matters.

NB: The EIS must conform to the requirements of this scoping document. This document does not indicate approval or support in any way, nor does it indicate approval in principle.

TERM OF SCOPING DOCUMENT

Pursuant to section 112(1) of the Planning Act, the proponent must give the draft EIS to the Authority by the end of the period of 18 months starting on the day the Authority gives the scoping document for the development proposal to the applicant.

FORM AND FORMAT OF EIS

The Authority requires that the proponent engage a suitably qualified independent consultant to prepare an EIS, OR the proponent submits, with the draft EIS, an independent review of the draft EIS undertaken by a suitably qualified consultant. The EIS must be in the following form and format:

- The EIS must be prepared in accordance with section 18 of the *Planning (General) Regulation 2023.*
- The EIS must be written in plain English and avoid the use of jargon as much as possible.

- The EIS is required to be provided in the same structure as described in this Scoping Document as closely as possible. A table that cross-references the EIS to the scoping document must be included in the EIS submission.
- The report must reference any figures or supporting information used to the supporting appendix and page number, table or figure.
- Additional technical detail, including relevant data, technical reports and other sources of the EIS analysis must be provided in appendices.
- A redacted version (in addition to the full version) of any reports, drawings containing restricted or sensitive information must be provided for public notification, such as a Cultural Heritage Assessment report and sensitive ecological point data.
- Maps, diagrams and other illustrative material should be included in the EIS to assist readers to interpret information.
- The EIS document sized A4 with maps and drawings in A4 or A3 format.
- The proponent must supply a copy of all draft EIS and revised EIS documents in electronic formats for circulation and web posting. These are to be supplied by email, USB, or another agreed method.
- Digital files must not exceed 20 MB each.

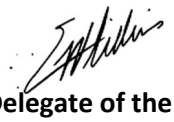
COST OF PREPARATION OF EIS

The proponent is responsible for the preparation of the draft and revised EIS and any related applications and associated costs.

NEXT STEPS

The proponent is now required to prepare a document (a ***draft EIS***) that addresses each matter raised in the scoping document for the proposal within the timeframe provided in this scoping document. Once the draft EIS has been accepted for lodgement, a public notification fee is payable in order for notification, referrals and assessment to commence. After the notification period has closed, the Authority will provide comments and any public representations received for the proponent to address in preparing a ***revised EIS***, and any further instructions on the application.

If you have any queries about the requirements outlined in this scoping document, please contact EPDImpact@act.gov.au to arrange a suitable time to discuss.



Delegate of the territory planning authority
George Cilliers
Executive Group Manager
Statutory Planning
Environment, Planning and
Sustainable Development Directorate

Contact
Hayden Pini
Impact Assessment
Environment, Planning and Sustainable
Development Directorate
E: Hayden.Pini@act.gov.au
T: (02) 6207 8728

GENERAL REQUIREMENTS FOR THE EIS

1 Cover Page

The cover page must clearly display the following:

- The name of the proposal (project title)
- The block identifier(s) and street address for the proposal
- The date of the preparation of the document
- Full name and postal address of the designated proponent
- Full name and postal address of the designated applicant
- Name and contact details of the person/organisation who prepared the documents (if different to the above)

2 Glossary

Provide a glossary of technical terms, acronyms and abbreviations used in the EIS.

3 Executive Summary

Provide a non-technical summary of the EIS including a description of the proposal, key findings and recommendations.

4 Introduction

Summarise the proposal background and justification for the proposal.

5 Proposal Details

5.1 Project Description

Provide a description of the proposal, including:

a) The objectives and justification for the proposal, with supportive evidence;

b) The location of the land to which the proposal relates, including detailed maps;

c) The division and/or district names and block and/or section numbers of the land under the *Districts Act 2002;*

d) If the land is leased – the lessee's name;

e) If the land is unleased or public land – the custodian of the land;

f) The purposes for which the land may be used, including land zonings;

g) A clear identification of all lands subject to direct disturbance from the proposal and associated infrastructure and geomorphic features such as waterways and wetlands. This is to be supported by a map showing all affected lands;

h) An outline of any developments that have been, or are being, undertaken by the proponent, or other person(s) or entities, within the proposal area and broadly in the region. Describe how the proposal relates to these developments;

i) A description of all the components of the proposal, including the proposal specifications, the predicted timescale for implementation (design, approvals, construction and

decommissioning) and project life;

j) A plan/description of the precise location of any works to be undertaken, structures to be built or elements of the proposal that may have relevant impacts; and

k) A description of the construction methodologies for the proposal, including transitions between stages and wire and wire free alignments.

5.2 Alternatives to the proposal

Provide details of any alternatives to the proposal considered in developing the proposal including a description of:

a) Any alternatives to the proposal and provide reasons for selecting the preferred option with an analysis of site selection as an attachment to the EIS;

b) The criteria used for assessing the performance of any alternative to the proposal considered;

c) Any matters considered to avoid or reduce potential impacts prior to the selection of the preferred option; and

d) Details of the consequences of not proceeding with the proposal.

6 Legislative and Strategic Context

A description of the EIS process including any statutory approvals obtained or required for the proposal, and how the proposal is aligned with strategic priorities for the ACT.

6.1 Statutory requirements

The description must include information on statutory requirements for the preparation of an EIS:

- *Planning Act 2023 (including confirmation of relevant Schedule 1 triggers based on impacts identified in the scoping document and any studies undertaken in preparing the draft EIS)*
- *Planning (General) Regulation 2023*
- *Urban Forest Act 2023*
- *Heritage Act 2004*
- *Nature Conservation Act 2014*
- *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)*
- *Environment Protection and Biodiversity Conservation Regulations 2000 (Commonwealth)*
- Related statutory approvals.
- Requirements for Works Approval from the National Capital Authority

6.2 Other requirements

The description must also include information on how the proposal is consistent with each of the following:

- Territory Plan 2023
- ACT Planning Strategy
- National Capital Plan
- *Climate Change and Greenhouse Gas Reduction Act 2010*
- The ACT Climate Change Strategy 2019-2025

- Canberra's Living Infrastructure Plan: Cooling the City
- Relevant Environment Protection Policies and Separation Distance Guidelines for Air Emissions (https://www.environment.act.gov.au/environment/legislation_and_policies)
- Transport for Canberra policy
- *Environment Protection Act 1997*
- *Environment Protection Regulation 2005*
- Plans of Management for any public land
- Any relevant Master Plan
- Other relevant planning and environmental guidelines and management plans.

6.2.1 Ecologically sustainable development (ESD)

Provide a description of how the proposed development demonstrates ESD. This is to include long-term and short-term considerations related to economic development, social development, and environmental protection at local, regional, and national scales. The proponent should ensure that the EIS adequately addresses the ESD principles as defined by section 9 of the Planning Act.

6.2.2 Territory Plan Planning Principles and Strategic Links

A statement must be provided regarding the proposal's consistency with the principles in the Planning Principles and Strategic Links in the Territory Plan 2023 (Part C - Planning Principles and Strategic Links).

7 Risk Assessment

7.1 Risk Assessment Methodology

Provide a risk assessment in accordance with the Australian and New Zealand Standard for risk management AS/NZS ISO 31000:2009 *Risk Management – Principles and guidelines.* The proposed criteria for determining which risks are potentially significant impacts must be described.

-Assessment guide-			
Provide a table with the headings below to describe the risks identified and the original risk rating without any mitigation strategies in place. This table format is one option, however alternative formats can be used provided the methodology is clearly described and in accordance with AS/NZS ISO 31000:2009 *Risk Management – Principles and guidelines*			
Risk	Likelihood	Consequence	Risk rating

The Preliminary Risk Assessment (PRA) submitted as part of the request for a scoping document must be revised to include, but not be limited to, the risks identified by the Authority in Table 1.

The risks identified in Table 1 are based on the scoping document application and comments received from entities on the application. All of these risks are considered potentially significant (i.e. a medium risk level or above), and must be addressed in the EIS. Should any risk levels change during the preparation of the EIS or any new risks become apparent, these must be assessed and included with a justification in the EIS, and where relevant, the residual risk assessment.

Table 1 – Identified impacts and requirements to be addressed in the EIS

Environmental Theme	Risk identified	See section/s below for further detail
Biodiversity	• Potential impact to endangered ecological communities within or adjacent to the project area. • Potential impact to threatened flora within or adjacent to the project area. • Potential impact to threatened fauna within or adjacent to the project area. • Increased fragmentation of habitats. • Impacts to previously unrecorded threatened/sensitive species/communities. • Clearing of native vegetation. • Direct impacts to threatened/non-threatened fauna during demolition and construction. • Impact to migratory species and habitat. • Fauna strike by Light Rail Vehicles (LRVs). • Increase in light pollution affecting sensitive habitats/species.	8.2.1
Trees	• Potential impacts to mature native trees (MNT) within or adjacent to the project area. • Tree removal in general that will impact values/landscape character. • Impacts to protected trees within or adjacent to the project area.	8.2.2
Heritage	• Direct and indirect impacts to known heritage values during demolition and construction, including physical character. • Impacts on unexpected finds. • Impacts to views from vertical infrastructure. • Impacts to burial sites. • Impacts to landscape character, buildings and structures.	8.2.3
Noise, Vibration and Lighting	• Increased noise from demolition and construction. • Increased noise from operation. • Vibration from demolition and construction. • Vibration from operation. • Lighting during demolition and construction.	8.2.4
Landscape Character and Visual Amenity	• Visual impact during demolition and construction. • Visual impacts of new infrastructure. • Increased opportunity for graffiti and vandalism. • Inconsistency with special requirements	8.2.5

Environmental Theme	Risk identified	See section/s below for further detail
	under the National Capital Plan.	
Traffic and Transport	• Reduced road network performance during demolition and construction. • Disruption to property access along alignment. • Disruptions to emergency access during demolition, construction and operational phases. • Disruptions to pedestrians/cyclists demolition and construction. • Reduced road network performance during operation. • Impact on available parking spaces. • Disruptions to existing public transport routes. • Disruptions that would adversely affect mobility impaired people.	8.2.6
Air Quality	• Increase in air pollution during demolition and construction. • Impacts to sensitive receivers.	8.2.7
Surface and Groundwater	• Increased surface water runoff. • Increased risk of flooding events. • Flooding, impacting services during operation. • Increased pollution to stormwater.	8.2.8
Contamination, Soils and Geology	• Unexpected contaminated land. • Contamination of groundwater. • Fuel spills. • Sediment runoff polluting waterways. • Increased pollution during operation due to public gathering, littering, waste management, etc.	8.2.9
Socio-economic and Health	• Impacts to amenity during demolition and construction. • Economic impacts. • Impacts to values held by first nations stakeholders. • Confrontation with non-amenable community members. • Impacts to community safety during operation due to an increase in opportunities for antisocial behaviour.	8.2.10
Utilities and Services	• Disruption to existing services. • Damage to existing services during demolition and construction.	8.2.11

Environmental Theme	Risk identified	See section/s below for further detail
	• Unexpected finds. • Accidental damage during operation. • Increased demand on services.	
Materials, Waste and Resources	• Increased waste to land fill during demolition and construction. • Spread of waste to the adjoining areas (particularly open spaces, residential areas, other sensitive receivers) during demolition, construction and operation. • Sourcing construction materials and labour. • Stockpiling of waste and materials. • Increased energy usage during operation. • Increased waste pollution during operation.	8.2.12
Planning and Land Status	• Impacts on public property during demolition and construction. • Acquisition of private land. • Compatibility with adjacent land use zonings and uses. • Conflicting requirements under Commonwealth and Territory legislation. • impacts associated with delays in the completion of the project due to the planning and approvals process and/or construction timeline delays.	8.2.13
Climate Change and Greenhouse Gas	• Contribute to climate change effects through the burning of fossil fuels used in the vehicles and other plants and equipment employed in the demolition and construction works. • Climate change related hazards.	8.2.14
Hazard and Risk	• Environmental incident during demolition and construction. • Injury or fatality during demolition and construction. • Injury or fatality due to collisions with pedestrians during demolition, construction and operation. • Injury or fatality due to collisions with vehicles during demolition, construction and operation. • EMF impacts. • Unexpected malfunctioning of the system – traffic lights, electrical faults, battery discharging etc, issues arising during wire free and wired switchover.	8.2.15

Environmental Theme	Risk identified	See section/s below for further detail
Bushfire	• Bushfires impact on demolition, construction and operation. • Construction works or operation cause a bushfire.	8.2.16

8 Assessment of Impacts

Sufficient information is required to provide the Authority with an adequate understanding of the environmental impacts associated with the proposal.

Each risk identified in Table 1 and in the proponent's PRA must be addressed, and structured, as set out in sections 8.1.1-8.1.5 below.

8.1 Standard requirements

8.1.1 Environmental conditions and values

Describe the environmental conditions and identify the environmental values for the environmental themes identified in Table 1. This section should discuss the baseline conditions for the area.

8.1.2 Investigations

Identify the findings and results of any environmental investigation in relation to the land to which the proposal relates.

8.1.3 Impacts

Describe the effects of the environmental impact as a result of demolition, construction and operation for the environmental themes identified in Table 1 and in the proponent's risk assessment (including cumulative, consequential and indirect effects) on physical and ecological systems and human communities. Particular emphasis should be placed on the potentially significant impacts identified in the risk assessment and this scoping document. Include a discussion of the timeframes of impacts i.e. short or long term, their nature and extent and whether they are reversible or irreversible, unknown or unpredictable. Include an analysis of the significance of the relevant impacts. Information must include any technical data and other information used or needed to make a detailed assessment of the relevant impacts.

8.1.4 Mitigation and offsets

Discuss the proposed safeguards and mitigation measures proposed to be taken for the environmental management of the land to which the proposal relates for the environmental themes identified in Table 1 and the proponent's risk assessment. This is to include:

a) A description and an assessment of the proposed impact prevention, mitigation or offsetting measures to deal with the environmental impact of the proposal, along with which stage the mitigation measures will be adopted

b) Any statutory or policy basis for the mitigation measures

c) An outline of an environmental management plan (EMP) that sets out the framework for continuing management, mitigation and monitoring programs for the relevant impacts of the action, including any provisions for independent environmental auditing

d) The frequency, duration and objectives of monitoring proposed

e) The name of the agency responsible for endorsing or approving each mitigation measure or monitoring program

f) A description of the cost effectiveness of environmental mitigation or rehabilitation measures proposed and the expected or predicted effectiveness of those measures.

Offsets

If any offsets are required, the offset package must provide compensation for any unavoidable impacts arising from the proposal on listed threatened species and communities. The offset package must include, but not be limited to, measures to address the long-term protection and management of relevant listed threatened species and communities at offset sites in the ACT (or surrounding area) and may also include management measures to improve the ecological values. Further information on the provision of Commonwealth offsets is detailed in the *EPBC Offsets Policy (2012)* available from: http://www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy

Offsets should directly contribute to the ongoing viability of protected matters impacted by the project and deliver an overall conservation outcome that improves or maintains the viability of protected matters as compared to what is likely to have occurred under the status quo, that is if neither the action nor the offset had taken place.

8.1.5 Residual risk

Provide a table that details the residual risk for the potentially significant impacts identified for the environmental themes in Table 1 and the proponent's risk assessment. A residual risk assessment is only required where the significance of impact is determined as medium or above. The calculation of the residual risk should take into account the influence of implementation of mitigation or offsetting measures on the impacts identified by the risk assessment. A discussion of how the calculations were determined should also be included, including the expected or predicted effectiveness of the mitigation measures.

-Assessment Guide-				
Provide the residual risk assessment as set out in the table below.				
Risk identified in Section 7.1	**Original risk rating from items identified in 7.1**	**Residual likelihood**	**Residual consequence**	**Residual risk rating**

8.2 Detailed requirements

The following items (sections 8.2.1 - 8.2.16), relate to the potentially significant environmental impacts identified in Table 1. They must be addressed in detail in the EIS.

Section 8.2.17 requires consideration and detailed responses to any other potential risks.

NOTE: The information provided under the following headings is not an exhaustive list of matters

that may be required to accurately detail the assessment scenarios.

NOTE: For each risk identified in sections 8.2.1 – 8.2.16 below, it must be clearly demonstrated if the values and/or impacts are located on Territory land, or within Designated Areas.

8.2.1 Biodiversity

- *Provide a description of the ecological values (including native vegetation, vulnerable ecological communities and threatened species) and their habitat on, and adjacent to the site, including but not limited to:*
  - *Natural Temperate Grassland (NTG)*
  - *Superb Parrot (Polytelis swainsonii)*
  - *Swift Parrot (Lathamus discolor)*
  - *Striped Legless Lizard (Delma impar)*
  - *Perunga Grasshopper (Perunga ochrea)*
  - *Gang-gang Cockatoo (Callocephalon fimbriatum)*
  - *Grey-headed Flying-fox (Pteropus poliocephaluthese)*
  - *Golden Sun Moth (Synemon plana)*
  - *Button Wrinklewort (Rutidosis leptorrhynchoides)*
  - *Hoary Sunray (Leucochrysum albicans subsp. Tricolor)*
- *Ecological surveys must be undertaken by a qualified ecologist for each impacted species and their habitats.*
- *Provide maps and GIS shapefiles showing the location of all habitat and overlay all aspects of the proposed development to show the extent of any impact.*
- *Describe the direct and indirect impacts on ecological values. The description must include all areas that may be impacted by the demolition, construction and installation of the project and any areas that will be impacted by maintenance works or operation (e.g. lighting, noise and vibration) following completion of construction.*
- *Consider the direct and indirect impacts of the development on fauna species likely to occur within or adjacent to the project area, including any burrowing mammals.*
- *Consider impacts on clearing of potential habitat for migratory species identified within the wider locality of the proposal.*
- *Consider the impact of weed spread due to soil disturbance and any key habitat that is at risk of being affected.*
- *Describe measures for avoidance and mitigation of the impacts identified and, if proposed, any offset measures.*
- *Impact and offset metrics (using the Environment Protection and Biodiversity Conservation Act 1999 calculator) must be provided for, but not limited to, Golden Sun Moth, Gang-gang Cockatoo, Superb Parrot, Striped Legless Lizard, Swift Parrot, Button Wrinklewort and Hoary Sunray.*
- *Outline alternative design options that have been explored to avoid or reduce the impact.*

8.2.2 Trees

- *Provide an assessment of all registered and protected trees, as defined in the Urban Forest Act 2023, within the study area and identify those that may be impacted or removed by the project.*

- *The number and location of Mature Native Trees (MNT), as defined in the Nature Conservation (Loss of mature native trees key threatening process) Action Plan 2023, must also be mapped and assessed.*
- *Undertake a hollow assessment of all hollow-bearing trees within the project footprint, with the potential to be used by Gang-gang Cockatoos for breeding.*
- *Consider impacts of removal of trees and the possible impacts on breeding habitat, connectivity and landscape character of the project area and surrounds.*
- *The EIS must assess how the development can meet the blue-green network initiatives identified in the Woden District Strategy, particularly initiatives 1.1, 1.4 and 1.5.*
- *Landscaping design, including tree replacement/replanting must be compliant with ACT Bushfire Management Standards 2023.*

8.2.3 Heritage

- *The EIS must provide a detailed written description and mapping of the proposed development, including both alignment options, and provide an assessment of the potential heritage impacts of the proposal, including noise and vibration impacts to heritage listed buildings. This impact assessment should include direct and indirect impacts on known heritage values within and directly adjacent to the proposed development; spanning places nominated to and registered on the ACT Heritage Register, and any Aboriginal places and objects that may be identified through further research.*
- *A Cultural Heritage Assessment (CHA) must be prepared by a suitably qualified heritage practitioner, and in consultation with RAOs covering the whole project footprint including any extended boundary for works including access roads, site compound areas, earthworks and infrastructure to facilitate the development, in line with ACT Heritage Council requirements.*
- *Where proposed development may diminish heritage significance values or damage Aboriginal places and objects, alternatives and measures to minimise heritage impacts should be considered and adopted where reasonably practicable.*
- *Where impacts to heritage places and objects are identified and cannot be avoided, recommendations should be presented on ways to minimise and mitigate heritage impacts, reflecting the principles of the Burra Charter (Australia ICOMOS 2013) and related Practice Notes.*
- *Develop a Conservation Management Plan that considers the impact of the proposed development on heritage items:*
  - *Survey and locate each item of heritage significance.*
  - *Describe the measures to be taken to prevent damage during demolition and construction.*
  - *Include a monitoring and evaluation framework to ensure that all items of heritage significance are protected during demolition, construction and operation and where impacts cannot be avoided present ways to minimise and mitigate heritage impacts.*
  - *Include an Unexpected Finds protocol for any additional items of heritage significance that may be identified during demolition and construction.*

8.2.4 Noise, Vibration and Lighting

- *Identify any potentially sensitive receivers which may be affected by noise, vibration and light pollution from the demolition, construction and operation of this proposal.*
- *Discuss the magnitude, duration and frequency of any noise, vibration and lighting impacts that might arise from the demolition and construction phase.*
- *Discuss the types, duration and frequency of any noise and/or vibration impacts during operation of the proposal.*

- *Prepare a Noise and Vibration Management Plan and Light Spill Plan that identifies any measures to reduce impacts associated with noise, vibration or light pollution.*

8.2.5 Landscape Character and Visual Amenity

- *Undertake a visual impact assessment of the site and surrounds to describe the current landscape character of the area.*
- *Identify important view sheds and significant views and vistas to and from the site.*
- *Conduct a visual impact analysis that details the predicted demolition, construction and operational impacts the proposal may have on the landscape character of the site and surrounds.*
- *Provide perspectives and/or a visual analysis of the proposal from local vantage points.*

8.2.6 Traffic and Transport

- *Describe arrangements for the transport of construction materials, equipment, products, wastes and personnel during the demolition, construction phase and operational phase of the development proposal.*
- *Include a description of the volume of traffic generated during demolition, construction and operation.*
- *Include details of vehicle traffic, transit routes and transport of heavy and oversize loads (including types and composition).*
- *A comprehensive Traffic Impact Assessment (TIA) must be prepared in accordance with the TCCS TIA Guideline.*

8.2.7 Air Quality

- *Discuss the potential air emissions from the proposed development during demolition, construction and operation.*

8.2.8 Surface and Groundwater

- *Describe and include a map of the present and potential water bodies within or adjacent to the project area.*
- *Describe any mitigation measures required to prevent sediment and erosion from impacting on water quality.*
- *Describe current water flow across the proposal site and impacts from the proposal on water flow both on site and in the surrounding area/catchment.*
- *Describe the current surface water and groundwater quality and measures proposed to maintain and monitor water quality.*
- *Consider any potential flood risks and describe any mitigation measures to reduce the impact on the infrastructure.*
- *Provide information on stormwater/wastewater management during demolition, construction and operation including any water quality protection measures. This should include consideration of any chemicals into the receiving environment.*

8.2.9 Contamination, Soils and Geology

- *Describe the soil and geology features of the area.*
- *Describe how the site will be remediated if contaminated materials are found on site.*

- *Include the controls required to prevent spillage or leakage of hazardous materials into the surrounding groundwater and the mitigation measures to prevent the contamination of stormwater systems.*
- *Describe the controls required to prevent spillage or runoff of soil into surrounding water bodies.*
- *Describe impacts from clearing of vegetation in relation to erosion and sedimentation and measures to reduce the impacts.*
- *Provide a Sediment and Erosion Control Plan (SECP) that details measures to reduce the impacts of sediment and erosion, including dust suppression.*
- *Describe the composition and source of all fill intended for use at the site.*
- *Provide an Unexpected Finds Protocol (UFP) for all demolition and construction activities on site.*

8.2.10 Socio-economic and Health

- *Provide an analysis of the potential impacts on human health and any measures incorporated into the development to mitigate these impacts.*
- *Describe the suitability of the land for the type of proposal described in terms of socio-economic and health.*
- *Provide maps showing sensitive receivers.*

8.2.11 Utilities and Services

- *Describe the existing utilities located on the land subject to this proposal.*
- *Describe any decommissioning/removal, realignments or new utility connections required as a result of this development including mitigation measures proposed.*

8.2.12 Materials, Waste and Resources

- *Describe the nature, sources, location and quantities of all materials to be handled, including the storage, stockpiling and disposal of materials and waste.*
- *Describe measures required to minimise spread of litter into the receiving environment during operation.*

8.2.13 Planning and Land Status

- *Include a description of planning context of the area where the project will be located.*
- *Describe planning and development status of any land or project relevant to the proposal.*
- *Describe land use of the proposed land and any land to be affected (including, but not limited to, zoning, lessee(s) or custodian of the land, the permissibility of the proposed use defined in the Territory Plan).*
- *Describe any areas used for recreation (formal and informal) and the potential for the proposal to impact on these areas.*
- *Consider the potential impacts associated with delays in the completion of the project due to the planning and approvals process and/or construction timeline delays.*

8.2.14 Climate Change and Greenhouse Gas

- *Outline the greenhouse gas emissions that will be generated by the proposed development during demolition, construction and operation, including measures to mitigate the impact.*
- *Provide a quantitative estimate of emissions produced during operation.*

- *Outline how the proposal has assessed and responded to increased natural disaster risk being driven by climate change, particularly the extreme events of heatwaves, droughts, storms with flash flooding, and bushfires.*
- *Describe the impacts of the proposed development on urban heat and the local microclimate.*

8.2.15 Hazard and Risk

- *Consider potential safety hazards during the demolition, construction and operation of the proposal including:*
  - *impacts of any hazards on residents, workers the community and the environment;*
  - *impacts of unauthorised access to site and associated risk of contact with electrical equipment;*
  - *electromagnetic field (EMF) limits and any impacts on human health; and*
  - *system malfunctions.*
- *Describe how the site is suitable for the proposed use by considering identified hazards and risks.*

8.2.16 Bushfire

- *Consider the risk of bushfire during demolition and construction, including the cessation of construction works during periods of escalated fire danger.*
- *Consider the risk of a bushfire starting from malfunction of the project infrastructure (substation, faults in cable connections, weather impacts etc).*
- *Provide a detailed bushfire assessment report that considers the bushfire attack level of the project span and protection measures to be implemented in proximity to the infrastructure, including asset protection zones, vegetation management/fuel load reduction strategies.*

8.2.17 All other risks

- *Describe any other potential risks that have been identified subsequent to the scoping document and not in the previous sections.*

8.3 Entity requirements

The EIS must address the entities comments provided in Attachment A. If the issues raised by entities have been addressed in other sections of the EIS, this must be cross referenced.

9 Community and stakeholder consultation

The intention of the consultation in this scoping document is to ensure significant proposals include meaningful engagement with the community in the early stages of the project and provide clear expectations and an understanding of the actual development proposed. Consultation also provides an opportunity for the community to contribute in the design of the proposal and to resolve any major concerns early in the planning stages.

9.1 Consultation must be undertaken with:

- Lease holders and land managers of land potentially impacted by the proposal;
- Any recreational groups which may be affected by the proposal;
- Any volunteer conservation, landscape management or land care groups active in the area to be affected by the proposal;
- The local community; and businesses owners and employees.

9.2 Provide a consultation report that includes:

- A description of the methodology and criteria for identifying stakeholders and how they were identified. Details and plans must be provided showing potential impacts on the local and wider community to justify how stakeholders were identified.
- An outline of the communication methods used. A variety of communication methods must be adopted to ensure all stakeholders are engaged appropriately, such as face to face, email/letters, community meetings and information sessions and website notifications.
- Details on the information provided during the community consultation process.
- Note: A plain English statement explaining the proposal and conceptual drawings must be made available to the community and stakeholders.
- A summary of the responses and the main comments raised by the stakeholders and the community.
- Evidence must be provided demonstrating that consultation has been undertaken with each relevant group/person including specific detail on how these concerns were addressed.
- A description on how any concerns have been considered and identify any changes that have been made to the proposal.

Consultation must occur as early as possible and avoid, or make allowances for public holidays, school holidays and the summer holiday (Christmas) shutdown period. The level of engagement must be comparable with the size, location and nature of the development and potential impact on the wider community.

9.3 Consideration of public representations from Draft EIS notification

- The revised EIS must include a consultation report outlining the representations received, issues raised in the representations and a response to the issues and values identified. The summary response must clearly identify the representation(s) to which the responses relate.

10 Recommendations

Provide a summary of any commitments to impact prevention, mitigation measures, offsetting measures and other actions within the EIS.

Describe the monitoring parameters, monitoring points, frequency, data interpretation and reporting proposals.

11 Other relevant information

The proponent may wish to include issues outside the scope of the EIS as a separate section of the EIS. This allows the proponent to identify matters not required to be addressed in the EIS, but that would be subject to development assessment consideration and notification. This can provide additional context for members of the public regarding management of environmental issues, by ensuring that the public is aware that these issues will be addressed in the detailed design of the proposal.

12 References

A reference list using standard referencing systems must be included.

13 Required Appendices

13.1 Scoping document for the EIS

A copy of the scoping document should be included in the EIS. Where it is intended to bind appendices in a separate volume from the main body of the EIS, the scoping document should be bound with the main body of the EIS for ease of cross-referencing.

13.2 Scoping Document Reference

Include a table that cross-references the EIS to the scoping document. If the EIS addresses the scoping document in multiple places then this must be also referenced.

13.3 Proponent's Environmental History

Provide details of any proceedings under a Commonwealth 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
- For an action for which a person has applied for a permit, the person making the application.

If the person proposing to take the action is a corporation, then provide details of the corporation's environmental policy and planning framework. Enough information is required to satisfy s136(4) of the EPBC Act.

13.4 Information Sources

For information given the following must be stated:

- The author or any reports or studies
- The publication date
- The source of the information
- How recent the information is (i.e. when a study was conducted or when primary sources were produced)
- How the reliability of the information was tested
- What uncertainties (if any) are in the information.

13.5 Study team

The qualifications and experience of the study team and specialist sub-consultants and expert reviewers must be provided.

13.6 Specialist studies

All reports generated based on specialist studies undertaken as part of the EIS are to be included as appendices.

13.7 Research

Any proposals for researching alternative environmental management strategies or for obtaining any further necessary information should be outlined in an appendix.

Attachment A: ENTITY REQUIREMENTS

A1. ACT Health

The Health Protection Service (HPS) notes that the proposed project includes extending the light rail from the approved Stage 2A Commonwealth Park stop on the northern side of Lake Burley Griffin, via the National Triangle, continuing onto Adelaide Avenue and Yarra Glen to a proposed Callam Street terminus in Woden Town Centre.

The Health Protection Service (HPS) has reviewed the documents and advised the applicant that:

- *The scoping document should provide detailed mitigation measures to minimise impacts related to dust, air quality and sediment runoff, as noted in the "Preliminary Risk Assessment" dated 11 November 2023 by AECOM.*

- *The HPS supports the development of a Construction Environmental Management Plan and an Unexpected Finds Protocol.*

There are no further public health concerns in relation to the proposed EIS scoping document.

Should you require any further information, please contact Kate Groeschel on (02) 5124 9092 or email kate.groeschel@act.gov.au.

A2. ACT Emergency Services Agency

ACTF&R has reviewed EIS 202400003 – Light Rail Stage 2B and have no objections at this point in time, however, provide the following comment:

Please note, a section of light rail located north of the Royal Australian Mint, adjacent Adelaide Ave/Yarra Glen and Kent St/Cotter Road in Deakin will be located in a Bushfire Prone Area (BPA) as mapped by the ESA .

A3. ACT Heritage Council

On 19 January 2024, the Territory Planning Authority referred a scoping application to the ACT Heritage Council (the Council) for entity advice, for an Environmental Impact Statement (EIS) to be prepared for Light Rail Stage 2B (EIS202400003).

The Light Rail Stage 2B would consist of approximately 10km of track between Commonwealth Park and Woden Town Centre, including nine stops. The works would comprise the track and associated works including:

- *A new light rail bridge on Commonwealth Avenue over Lake Burley Griffin;*
- *Landscaping;*
- *Track infrastructure, (including wire-free areas from the approved Stage 2A stop at*
- *Commonwealth Park through the Parliamentary Zone);*
- *Road network alterations;*
- *Integration with the public transport and active travel networks;*
- *Dedicated traction power substations; and*
- *Upgrade of the existing stabling depot and maintenance facility in Mitchell.*

There would be an additional footprint of disturbance during construction to accommodate construction compounds and equipment and materials storage.

While the majority of the alignment has been determined, the path through the National Capital area has yet to be settled, between two potential paths. The first would follow King George Terrace, Macquarie Street, Bligh Street, National Circuit and Sydney Avenue, before connecting with State Circle; and the second would run around the eastern side of State Circle. A number of places on the ACT Heritage Register (the Register) are located in the vicinity of the alignments, and may be impacted, depending on the alignment chosen.

The "Environmental Impact Statement Scoping Document" (Major Projects Canberra) identifies that the following heritage places that may be impacted by the project:

- *Canberra Croquet Clubhouse and Lawns;*
- *National Rose Garden;*
- *Hotel Kurrajong; and*
- *St Andrew's Church Precinct.*

Review of supporting information also identifies that:

- *Option 1 would pass near the following registered heritage places: Albert Hall; Hotel Canberra; National Rose Garden; Hotel Kurrajong; St Andrew's Church Precinct; Brassey Hotel; Telopea Park School; and Callam Offices. Option 1 would also pass near the following nominated heritage places: Barton Conference Centre; and Wesley Uniting Church Complex; and*

- *Option 2 would pass near the following registered heritage places: Albert Hall; Hotel Canberra; Canberra Croquet Clubhouse and Lawns; St Andrew's Church Precinct; and Callam Offices.*

A heritage report prepared by GML consultants "Canberra Light Rail Preliminary Heritage Advice Proposed Routes in Parliamentary Zone, Barton, Capital Hill Report prepared for Major Projects Canberra (September 2023)" ('the report') sets out a list of the affected places and their heritage values.

It should be noted that there are no recorded or registered Aboriginal places along either alignment. However, the application identifies an extended boundary for works, which may include earthworks to facilitate the development. Some of these areas may have potential to contain unrecorded Aboriginal places or objects, should they contain areas where natural ground surfaces have not been disturbed and/or contain native mature trees.

Advice:

As a delegate of the Council, I advise that heritage assessment requirements are identified for the EIS scoping document.

1. Further investigation of the potential heritage values of the project area.

To evaluate the potential Aboriginal impacts of the proposal, a Cultural Heritage

Assessment (CHA) must be prepared, which must:

a. *Be prepared by a qualified archaeologist in consultation with Representative Aboriginal Organisations (RAOs);*

b. *Assess the potential for the project area to contain unrecorded Aboriginal places or objects, informed by RAO consultation and a desktop review of available information;*

c. *Include a physical inspection of any locations with heritage potential;*

d. *Meet the information requirements of the Council's Cultural Heritage Reporting Policy, which is available at https://www.environment.act.gov.au/heritage/publications-and-resources; and*

e. *Be submitted to the Council for review, and for advice on any further heritage assessment requirements.*

2. Further assessment of the potential heritage impacts of proposed development.

The EIS must provide a detailed written description and mapping of the proposed development, and provide an assessment of the potential heritage impacts of the proposal.

This impact assessment should include direct and indirect impacts on known heritage values within and directly adjacent to the proposed development; spanning places nominated to and registered on the ACT Heritage Register, and any Aboriginal places and objects that may be identified through further research.

3. Recommended management in accordance with Heritage Act 2004 provisions.

Reflecting Heritage Act 2004 provisions, where proposed development may diminish heritage significance values or damage Aboriginal places and objects, alternatives and measures to minimise heritage impacts should be considered and adopted where reasonably practicable.

Where impacts to heritage places and objects are identified and cannot be avoided, recommendations should be presented on ways to minimise and mitigate heritage impacts, reflecting the principles of the Burra Charter (Australia ICOMOS 2013) and related Practice Notes.

In addition, it is noted that Heritage Act 2004 approvals would be required for the project in the event that:

- *Archaeological excavation is required to adequately assess the potential heritage values of the project area, and the potential heritage impacts of the proposal. Where*
- *required, this investigation is subject to Council approval of an Excavation Permit under Section 61F of the Heritage Act 2004; and*

- *The development would damage Aboriginal places or objects, or diminish the heritage significance of places or objects. Where required, these impacts are subject to Council approval of a Statement of Heritage Effect under Section 61H of the Heritage Act 2004.*

A4. Conservator of Flora and Fauna

I refer to your email of 19 January 2024 and the referral to me pursuant to s109 of the Planning Act 2023 of the above matter for comment.

I have identified several matters in the scoping document that are of environmental and conservation interest. I have described these at Attachment A.

I also wish to advise that on 13 April 2023 I made the decision to Provisionally Register a range of Eucalyptus trees on Sections 57 and 58 HUGHES on 13 April 2023. This nomination was made under the Tree Protection Act 2005 and proposed that the trees met the criteria for Scientific Value. Due to the strong and convincing evidence submitted with the original nomination, I have requested an independent and external ecological assessment of Sections 57 and 58 Hughes.

This assessment will consider the ecological role and significance of the Sections within the broader landscape, and in particular their function in protecting and supporting the survival of threatened species according to the ACT's and Commonwealth conservation advice. The result of this assessment may require me to pursue other measures to protect environmental values of these blocks in addition to the measures under the ACT's tree protection legislation. Under the Tree Protection Act 2005, I am required to make a final decision regarding the addition of the trees to the Tree Register by 13 April 2024.

Thank you for the opportunity to provide comment and input into the development of a Scoping Document for this EIS. The contact officer within my office for matters described in this letter is Ms Claire Gannon, A/g Conservator Liaison on telephone 620 78357 or claire.gannon@act.gov.au.

1. ***Gang-gang Cockatoos**- Given the proximity of the proposed development area to existing nest sites, and the importance of the area for foraging, all hollow-bearing trees within the footprint, and with the potential to be used by Gang-gang Cockatoos for breeding, be climbed and the hollows assessed (including measurements taken). This will provide an overview of the hollows that have been used by Gang-gangs in the past or if they are suitable for future nesting attempts. Conservation Officials within my office are available to assist with this process.*

2. ***Grey-headed Flying-fox**- this species (Pteropus poliocephaluthese) are a threatened species in the ACT. Due to their nesting site in Commonwealth Park, which is adjacent to the development area, an assessment on the risk of the project to the Grey-headed Flying-fox must be undertaken. The assessment must include the risk of electrocution should overhead lines be the preferred source of energy.*

3. ***Burrowing mammals**- The ACT supports six species of native burrowing animals protected under the Nature Conservation Act 2014 (the Act): Bare-nosed Wombat (Vombatus ursinus), Short-beaked Echidna (Tachyglossus aculeatus), Rosenburg's Goannas (Varanus rosenbergi), Platypus (Ornithorynchus anatinus), Rakali (Hydromys chrysogaster) and Eastern Long Neck turtles (Chelodina longcollis). These species vary in their habitat requirements, but they all create*

burrows where they shelter and nest. Any identified burrows/shelter sites suitable for native burrowing mammals should be avoided at the planning stage wherever practicable.

4. ***Mature Native Trees -*** *The number and location of Mature Native Trees, as defined in the Nature Conservation (Loss of mature native trees key threatening process) Action Plan 2023, must be mapped and assessed.*

5. ***Blue-green network initiatives*** *- The EIS must assess how the development can meet the Blue-green network initiatives identified in the Woden District Strategy, particularly initiatives 1.1, 1.4 and 1.5.*

6. ***Impact and offset metrics*** *(using the Environment Protection and Biodiversity Conservation Act 1999 calculator) must be provided for Golden Sun Moth, Gang-gang Cockatoo, Golden Sun Moth, Superb Parrot, Striped Legless Lizard, Swift Parrot, Button Wrinklewort and Hoary Sunray.*

7. *Areas of* ***native vegetation****, as defined in the Nature Conservation Act 2014, must be mapped and assessed.*

8. ***Connectivity****- Impacts on, and opportunities to enhance, avian connectivity must be identified and assessed.*

9. ***Bushfire considerations*** *- Light Rail Stage 2B passes through Bushfire Prone areas, Asset Protection Zones and Strategic Fire Advantage zones as identified on ACTmapi.*

   Landscaping design, including tree replacement/replanting must be compliant with ACT Bushfire Management Standards 2023.

A5. EPSDD, Climate Change and Energy Division

Thank you for referring this EIS scoping request to the Climate Change and Energy Division. The Division has identified two impacts related to Climate Change and Energy that should be included in the EIS. The Division recommends the following text to be added to the scoping document:

Greenhouse Gas Emissions

This proposal is likely to produce significant greenhouse gas emissions and may impact on the ACT's greenhouse gas emissions targets. It is recommended that the scoping document requires provision of quantitative estimates of the Scope 1 and 2 greenhouse gas emissions that will be generated by the proposed development during construction and operation. Mitigation and/or offsetting measures proposed and the extent to which they reduce emissions must also be quantified.

The following emissions are relevant for transport projects:

- *Changes in transport greenhouse gas emissions resulting from the project, including emissions caused by changes in demand and substitution between modes of transport, as well as emissions reductions due to any decrease in congestion.*
- *Scope 1 and 2 greenhouse gas emissions resulting from the operational energy use of the infrastructure itself.*
- *Estimates must be calculated in a way that is comparable to the greenhouse gas emissions targets in the Climate Change and Greenhouse Gas Reduction Act 2010.*

Noting our understanding that the light rail project will be using the Infrastructure Sustainability rating (https://www.iscouncil.org/is-ratings/), it would also be useful to include provision of quantitative estimates of the Scope 3 greenhouse gas emissions that will be generated by the proposed development during construction and operation. Mitigation and/or offsetting measures proposed and the extent to which they reduce emissions should, where available, also be quantified. The greenhouse gas protocol guidance for scope 3 emissions may be a useful resource in relation to providing this information: https://ghgprotocol.org/scope-3-calculation-guidance-2.

Natural disaster risk

The ACT is already experiencing unavoidable climate change impacts such as longer, hotter heatwaves, increased bushfire risk, changing rainfall patterns and increased intensity of storms and rainfall events. These impacts are expected to intensify in future. The Division recommends that if the proposal is required to consider flood, bushfire and urban heat issues, the effects of climate change on future flood, bushfire and urban heat risk are considered. This would take the form of documenting how the proposal has assessed and responded to increased natural disaster risk being driven by climate change.

A6. EPSDD, Planning and Urban Policy

*In relation to Chapter 6 pg. 20 - 'Requirement for and Environmental Impact Assessment' Item 1 – PUP notes that this item has been marked as 'not applicable'. With reference to Risk No's. D.1-D.4 of the Preliminary Risk Assessment (**Attachment 2-3-4**) PUP recommends that MPC continue discussions with the NCA and ACT Heritage regarding noise/vibration issues as they pertain to heritage listed buildings.*

Pending assessments of existing buildings in adjacent lands – vibrations and noise during construction/operation of LRVs may emit to the commercially zoned surrounding lands of the immediate work area. The identified risk mitigations should ensure adjacent buildings (notably heritage listed buildings along the National Triangle-Barton option) assess impacts on aged buildings and potential of low performing glazing. PUP notes that these issues are likely to persist broadly across both alignment options (as identified in the Preliminary Environment Assessment pg. 35 and 38), and cross both planning jurisdictions. PUP recommends that the Noise and Vibration Management Plan should stipulate how MPC will monitor these issues across both the construction and operational phases.

A7. Environment Protection Authority

The EPA has reviewed the draft EIS 202400003 – Light Rail Stage 2B. At this moment the EPA has no further comments.

However, it should be noted that for the DA, the entire construction area will need to be assessed from a contamination perspective. The adequacy of all assessments for the site and any proposed management methodologies must be reviewed and accepted by an accredited contaminated land Auditor. Prior to the site being used for the proposed uses, the Auditor's site audit statement and report into the site's suitability for its proposed uses and any proposed on-going site management plan must be reviewed and endorsed by the EPA.

Given this kind of assessment is time consuming, it would be prudent to inform the responsible entity of this requirement in advance.

A8. ICON Water

Please find below the comments from Icon Water.

1. Please find below our response from water network:

Proposed alignment under the Light Rail Stage 2B will cross existing water network in multiple locations. It will also run parallel to existing water network which might conflict at several locations. Asset relocation and where necessary specific asset protection will be required. Detailed assessment will be required once more information becomes available at design stage.

Some of the highlighted locations which conflicted proposed alignment with water network are:

- *Stromlo to Redhill bulk supply main (DN 750 mm and DN 450 mm) at Yarra Glen*
- *Black Mountain Bulk Supply main (DN 450mm) at the crossing of Adelaide Avenue, Kent Street and Novar Street. Existing scouring point is at the middle of the crossing. A project is underway on the Black Mountain bulk supply main renewal.*
- *DN 375 mm distribution main will cross proposed light rail alignment at Yarra Glen and Project Site 4 at section 117/block2 in Curtin.*
- *Multiple crossings at sizes DN 225 mm in several locations*
- *DN 600 and DN 300 mains run parallel to State Circle and crosses at multiple locations.*
- *Prime Ministers Lodge (block1/section3 Deakin) is connected with DN 150 main across Adelaide Avenue by DN 40 mm property service connection.*

2. Please find below our response on sewer:

It's noted the list of impacted sewer asset has been collected. It will require loading impact assessment to the crossing sewer mains and mitigation measures shall be proposed for shallow ones in the design phase.

The main outfall sewer (MOS) will stress with capacity within the coming 10 years, so as the dual DN600 mains running through Curtin and Phillip. However, since the detailed plan of the Stage 2B growth corridor is still pending, further detailed capacity assessment will be performed when more information is available.

It's also noted that a few interactions of the proposed routes and strategic options of sewer system at Commonwealth Ave. and State Circle. Given Icon Water is still in the optioneering phase (IWMP project), it is anticipated that Icon Water shall work closely with MPC.

- *Icon Water acknowledged that the proponents of the project have already been in discussion with Icon Water. Icon Water expect the consultation to continue as the proponent's project progresses.*
- *Icon Water notes that the proposed light rail route will interact with a number of Icon Water's projects in the medium to long term. Icon Water will continue to work with the proponent in good faith to achieve mutually agreeable outcomes in relation to these Icon Water projects.*

- *There are a number of critical Icon Water assets in the proposed route which are required to be relocated/treated/protected to continue water and sewer service to the large community, namely:*
    - *750mm and 450mm diameter bulk supply water mains from Stromlo Treatment Plant to Redhill Reservoir*
    - *450mm diameter Black Mountain Bulk Supply main*
    - *Heritage listed major gravity sewer main of diameter 1676mm referred as main outfall sewer (MOS)*
    - *750mm and 600mm diameter trunk sewer mains*
    - *450mm and 500mm diameter sewer rising mains*

  Note: This list must not be considered exhaustive, and the proponent must undertake investigations to identify and protect all critical Icon Water assets to the satisfaction of Icon Water.

- *There are other Icon Water assets as well those listed above, which may be in the area indicated in the proposal. These assets must be identified and protected to the satisfaction of Icon Water.*

- *The proponent must identify all Icon Water assets which may be impacted by the design, construction and operation of the proposed Light Rail works including a comprehensive analysis of each Icon Water asset so identified.*

- *All impacted Icon Water assets must be relocated or 'maintenance free' treatment provided in such a manner acceptable to Icon Water to allow Icon Water to operate and maintain its assets without additional cost, traffic control measures, or other implications being imposed on Icon Water.*

- *The proponent is advised that some Icon Water assets are heritage listed and cannot be relocated/impacted without heritage advice and agreement. The proponent must undertake any investigations necessary and obtain separate approvals for such assets.*
- *Fire hydrant requirements are subject to ACT Fire and Rescue advice and agreement.*

- *Detailed water and sewer design plans must follow Icon Water design acceptance process and be conducted in accordance with Icon Water requirements, standards and guidelines.*

3. Its noted that EIS lists the following as a key feature of the project:

Upgrade of the existing stabling depot and maintenance facility in Mitchell to accommodate additional light rail vehicles (LRVs).

- *The owner and occupier of this site will need to work with Icon Water liquid trade waste team to review the existing liquid trade waste approval. We must be contacted during planning stages of the upgrade so that we can work together to ensure appropriate measures are put in place to manage changes to liquid trade waste discharging to sewer. Email: trade.waste@iconwater.com.au Phone: 02 6248 3222.*

- *It appears at this stage there are no other proposals to discharge liquid trade waste to sewer as a part of the work. Should this change, the proponent must submit an application to*

discharge liquid trade waste to sewer prior to doing so. More information, including application forms can be found on our website www.iconwater.com.au\tradewaste .

A9. National Capital Authority

Thank you for the EIS scoping document referral for EIS 202400003, Light Rail Stage 2B.

In order to consider the whole of the environment in the EIS, the NCA believes that the project cannot be assessed without regard to those parts of the project that lie with Designated Areas under the National Capital Plan.

In addition, the EIS may have gaps in relation to the National Capital Plan requirements and therefore the EIS should cover Designated Areas.

Key impacts that the EIS should consider, in addition to the topics already to be covered, that are relevant to the NCA include:

- *Wire-free running in Designated Areas*
- *No TPS (traction power station) in the Parliamentary Zone*
- *Visual impacts on the Land Axis as well as Parliament House*
- *Alignment through the woodland vegetation between State Circle and Capital Circle*
- *Importance of the Griffin geometries and horticultural heritage, including within the Barton area*
- *Other off-site works necessary to construct the light rail system, e.g. changes to road network, changes to landscape*

A10. Utilities Technical Regulator

Thank you for providing the Light Rail Stage 2B EIS Scoping Document application for comment.

Utilities Technical Regulation has no comments on this EIS Scoping Document application.

Attachment B – GLOSSARY

Controlled Action (EPBC): An action defined under the EPBC Act, section 67.

Development application (DA): Application for development as defined under the Planning Act.

Environment: As defined under the *Planning Act 2023* (the Planning Act), each of the following is part of the environment:

(a) the soil, atmosphere, water and other parts of the earth;

(b) organic and inorganic matter;

(c) living organisms;

(d) structures, and areas, that are manufactured or modified;

(e) ecosystems and parts of ecosystems, including people and communities;

(f) qualities and characteristics of areas that contribute to their biological diversity, ecological integrity, scientific value, heritage value and amenity;

(g) interactions and interdependencies within and between the things mentioned in paragraphs (a) to (f);

(h) social, aesthetic, cultural and economic characteristics that affect, or are affected by, the things mentioned in paragraphs (a) to (f).

Environmental Impact Statement (EIS): As defined under the Planning Act.

EPBC Act: *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)

Long term: Greater than 15 years duration.

Medium term: Greater than three (3) years to 15 years duration.

Planning Act: *Planning Act 2023* (ACT)

Scoping: The process of identifying the matters that are to be addressed by an EIS in relation to the development proposal - see the Planning Act, Section 109 (2).

Short term: Zero to three (3) years duration.

Attachment C: LESSEE/LAND CUSTODIAN

LESSEE/LAND CUSTODIANS:

Mr. Ian Mackay on behalf of Canberra Southern Cross Club

- Blocks 9 & 10, Section 79, Phillip

Mr. Anthony Haraldson on behalf of Transport Canberra and City Services – Light Rail Operations

- Block 3, Section 16, Mitchell

Mr. David Walsh on behalf of ACT Education

- Block 16, Section 79, Phillip

Mr. Daniel Iglesias on behalf of Transport Canberra and City Services - City Presentation

- Blocks 1 & 2, Section 112, Curtin
- Block 1, Section 116, Curtin
- Blocks 2 & 9, Section 117, Curtin
- Block 4, Section 65, Deakin
- Block 24, Section 67, Deakin
- Block 23, Section 68, Deakin
- Block 1, Section70, Deakin
- Block 1, Section71, Deakin
- Block 1, Section 72, Deakin
- Block 1, Section 73, Deakin
- Block 1, Section 74, Deakin
- Blocks 5, 6, 9, Section 28, Hughes
- Block 8, Section 6, Phillip
- Block 6, Section 23, Phillip
- Block 19, Section 23, Phillip
- Block 20, Section 23, Phillip
- Block 3, Section 64, Phillip
- Blocks 3, 6, 8, 11, 12, 13, 14, 15, Section 79, Phillip
- Blocks 7, 14, 15, 24, 31, 32, 34, Section 80, Phillip
- Block 3/79 Yarralumla

Mr. Tim Rampton on behalf of Transport Canberra and City Services – Roads ACT

- Block 30, Section 80, Phillip
- Block 14, Section 66, Yarralumla
- Block 9, Section 117, Curtin
- Block 30, Section 80, Phillip
- Block 33, Section 80, Phillip
- Block 1, Section 104, Phillip

- Barton Road Reserve: National Circuit, between Brisbane Avenue and Sydney Avenue, including potions of Darling, Macquarie, and Bourke Streets.
- Curtin Road Reserve: Carruthers Street, 150m West from Yarra Glen.

- Curtin/Hughes/Phillip Road Reserve: Yarra Glen from Designated boundary to Melrose Drive/Yamba Drive Roundabout.
- Deakin Road Reserve: Carruthers Street, 150m East from Yarra Glen including a portion of Groom Street.
- Deakin Road Reserve: Hopetoun Circuit, from Adelaide Avenue to approximately 200m South, including portions of Grey Street.
- Deakin Road Reserve: Kent Street, from Adelaide Avenue to approximately 150m South, Including portions of Denison Street.
- Forrest Road Reserve: National Circuit between Sydney Avenue and Canberra Avenue, including portions of Fitzroy Street.
- Phillip Road Reserve: Bowes Street, off Callam Street.
- Phillip Road Reserve: Bradley Street.
- Phillip Road Reserve: Callam Street, from Intersection of Launceston to past Wilbow Street.
- Phillip Road Reserve: Irving Street, East from Spoering Street at Block 4 Section 23 to Launceston Street.
- Phillip Road Reserve: Launceston Street, 250m either side of the intersection at Callam Street including portions of Easty Street and Bowes Street.
- Phillip Road Reserve: Matilda Street
- Phillip Road Reserve: Melrose Drive, 250m from the Yarra Glen Roundabout.
- Phillip Road Reserve: Neptune Street.
- Phillip Road Reserve: Wilbow Street.
- Phillip Road Reserve: Yamba Drive, 250m from the Yarra Glen Roundabout.
- Yarralumla Road Reserve: Guilfoyle Street, from Kintore Crescent to Gunn Street. Gunn Street, 130m to the North of Guilfoyle Street.
- Yarralumla Road Reserve: Hopetoun Circuit, from Adelaide Avenue to approximately 200m North, including portions of Hampton Circuit and Weston Street.
- Yarralumla Road Reserve: Novar Street, from Adelaide Avenue to approximately 200m North. Kintore Crescent to the East of Novar Street, including a portion 50m to the West.

APPENDIX C – EIS GUIDELINES

Australian Government
Department of Climate Change, Energy, the Environment and Water

GUIDELINES FOR THE CONTENT OF A DRAFT ENVIRONMENTAL IMPACT STATEMENT

Commonwealth Park to Woden Light Rail Project (EPBC 2023/09753)

Environment Protection and Biodiversity Conservation Act 1999

GPO Box 858 Canberra ACT 2601 · Telephone 02 6274 1111 · www.dcceew.gov.au

PREAMBLE

Major Projects Canberra (the proponent) proposes to construct and operate stage 2B of the Canberra light rail network, from Commonwealth Park to Woden, ACT (EPBC 2023/09753).

On 1 March 2024, the proposed action was referred to the Minister for the Environment and Water (the Minister) under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). On 3 April 2024, a delegate of the Minister determined that further assessment and approval is required under the EPBC Act because the proposed action is likely to have a significant impact on the following controlling provisions that are protected under Part 3 of the EPBC Act:

- National Heritage places (sections 15B and 15C)
- Listed threatened species and communities (sections 18 and 18A)
- Commonwealth land (sections 26 and 27A), including the 'whole of the environment'.

On the same date, the delegate of the Minister determined that the proposed action is to be assessed by Environmental Impact Statement (EIS) and prepared in accordance with tailored guidelines developed pursuant to section 102 of the EPBC Act.

These EIS Guidelines reflect the information about the proposed action and its potential impacts on relevant matters protected under the EPBC Act (protected matters) that are to be provided in the EIS.

The draft EIS must be considerate of the two potential alignment options as referred to the department in EPBC 2023/09753. If one of the two proposed alignments is selected as a final alignment prior to the completion of the drafting or finalisation of the EIS, the information in the EIS should be limited to assessing the impacts associated with the selected alignment.

The preparation of the EIS is one of a number of steps in the Commonwealth and Territory approval processes for the proposed action. Subsequent Territory and Commonwealth planning approval requirements will necessarily respond in detail to a number of matters contemplated by these EIS Guidelines. Given this, in preparing the EIS consistent with these EIS Guidelines, the proponent may refer to future planning and approval processes (including conditions which may be imposed by the Minister and any Construction Environmental Management Plan [CEMP]) as a method to provide the requested detail or otherwise ensure that the relevant detail is considered in a planning context.

Not with standing this, the information in the EIS should be sufficient to allow the Minister for the to make an informed decision on whether or not to approve, under Part 9 of the EPBC Act, the taking of the proposed action for the purposes of each controlling provision, and if approved, what conditions to attach.

CONTENTS

1 GENERAL ADVICE

1.1 General Content

The EIS must be a stand-alone document that contains sufficient information to avoid the need to search supplementary reports and other appendices. At a minimum, the EIS must meet the requirements of Schedule 4 of the EPBC Regulations 2000 (EPBC Regulations). The EIS must include a table which clearly identifies where the requirements of the EIS Guidelines have been addressed in the EIS and its appendices.

The EIS must take into consideration:

- Significant Impact Guidelines 1.1: Matters of National Environmental Significance (Significant Impact Guidelines 1.1).
- Significant Impact Guidelines 1.2: Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies (Significant Impact Guidelines 1.2).
- Other relevant EPBC Act policy statements and guidelines, including conservation advices, recovery plans, and threat abatement plans available on the department's Species Profile and Threats (SPRAT) Database.
- The Interim Engaging with First Nations People and Communities on Assessments and Approvals under Environment Protection and Biodiversity Conservation Act 1999 (interim guidance) (2023) – DCCEEW.
- The Department of Climate Change, Energy, the Environment and Water's offsets mitigation hierarchy: Offsets mitigation hierarchy – DCCEEW.
- EPBC Act Environmental Offsets Policy (2012).

The EIS must include sufficient detail to enable the Minister and any interested stakeholders to understand the potential impacts of the proposed action on relevant protected matters.

After receiving the Minister's approval to publish the draft EIS, the proponent is required to make the EIS available for public comment for a minimum of 20 business days. Specific instructions regarding publication requirements will be provided as part of the Minister's direction to publish.

The information in the EIS must be objective, clear, and succinct and, where appropriate, be supported by maps, plans, diagrams, or other descriptive detail. All maps and diagrams must be presented at a suitable size and scale; and should include consideration of the department's Guide to providing maps and boundary data for EPBC Act projects (2021).

The level of detail, analysis and conclusions in the EIS must reflect the level of the potential impacts on relevant protected matters. All assumptions made, and variables identified in the assessment must be clearly stated and discussed. Further, any claims made (e.g. regarding the presence/absence of protected matters) need to be adequately justified and supported with evidence.

The extent to which the limitations, if any, of available information that may influence the conclusions of the assessment must be discussed. The EIS must be written so that any conclusions reached can be independently assessed.

The EIS must be written in a clear and concise style that is easily understood by all interested stakeholders, including those who may not be familiar with the proposed action or the technical elements of the assessment. Technical jargon and acronyms must be avoided or otherwise be explained in a simple and clear manner.

Information, studies, or investigations necessary to support the information in the EIS must be included as appendices, with electronic links provided where possible. References to all supporting documents (including websites) must be used to avoid unnecessary duplication of information. All referencing must be clear and consistent (e.g. document name, section, figure, etc.) and all sources must be appropriately referenced using the Harvard standard and the reference list must include the address of any websites used as data sources.

Note: If it is necessary to make use of material that is of a confidential nature, the proponent must consult with the department on the preferred presentation of that material before submitting the draft EIS to the Minister for approval to publish for public comment.

1.2 Format and Style

The EIS must comprise three elements, namely:

(a) the executive summary

(b) the main text of the stand-alone document

(c) appendices containing technical information and other information that is used to support the information in the stand-alone document.

The EIS must include a list of abbreviations, a glossary of terms, and appendices containing:

(a) a copy of these EIS Guidelines

(b) a list of the persons and agencies consulted during the preparation of the EIS

(c) contact details for the proponent

(d) the names of the persons involved in preparing the EIS and work done by each of these persons.

Note: The EIS Guidelines have been set out in a manner that may be adopted as the format for the EIS. This format can be adapted where the required information can be presented more effectively. Further, the proponent needs to consider the format and style of the EIS to ensure it is appropriate for publication on the Internet. However, each of the elements outlined in the EIS Guidelines must be addressed to meet the requirements of the EPBC Act and EPBC Regulations.

2 SPECIFIC CONTENT

The EIS must include the background and context of the proposed action including:

(a) the title of the proposed action

(b) the full name and postal address of the designated proponent

(c) a clear outline of the objective of the proposed action

(d) the location(s) of the proposed action

(e) the background to the development of the proposed action

(f) how the proposed action relates to any other actions (of which the proponent should reasonably be aware) that have been, or are being, taken or that have been approved in the region affected by the proposed action

(g) the current status of the proposed action

(h) the consequences of not proceeding with the proposed action.

3 DESCRIPTION OF THE ACTION

The EIS must describe the proposed action in sufficient detail to allow interested stakeholders to understand all relevant stages and components of the proposed action. Supporting maps, plans and/or diagrams should be prepared with consideration of the department's Guide to providing maps and boundary data for EPBC Act projects (2021). Information to be provided includes:

(a) A description of all known pre-construction, construction, and operational components of the proposed action

(b) The proposed location of all works to be undertaken, structures to be built and any other elements of the proposed action such as grade separations, based on the concept design, that have the potential to impact on the controlling provisions with relevant supporting documentation, including but not limited to:

i. the location and extent of overhead wiring for the light rail, and the nature and location of any non-wired sections of the light rail

ii. grading changes to roads and any temporary or permanent changes to road infrastructure, traffic flow and accessibility

iii. the location of substations and construction compounds

iv. an overview of the design concept and 3D renders of the light rail bridge along Commonwealth Avenue

v. the location of platforms, tracks, barriers, and signage in relation to all relevant heritage places

vi. what action will be taken that could directly or indirectly affect listed threatened species and communities

vii. what action will be taken that could directly or indirectly affect National Heritage places

viii. what action will be taken that could directly or indirectly affect Commonwealth Heritage places

(c) Detail of how the works for each component of the proposed action are to be undertaken (including stages of development and their timing), the design parameters for the structures or elements of the proposed action that may impact on relevant protected matters, and the indicative timing and duration of each component of the proposed action.

(d) Clear delineation of the project site, disturbance footprint and avoidance areas for relevant matters of national environmental significance (MNES) including the size of these areas (in hectares). Shapefiles for these areas must be included as an appendix to the EIS.

3.1 Design Justification and Alternatives

The EIS must contain a discussion on the design of the proposed action, including the alignment options as presented in the referral, or, in the event that a preferred alignment has been selected from the two options presented in the referral, for that preferred alignment.

The EIS must:

(a) discuss how the proposed action aligns with the requirements of the National Capital Authority's (NCA) National Capital Plan, relevant ACT Heritage Management Plans, and relevant ACT Precinct Codes

(b) detail the Registered Aboriginal Organisations (RAOs) consultation regarding project design alternatives to avoid both permanent and temporary impacts on First Nations cultural heritage values

(c) discuss the reasoning behind the proposed rail alignment(s)

(d) detail how the design of the proposed action is consistent with any EPBC Act approval conditions relevant to the project site (e.g. light rail stages 1 and 2A).

The EIS must contain details on any potential alternative(s) to the proposed action which have been considered, including:

(a) if relevant, the alternative of taking no action

(b) a comparative summary of the impacts of each alternative on relevant MNES

(c) advantages and disadvantages of each alternative

(d) sufficient detail to make clear why any alternative is preferred to another

(e) how the choice of alternative(s) ensures impacts on relevant MNES are appropriately avoided, minimised and managed to an acceptable level.

4 DESCRIPTION OF THE EXISTING ENVIRONMENT

The EIS must include a description of the environment of the project site and the surrounding areas that may be impacted by the proposed action. The description must be sufficiently detailed to inform the assessment of potential impacts on relevant protected matters, supported by maps where appropriate.

At a minimum, this section must include:

(a) detailed mapping of land tenure within the project site, including of Territory and National lands

(b) the topography across the entirety of the project site, supported by topographic maps

(c) details of the terrestrial ecosystems, including key vegetation communities and features (e.g. hollow-bearing trees, soil types, etc.)

(d) details of any aquatic ecosystems, including aquatic riparian values, and surface water hydrology and quality

(e) details of any native flora and fauna, including common species and species listed under the EPBC Act and Nature Conservation Act 2004 (NC Act)

(f) details of any pest species and weeds

(g) the location of relevant National Heritage places (see **Section 5.1**)

(h) the location of relevant Commonwealth Heritage places (see **Section 5.3.4**)

(i) cultural heritage places and values (Indigenous and non-Indigenous), people and communities, and other relevant social considerations

(j) the location of known and potential contamination sources, and the nature and extent of any previous removal and/or remediation activities (see **Section 5.3.1.2**).

5 DESCRIPTION OF THE PROTECTED MATTERS

The EIS must provide a description of the protected matters that are likely to be impacted by the proposed action. The protected matters must be described at a relevant scale (e.g. local, regional, national) so that the relative value/importance of the project site, disturbance footprint and surrounds is sufficiently understood.

5.1 National Heritage

The EIS must include a description of all National Heritage places across the project site that are likely to be impacted by the proposed action. This should include a copy of the listed heritage values and Statement of Significance for each place. At a minimum, the EIS must include information on:

- Old Parliament House and Curtilage (Place ID: 105774)
- The High Court – National Gallery Precinct (Place ID: 105745)

The EIS must include detailed mapping of the proposed action, which differentiates between those parts of the footprint that are proposed to be within the final light rail

corridor alignment(s) as opposed to the construction site, including proposed locations for construction boundaries, underground works, grade separations, overhead wires, substations, or other infrastructure based on the concept design, and show where these overlap with or are adjacent to the boundaries of National Heritage places.

5.2 Listed threatened species and communities

The EIS must include information on the presence (or likelihood of presence) of any EPBC Act-listed threatened species and ecological communities that are likely to be impacted by the proposed action. At a minimum, this must include:

- Natural Temperate Grasslands of the South Eastern Highlands threatened ecological community
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland threatened ecological community
- Golden Sun Moth (*Synemon plana*)
- Gang-gang Cockatoo (*Callocephalon fimbriatum*)
- Superb Parrot (*Polytelis swainsonii*)
- Swift Parrot (*Lathamus discolor*)
- Southern Whiteface (*Aphelocephala leucopsis*)
- Brown Treecreeper (south-eastern) (*Climacteris picumnus victoriae*)
- Striped Legless Lizard (*Delma impar*)
- Canberra Grassland Earless Dragon (*Tympanocryptis lineata*)
- Key's Matchstick Grasshopper (*Keyacris scurra*)
- Grey-headed Flying-fox (*Pteropus poliocephalus*)
- Button Wrinklewort (*Rutidosis leptorhynchoides*)
- Small Purple Pea (*Swainsona recta*)
- Matted Flax-lily (*Dianella amoena*)
- Hoary Sunray (*Leucochrysum albicans subsp. tricolor*)

Note: The list above may not be a complete list of listed threatened species and ecological communities that will be or are likely to be impacted by the proposed action. It is the proponent's responsibility to ensure that any threatened species or ecological communities listed at the time of the controlled action decision (3 April 2024), which will be or are likely to be impacted by the proposed action, are assessed in the EIS.

The EIS must consider relevant listed threatened species and ecological communities at the local, regional, and national level and must include the following information:

(a) A description of the desktop assessment methodology used to inform a likelihood of occurrence assessment and the field surveys within and/or adjacent to the project site, including known historical records in the broader region.

(b) Details of the scope, timing (survey season[s]), effort and methodology for field studies or surveys undertaken to provide information on the presence of listed threatened species and ecological communities (e.g. sightings, scats, calls, etc.) within and adjacent to the project site.

(c) Details of the scope, timing (survey season[s]), effort and methodology for field studies or surveys undertaken to provide information on habitat for listed threatened species and ecological communities (e.g. vegetation assessments, tree hollow measurements, soil characteristics, etc.) within and adjacent to the project site.

(d) Details of how the field studies or surveys are consistent with relevant Commonwealth statutory documents (including but not limited to conservation advice and recovery plans), departmental guidelines or policy statements, or are undertaken in accordance with best practice for studies or surveys.

(e) A description of any uncertainties/limitations with the field studies or surveys, including but not limited to timing, weather conditions and technology.

(f) Justification for divergence from relevant Commonwealth statutory documents, departmental guidelines or policy statements, or best practice for studies or surveys (if relevant).

(g) Study or survey outcomes, including the total number of records (individuals and evidence of presence) of listed threatened species and ecological communities within and/or adjacent the project site, and a brief description of the habitat in which each record was found.

(h) An assessment of the habitat available within and adjacent to the project site, including an assessment of specific habitat requirement(s) relevant to each listed threatened species and ecological community (e.g. breeding, foraging, dispersal, known important habitat, suitable habitats, roosting, etc.).

(i) Justification for the habitat assessment with consideration of field studies or surveys, the SPRAT Database, relevant departmental documents and other published sources (e.g. published research).

(j) Amount of each type of habitat (in hectares) within and adjacent to the project site for each listed threatened species and ecological community, where required by relevant management plans and policies for those species.

(k) A description of the importance and value of potentially impacted environmental features at a local and regional scale.

5.3 Whole of the Environment (Commonwealth land)

The EIS must include a description of the heritage values and the environment at the project site that are likely to be impacted by the proposed action. The environment is defined in section 528 of the EPBC Act as:

(a) ecosystems and their constituent parts, including people and communities

(b) natural and physical resources

(c) the qualities and characteristics of locations, places, and areas

(d) heritage values of places

(e) the social, economic, and cultural aspects of a thing mentioned in paragraph (a), (b), (c) or (d).

These matters must be described at the local and regional level, with consideration of the requirements in the following sections.

5.3.1 Ecosystems and their constituent parts, including people and communities

The EIS must include a description of the ecosystems and their constituent parts in relation to the project site and surrounding areas. This must include a discussion of plants, animals, pollutants, chemicals and toxic substances, water resources, people and communities, and landscape and soils, as described in the Significant Impact Guidelines 1.2.

Note: Native plants and animals (including native vegetation) are considered part of the whole of the environment. This includes common native species, rare, endemic, or usual native species, and species listed under ACT legislation but not under the EPBC Act.

5.3.1.1 Plants and animals

The EIS must include information on the presence (or likelihood of presence) of species listed under the NC Act, and locally rare, endemic, or otherwise valuable species at the project site and in surrounding areas that are likely to be impacted by the proposed action. The ACT Scientific Committee's ACT Rare Plant list must be considered to identify rare plants in the region.

At a minimum, the EIS must include information on:

- Natural Temperate Grassland as listed under the NC Act
- Box-Gum Grassy Woodland as listed under the NC Act
- Perunga Grasshopper (*Perunga ochracea*)
- Canberra Raspy Cricket (*Coorabooorama canberrae*)

5.3.1.2 Pollutants, chemicals, and toxic substances

The project site should be subject to a preliminary site investigation in accordance with Commonwealth-endorsed guidelines including the National Environment Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM), the Per- and Polyfluoroalkyl Substances (PFAS) PFAS National Environmental Management Plan 2.0 (HEPA 2020) (PFAS NEMP), and the National Water Quality Management Strategy.

Where potential contaminated sites are identified, a detailed site investigation must be undertaken, either prior to the completion of the EIS, or planned for completion as part of a CEMP.

The EIS should:

(a) provide detailed descriptions and maps of all past and current contaminated sites within and directly adjacent to the project site, including a discussion of sites which will need to be disturbed due to the proposed action, at any stage of the proposed action

(b) provide detailed information regarding proposed works, based on current designs, so that the potential to encounter, remobilise, introduce, and/or redistribute contamination can be independently assessed.

5.3.1.3 People and communities

The EIS must include a description of the types of people and communities that are likely to be impacted by the proposed action and how they will be impacted by the proposed action. This includes but is not limited to government entities, commercial businesses, road and public transport network users, recreational area users, tourists, community and residential groups, and emergency services.

5.3.2 Natural and physical resources

The EIS must include a description of the natural and physical resources that are likely to be impacted by the proposed action including but not limited to:

- Lake Burley Griffin and surrounds,
- surface waters (stormwater, creeks, rivers, and dams),
- groundwater
- soils and quarry materials.

5.3.3 Qualities and characteristics of locations, places, and areas

The EIS must include a description of the qualities and characteristics of all locations, places, and areas that area likely to be impacted by the proposed action. At a minimum, the EIS must include information on:

- mature street trees, plantings, and landscaping features
- vistas, views, and general aesthetic features
- general ambience (e.g. noise levels, intensity of road and foot traffic, air quality, shade quality, temperature etc.).

5.3.4 Heritage

The EIS must include a description of the identified heritage values at the project site that are likely to be impacted by the proposed action. At a minimum, the EIS must include information on:

- Parliament House Vista (Place ID: 105466)
- Lake Burley Griffin and Adjacent Lands (Place ID: 105230)
- National Library of Australia and Surrounds (Place ID: 105470)
- High Court – National Gallery Precinct (Place ID: 105544)

- High Court of Australia (Place ID: 105557)
- National Gallery of Australia (105558)
- Old Parliament House and Curtilage (Place ID: 105318)
- Old Parliament House Gardens (Place ID: 105616)
- West Block and the Dugout (Place ID: 105428)
- National Rose Gardens (Place ID: 105473)
- King George V Memorial (Place ID: 105352)
- York Park North Tree Plantation (Place ID: 105242)
- Commencement Column Monument (Place ID: 105347)
- The Surveyor's Hut (Place ID: 105467)
- Patent Office (former) (Place ID: 105454)
- Edmund Barton Offices (Place ID: 105476)
- John Gorton Building (Place ID: 105472)
- Communications Centre (John Gorton Building Bunker) (Place ID: 105618)
- The Lodge (Place ID: 105452)
- State Circle Cutting (Place ID: 105733)

Note: The list above may not be a complete list of Commonwealth Heritage places that will or are likely be impacted by the proposed action. It is the proponent's responsibility to ensure that any listed Commonwealth Heritage places at the time of the controlled action decision (3 April 2024), which will or are likely to be impacted by the proposed action, are assessed in the EIS.

Additionally, any other places that are not explicitly included on the Commonwealth Heritage List, but have either historic, natural and/or Indigenous values must also be included in the EIS. At a minimum, the EIS must include information on:

- Parliament House
- Commonwealth Avenue
- Aboriginal Tent Embassy
- Albert Hall
- Hotel Canberra (Hyatt Hotel Canberra)
- Treasury Building
- Presbyterian Church of St Andrew
- Capital Hill
- Hotel Kurrajong

Indigenous heritage values (of a place) are defined in section 528 of the EPBC Act as a heritage value of the place that is of significance to Indigenous persons in accordance with their practices, observances, customs, traditions, beliefs, or history.

5.3.5 Social, economic, and cultural aspects

The EIS must include a description of the social, economic, and cultural aspects relevant to those elements of the environment outlined in **Sections 5.3.1** through **5.3.4**. Further information regarding the inclusion of social, economic, and cultural considerations in the EIS can be found in **Section 13** of these EIS Guidelines.

6 RELEVANT IMPACTS

Relevant impacts of the proposed action must be assessed in accordance with relevant departmental policies and guidelines, and the information provided in the SPRAT Database.

The EIS must include a description of relevant impacts of the proposed action (direct, indirect, cumulative, and facilitated) on listed threatened species and ecological communities, National and Commonwealth heritage values, and the whole of the environment.

Impacts expected to arise during the pre-construction, construction and operational stages of the proposed action must be addressed, with clear linkages between which component(s) and stage(s) of the proposed action are of relevance to each protected matter.

The following information must be provided in the EIS:

(a) A detailed assessment of the nature and extent of the likely direct, indirect, and facilitated short-term and long-term impacts on relevant protected matters.

(b) A statement, with supporting evidence, on whether any impacts are likely to be unknown, unpredictable, or irreversible.

(c) Any technical data and other information used or needed to make a detailed assessment of the impacts.

(d) A conclusion as to whether the impacts are consistent with the relevant conservation advice, recovery plans, and other departmental policies and guidelines (e.g. key threatening processes).

The EIS should identify and discuss cumulative impacts on relevant MNES, where potential impacts from the proposed action are in addition to existing impacts of other activities (including known potential future expansions or developments by the proponent and other proponents in the vicinity and region [e.g. light rail stage 1 and stage 2A]).

Quantification and assessment of impacts should:

(a) be against appropriate background/baseline levels

(b) be prepared according to best practice guidelines and compared to best practice standards

(c) consider seasonal and temporal variations where appropriate (including temporal changes in the sensitivity of the receptor)

(d) be supported by maps, graphs and diagrams as appropriate to ensure information is readily understandable

(e) explain and justify guidelines and standards used to quantify baselines and impacts.

The EIS must take into consideration the following international conventions and demonstrate that the proposed action will not be inconsistent with the objectives and principles of:

- the Biodiversity Convention
- the Convention on the Conservation of Nature in the South Pacific (Apia Convention)
- the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

6.1 National Heritage

The EIS must include supporting information for the impact assessment on the values of all National Heritage places (see **Section 5.1**).

A Heritage Impact Assessment (HIA) must be included as an appendix that addresses all potential impacts on heritage within and adjacent to the project site. The requirements on the HIA are detailed in **Section 7.5.1**.

6.2 Listed threatened species and communities

For each threatened ecological community, the EIS must include:

(a) the total direct impact (in hectares) to each identified patch, within and adjacent to the project site, and compared to its current extent

(b) a discussion on the post-impact viability of each individual patch within and adjacent to the project site to be directly and indirectly impacted (e.g. fragmentation, edge effects, etc.) if the proposed action was to proceed as proposed.

For each listed threatened species, the EIS must include:

(a) the total direct impact (in hectares) to each identified type of habitat (e.g. breeding, foraging, dispersal, known important habitat, suitable habitats, roosting, etc.) within and adjacent to the project site

(b) details of the indirect impacts on species and their habitats (e.g. fragmentation, edge effects, population connectivity, individual mortality, increase in noise, light, and dust, increase in people and pet interactions, etc.) as a result of the proposed action.

Detailed mapping of habitat for relevant listed threatened species and ecological communities that are found to be, or may potentially be, present within and/or adjacent to the project site must be included in the EIS, and must:

(a) be specific to the habitat assessment undertaken for each listed threatened species and ecological community (see **Section 5.2**)

(b) include an overlay of the disturbance footprint

(c) include known records of individuals (or evidence of individuals) derived from desktop analysis and/or field surveys.

6.3 Whole of the environment (Commonwealth land)

6.3.1 Plants and animals

With regards to plants and animals on Commonwealth land, the EIS must include:

(a) a description of the impacts on common native species, rare, endemic, or usual native species, native and non-native vegetation, and species listed under the NC Act. This should include a discussion of impacts on the species listed in **Section 5.3.1**.

(b) a discussion regarding the potential cumulative impacts of the proposed action on ecosystem resilience within and adjacent to the project site (e.g. connected vegetation communities, connected species habitat, etc.) noting that cumulative impacts may include past, present, and future human activities and natural variations over time, and can be both positive and negative.

(c) the cumulative effects of climate change impacts of the proposed action on the environment in the assessment of ecosystem resilience, particularly where climate change is identified as a specific risk to a species, ecological community and/or vegetation community. Where relevant to the potential impacts of the proposed action, a risk assessment must be conducted, summarised in the EIS, and attached in full as an appendix.

6.3.2 Pollutants, chemicals, and toxic substances

The EIS must include as an appendix a Preliminary Site Investigation Report detailing the characterisation and delineation of known contamination, or detailing potential sources of contamination, on and immediately adjacent to the project site. This report must be prepared by a suitably qualified person in accordance with **Section 5.3.1.2**.

The EIS must include a summary of the findings of the preliminary site investigation, including an assessment of the potential for redistribution or mobilisation of contaminants as a result of the proposed action and the associated likelihood and severity of impacts to human health and the environment (including soil, sediment, groundwater, surface water, biota and air).

This should include information relating to the potential for redistribution, mobilisation/remobilisation of contaminated material and discuss the severity of impacts to media potentially affected (such as soil, groundwater, surface water, air) and any other ecosystem and sensitive receptors.

6.3.3 People and communities

The EIS must include a description of the impacts on any people and communities during both construction and operation phases of the proposed action. At a minimum, the EIS must include information on:

(a) changes to traffic flow and access

(b) changes to public transport and parking spaces

(c) changes to pedestrian and cyclist flow and access

(d) disruptions to emergency services and access.

6.3.4 Natural and physical resources

The EIS must include a description of the impacts, based off a desktop assessment, on key surface water resources including but not limited to impacts on or associated with:

(a) turbidity and soil erosion

(b) contamination from litter, pollutants, and chemicals, either directly caused by the proposed action or through remobilisation of existing contaminants

(c) changes to overland flow paths

The EIS must also include a description of how the proposed action may impact on any groundwater resources and Groundwater Dependent Ecosystems (GDEs), including but not limited to impacts on:

(a) groundwater quality

(b) groundwater flow regimes

(c) perched aquifer storage and connectivity to deeper aquifers

(d) water availability to GDEs and springs

The EIS must include a discussion as to how these impacts are predicted to adversely affect receptors (e.g. ecosystems, surface water or groundwater users) and the potential pathways of the impacts from sources to receptors. This should include a discussion on how the pathways might interact with each other.

6.3.5 Heritage

As noted in **Section 6.1**, a HIA is required as an appendix to the EIS. In addition to the impact assessment on National Heritage values, the HIA must address potential impact on all heritage values within and adjacent to the project site, including Commonwealth Heritage places (see **Section 5.3.4**). The requirements of the HIA are detailed in **Section 7.5.1**.

6.3.6 General environmental impacts

Assessment of impacts to the environment (as defined in section 528 of the EPBC Act), during both construction and operation of the proposed action, should also include but not be limited to the following:

(a) road noise and vibration impacts on the community and natural environment

(b) impacts on air quality (e.g. dust, including consideration of seasonal and meteorological variations that influence local air quality)

(c) lighting impacts on the community and natural environment

(d) changes in recreational use and amenity of natural & urban areas

(e) social, economic, and cultural impacts

(f) creation of any risks or hazards to people or property that may be associated with any component of the proposed action.

7 PROPOSED SAFEGUARDS AND MITIGATION MEASURES

The EIS must provide information on proposed safeguards and mitigation measures to deal with the relevant impacts of the proposed action. It must include detailed information on feasible measures to further avoid and minimise the proposed impacts on relevant protected matters detailed in **Section 5** of these EIS Guidelines. Specific and detailed descriptions of proposed measures must be provided and substantiated, based on best available practices and must include the following elements.

Consideration of relevant agreements and plans that cover impacts or known threats to a matter protected by a controlling provision, including:

(a) any recovery plan and/or conservation advice for the affected species or ecological community

(b) any threat abatement plan for a process that threatens an affected species or ecological community

(c) any relevant strategic assessment undertaken in accordance with an agreement under Part 10 of the EPBC Act

(d) any relevant management plans for heritage places.

A consolidated list of mitigation measures proposed to be undertaken to prevent, minimise or compensate for the relevant impacts of the proposed action, including:

(a) a description of the environmental outcomes the measures are expected to achieve including details of any baseline data or proposed monitoring to demonstrate progress towards achieving these outcomes

(b) a description of proposed safeguards and mitigation measures to deal with relevant impacts of the action, including by considering mitigation measures proposed to be taken by the ACT Government, other authorities or the proponent

(c) assessment of the expected or predicted effectiveness of the mitigation measures

(d) any statutory or policy basis for the mitigation measures

(e) a conclusion as to whether, following implementation of all safeguard and mitigation measures, any residual impacts are acceptable.

Overall, the EIS must not rely on proposed management plans and/or broad objectives to describe avoidance, mitigation, and management measures, having regard to the development of plans as proposed under, and the other matters in, these EIS Guidelines.

Any management plans submitted as appendices to the EIS must be prepared by a suitably qualified person and be in accordance with the department's *Environmental Management Plan Guidelines (2014)*.

Committed language (e.g. 'will', 'must', etc.) rather than non-committal language (e.g. 'may', 'where possible', 'if required', etc.) must be used for the relevant plans. The proposed measures must be developed in accordance with the 'S.M.A.R.T' principle:

S – Specific (what and how)

M – Measurable (baseline information, number/value, auditable)

A – Achievable (timeframe, money, personnel)

R – Relevant (conservation advice, recovery plans, threat abatement plans)

T – Time-bound (specific timeframe to complete)

Specific and detailed descriptions of proposed measures must be provided and substantiated, based on best available practices and appropriate standards and supported by scientific evidence.

7.1 Plants and animals

The EIS must provide information regarding:

(a) native buffer zones (in metres) or design measures proposed to be implemented to protect the outer edge of patches of ecological communities and habitat for listed threatened species

(b) commitments to avoidance, mitigation, and management measures that are consistent with relevant departmental statutory documents, best practice guidelines and/or scientific evidence

(c) avoidance, mitigation, and management measures to reduce lighting impacts on local and migratory species, especially at sensitive times of day (e.g. at night).

7.2 Pollutants, chemicals, and toxic substances

The EIS must provide information or approaches regarding:

(a) management and mitigation controls to prevent construction activity from releasing contaminates into the environment

(b) management of dust suppression and emission (within the context of pollutants, chemicals, and toxic substances)

(c) plans for remediation and rehabilitation of all contaminated areas, where required

(d) management of rainwater in open pits and detention basins, including dewatering, disposal, and reuse processes

(e) management measures for handling and disposal of contaminated material.

7.3 People and communities

The EIS must provide information or approaches regarding:

(a) avoidance, mitigation and management measures to reduce the impact of changes to traffic and public transport options, including to vulnerable sections of the community

(b) avoidance, mitigation, and management measures to reduce both the levels and impact of noise and vibration, especially at sensitive times of day (e.g. at night near residential areas, during school hours near schools, etc.)

(c) avoidance, mitigation, and management measures to reduce both the levels and impact of dust/particulate matter (PM10 and PM2.5) on human health and other sensitive receptors

(d) avoidance, mitigation, and management measures to reduce lighting impacts on local people and communities, especially at sensitive times of day (e.g. at night near residential areas).

7.4 Natural and physical resources

The EIS must provide information regarding:

(a) management and mitigation controls to prevent construction activity from impacting on soil, surface water, and groundwater

(b) management of rainwater in open pits and detention basins, including dewatering, disposal, and reuse processes

(c) optimisation of reuse of soils where possible.

7.5 Heritage

7.5.1 Heritage Impact Assessment

The EIS must include a HIA for the potential alignments as referred – National Triangle Barton and State Circle East. The HIA will be updated to reflect the selection of a final alignment.

The HIA should:

(a) address historic heritage, natural heritage, and Indigenous heritage including consultation with the Canberra RAOs and evidence of best practice consultation with First Nations communities (see **Section 7.5.2** and **Section 11.1**)

(b) note that the referral documentation described direct and indirect significant impacts on Old Parliament House and Curtilage, Commonwealth Avenue, the Edmund Barton Building, Lake Burley Griffin and Adjacent Lands, and the Patent Office (former) and should clarify whether the final design option is likely to have significant impacts on these or any other heritage places

(c) include information on the values of all National and Commonwealth Heritage places and the heritage values of places that may not be included on official lists. These places include, but are not limited to, those listed in **Section 6.1** and **Section 6.3.5**. The HIA should address any potential impacts that the proposed actions will have on the heritage values of these places

(d) address the potential impact that the proposed actions will have on significant heritage sight lines associated with the Parliament House Vista and visual impact assessment supported by visual renderings of those sightlines

(e) address:

i. changes to, and/or new construction associated with, Commonwealth Avenue Bridge

ii. proposed tree removal and replacement, changes to the public domain and landscape

iii. impacts on adjacent heritage values and physical fabric (both listed and identified)

iv. methodology for dealing with unanticipated finds (detailed below).

(f) include any relevant heritage assessment reports or advice and address any impacts that the proposed action will have on the heritage values identified in these reports

(g) specify plants proposed to be removed by the proposed action, which are included in Commonwealth Heritage listings or have other historic, natural or First Nations heritage values. A map identifying these plants must be included in the HIAs

(h) be undertaken by expert consultants with relevant qualifications and experience

(i) meet the standards of the EPBC Act (Significant Impact Guidelines 1.2)

(j) take account of any relevant heritage management plan policies

(k) include a framework for the avoidance, mitigation, and management of the relevant impacts of each stage of the proposed action (for each proposed alignment) on relevant heritage values within and adjacent to the project site

(l) include information on First Nations cultural heritage, including but not limited to:

i. details on how any proposed mitigation strategies to be applied to the project site will operate to protect sensitive Indigenous heritage areas (e.g. conservation in situ, site avoidance, restricted access, buffer zones, creation of a conservation area)

ii. commitment to provide details on where the salvaged artefacts will be relocated, how they will be managed, and any documentation and access arrangements discussed with the RAOs from consultation

(m) include an unexpected finds protocol addressing First Nations, natural and historic heritage finds (including the potential discovery of archaeological remains) and the steps required to deal with these.

7.5.2 Indigenous cultural heritage

The EIS must include details on any ongoing and proposed RAO consultation regarding alternative project design options to avoid both permanent and temporary impacts on Indigenous cultural heritage values.

The proponent must undertake First Nations consultation in accordance with the department's *Interim Engaging with First Nations People and Communities on Assessments and Approvals under the Environment Protection and Biodiversity Conservation Act 1999 (interim guidance) (2023)*.

The unexpected finds protocol must include appropriate steps to work with the RAO in safeguarding and mitigating impacts to cultural artefacts and/or remains that may be uncovered during excavation and construction works. The proponent should consider and discuss arrangements for an appropriate keeping place with the RAO and relevant heritage authorities, in line with the HIA requirements in **Section 7.5.1**.

In addition, the proponent should consider contacting the department for recommendations and guidance on effective engagement with First Nations peoples and communities, with respect to assessment under the EPBC Act.

7.5.3 Geoheritage

The EIS must take into consideration the *State Circle Cutting Heritage Management Plan 2016 (nca.gov.au)*.

7.5.4 National Heritage

The EIS must take into consideration the National Heritage management principles, as outlined in Schedule 5B of the EPBC Regulations, and demonstrate how the proposed action will not be inconsistent with those principles.

7.5.5 Commonwealth Heritage

The EIS must take into consideration the Commonwealth Heritage management principles, as outlined in Schedule 7B of the EPBC Regulations, and demonstrate how the proposed action will not be inconsistent with those principles.

7.6 Environmental Management Plan

The EIS must include a detailed outline of an Environmental Management Plan (EMP) as an appendix. The EMP outline must be prepared in accordance with the department's *Environmental Management Plan Guidelines (2014)* as amended from time to time and must:

(a) set out the proposed action, including any provisions for independent environmental auditing. As a minimum, the EMP outline must consider the impacts outlined in **Section 6** and must consider the proposed safeguards and mitigation measures outlined in **Section 7**

(b) address the project phases (construction and operation) separately. It must state the environmental objectives, performance criteria, monitoring, reporting, corrective actions, responsibility and timing for each environmental issue

(c) describe contingencies for events such as failure of sewerage systems, heavy or prolonged rainfall, or chemical spills

(d) include an unexpected finds protocol for contaminated materials and heritage artefacts.

As necessary, the EIS must also include the name of the agency responsible for endorsing or approving each mitigation measure, management plan or monitoring program.

8 ENVIRONMENTAL OFFSETS

The EIS must include an assessment of the likelihood of residual significant impacts occurring on National heritage values, listed threatened species and communities, and the environment (including Commonwealth and First Nations heritage values) after avoidance, mitigation and management measures have been applied. If it is determined that a residual significant impact is likely on relevant MNES, then environmental offsets will be required in accordance with the principles of the *EPBC Act Environmental Offsets Policy (2012) (Offsets Policy)*.

If environmental offsets are required, an offset within the ACT must be sought in the first instance, in consultation with the ACT Parks and Conservation Service. Where this is not possible, and an alternative sought, justification must be provided in the EIS for this decision.

If environmental offsets are required, an Offset Management Strategy (OMS) or an Offset Management Plan (OMP) prepared by a suitably qualified professional must be included as an appendix to the EIS, with a summary of its key elements included in the body of the EIS. If an offset area(s) has been nominated, include an OMP. If an offset site has not been nominated, include an OMS. The relevant requirements for the OMS and OMP are outlined below.

8.1 Offset Management Strategy

For relevant listed threatened species and communities, the OMS must contain, at a minimum:

(a) details of the proposed environmental offset(s) to compensate for the residual significant impacts of the proposed action on each relevant listed threatened species and ecological community, and/or their habitat.

(b) details of how the proponent will ensure that proposed environmental offset(s) will meet the requirements of the Offsets Policy, including the Offsets Assessment Guide.

(c) details of a strategy for the staging of environmental offset(s) for each project stage (if proposed).

(d) information about how the connectivity with other relevant habitats and biodiversity corridors provided by any proposed offset area(s) will be assessed.

(e) the methodology, with justification and supporting evidence, used to inform the inputs of the Offsets Assessment Guide in relation to the impact site for each relevant listed threatened species and ecological community, including:

    i. quantum of impact – area (in hectares)

    ii. quantum of impact – quality

(f) the methodology, with justification and supporting evidence, used to inform the inputs of the Offsets Assessment Guide in relation to each potential offset area(s) for each relevant listed threatened species and ecological community, including:

    i. time over which loss is averted (maximum 20 years)

    ii. time until ecological benefit

    iii. risk of loss (%) without offset

    iv. risk of loss (%) with offset

    v. confidence in result (%)

(g) what evidence will be provided that the relevant listed threatened species and ecological community, and/or their habitat, is present in any proposed offset area(s).

(h) details of the proposed mechanism to legally secure any proposed offset area(s), such that legal security remains in force over the offset area(s) for at least 20 years to provide enduring protection for the offset area(s) against development incompatible with conservation.

For relevant components of the environment, the OMS must demonstrate, with supporting justification, how the proposed environmental offsets are consistent with the principles of the Offsets Policy. Note that the only relevant heritage values that can be offset are those related to habitats for significant species. Other impacts on heritage places cannot be compensated for using offsets, as heritage values are unique and dependent on context.

The OMS must be prepared by a suitably qualified person.

8.2 Offset Management Plan

For relevant listed threatened species and communities, the OMP must be prepared by a suitably qualified person and must include, at a minimum:

(a) information on the residual significant impacts to each relevant listed threatened species and ecological community that will be compensated for by the environmental offset(s)

(b) a description of the offset area(s), including location, size, condition, environmental values present and surrounding land uses

(c) details of how the environmental offset(s) meets the requirements of the Offsets Policy, including the Offsets Assessment Guide

(d) baseline data and other supporting evidence, including ecological field data that documents the presence of each relevant listed threatened species and ecological community and the quality of their habitat within the offset area(s)

(e) details of the field surveys undertaken within proposed offset areas in accordance with Commonwealth guidelines, State and Territory guidelines, and/or best practice survey methodologies

(f) commitments to achievable improved ecological benefits at the proposed offset area(s) and the expected timeframes in which they will be achieved

(g) details of how the offset area(s) will provide connectivity with other habitats and biodiversity corridors and/or will contribute to a larger strategic offset for each relevant listed threatened species and ecological community

(h) maps and shapefiles to clearly define the location and boundaries of the offset area(s), accompanied by the offset attributes (e.g. physical address of the offset area(s), coordinates of the boundary points in decimal degrees, the listed threatened species and ecological communities that the environmental offset(s) compensates for, and the size of the environmental offset(s) in hectares)

(i) specific offset completion criteria derived from the site habitat quality to demonstrate the improvement in the quality of habitat in the offset area(s) over a 20-year period

(j) details of the management actions, and timeframes for implementation, to be carried out to achieve the offset completion criteria

(k) interim milestones that set targets at 5-yearly intervals to demonstrate progress towards achieving the offset completion criteria

(l) details of the nature, timing, and frequency of monitoring, and submission of monitoring reports to demonstrate progress against achieving the 5-yearly interim milestones (Note: The frequency of monitoring must be sufficient to track progress towards each set of milestones, and sufficient to determine whether the offset area(s) are likely to achieve those milestones in adequate time to implement all necessary corrective actions)

(m) timing for the implementation of corrective actions if monitoring activities indicate the interim milestones have not been achieved

(n) risk analysis and a risk management and mitigation strategy to identify and control all risks to the successful implementation of the OMP and/or the timely achievement of the offset completion criteria, including a rating of all initial and post-mitigation residual risks in accordance with an appropriate risk assessment matrix

(o) evidence of how the management actions and corrective actions take into account relevant approved conservation advice and are consistent with relevant recovery plans and threat abatement plans

(p) Details of the proposed mechanism to legally secure the proposed offset area(s), such that legal security remains in force over the offset area(s) for at least 20 years to provide enduring protection for the offset area(s) against development that is incompatible with conservation.

Supporting evidence must be included in the OMP to justify how the proposed management action(s) are additional to the existing requirements (e.g. weed and pest management requirements) of the landholder in managing their land as required by the Offsets Policy.

The OMP must also include scientific evidence (e.g. published research, pilot studies, previously successful projects/programs, etc.) to demonstrate how successful proposed measures will be to create, revegetate, regenerate and/or improve habitat (e.g. tree planting, nest boxes, artificial hollows, etc.) in the proposed offset area(s) for each relevant listed threatened species and ecological community.

For relevant components of the environment, the OMP must demonstrate, with supporting justification, how the proposed environmental offsets are consistent with the principles of the Offsets Policy. Note that the only relevant heritage values that can be offset are those related to habitats for significant species. Other impacts on heritage places cannot be compensated for using offsets, as heritage values are unique and dependent on context.

8.3 Other Endorsed Offset Frameworks

If efforts to obtain an offset site within the ACT have not been successful, options for offsets within NSW may be considered, including the use of an endorsed offset framework such as the NSW Biodiversity Offset Scheme (BOS).

If an endorsed offset framework is proposed to be used, the report detailing the outcomes (including the credit report) must be discussed in the EIS. The report must be included as an appendix to the EIS.

9 RISK ASSESSMENT

The EIS must describe the likelihood and consequence of any potential risks that may arise if the environmental objectives for proposed action were not met (e.g. the effectiveness of proposed mitigation measures/offsets, or the ability of the proponent to implement these measures).

In taking account of the likelihood and consequence of each risk, the acceptability of each risk should also be considered and discussed, along with any proposed mitigation measures.

The risk assessment must be included as an appendix to the EIS.

10 OTHER APPROVALS AND CONDITIONS

The EIS must include information on any other requirements for approval or conditions that apply, or that the proponent reasonably believes are likely to apply, to the proposed action. This must include:

(a) details of any NCA planning scheme, or plan or policy under any local or Commonwealth Government planning system that deals with the proposed action, including:

   i. what environmental assessment of the proposed action has been, or is being, carried out under the scheme, plan or policy

   ii. how the scheme provides (if at all) for the prevention, minimisation and management of any impacts on relevant protected matters

   iii. details of the existing Development Control Plans (DCP), including the desired planning outcomes.

(b) details on any intended DCP amendment process and its indicative timeframe.

(c) a description of any approval that has been obtained from any Commonwealth or Territory agency or authority (other than an approval under the EPBC Act), including any conditions that are relevant to protected matters.

(d) a statement identifying any additional approval(s) that are required, including but not limited to a Works Approval from the NCA and Parliamentary Approval.

(e) a description of the monitoring, enforcement and review procedures that apply, or are proposed to apply, to the proposed action.

11 CONSULTATION

The EIS must include details of any consultation about the proposed action, including:

(a) any consultation that has already taken place

(b) proposed consultation about relevant impacts of the proposed action

(c) any documented response to, or result of, the consultation

(d) identification of affected parties, including a statement mentioning any communities that may be affected and describing their views.

11.1 First Nations Engagement

The EIS must describe engagement that has been undertaken to date, and a process for ongoing consultation with First Nations peoples and communities throughout the duration of the proposed action. This must include, but not be limited to:

(a) an engagement plan for ongoing consultation during the construction and operational stages of the proposed action, and how this will be conducted in a culturally appropriate way

(b) information demonstrating that Traditional Owners have been consulted on the requirements in these EIS Guidelines.

(c) the names of the Traditional Owners, First Nations stakeholders, and/or representative bodies

(d) identification of existing or potential Native Title rights and interests, including any areas and objects that are of particular significance to Indigenous peoples and

communities, with the potential to be impacted by the proposed action and the potential need to avoid, mitigate, and manage those impacts

(e) a discussion demonstrating how feedback from Traditional Owners and First Nations stakeholders has been incorporated into project planning and design, construction, and operation

(f) details on the reasons why feedback from Traditional Owners and First Nations stakeholders has not been incorporated (if required)

(g) information from the RAO confirming consultation is proposed or ongoing and will result in a designing with country framework that will inform future stages of the proposed action and bring an inclusive cultural value to the proposed action.

The proponent must undertake First Nations consultation in accordance with the department's *Interim Engaging with First Nations People and Communities on Assessments and Approvals under the Environment Protection and Biodiversity Conservation Act 1999 (interim guidance) (2023)*.
In addition, the proponent should consider contacting the department for recommendations and guidance on effective engagement with First Nations peoples and communities, with respect to assessment under the EPBC Act.

12 ENVIRONMENTAL RECORD OF PERSON(S) PROPOSING TO TAKE THE ACTION

The EIS must include 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:

(a) the person proposing to take the action

(b) for an action for which a person has applied for a permit, the person making the application.

The EIS must include details of any environmental policy and/or heritage strategy relevant to the person proposing to take the action.

13 ECONOMIC AND SOCIAL MATTERS

The economic and social impacts of the proposed action, both positive and negative, must be assessed in the EIS. Matters of interest may include, but are not limited to:

(a) details of any public consultation activities undertaken and their outcomes, including with First Nations peoples and communities

(b) projected economic costs and benefits of the proposed action, including the basis for their estimation through a cost/benefit analysis or similar study

(c) employment opportunities expected to be generated by the proposed action, including during the pre-construction, construction, and operational stages.

Economic and social impacts must be considered at the local, regional, and national levels.

14 PRINCIPLES OF ECOLOGICALLY SUSTAINABLE DEVELOPMENT

The EIS must provide information about how the proposed action is consistent with the principles of ecologically sustainable development (ESD). The principles of ESD are outlined in section 3A of the EPBC Act and specified below:

(a) decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations

(b) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation

(c) the principle of inter-generational equity – that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations

(d) the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making

(e) improved valuation, pricing and incentive mechanisms should be promoted.

15 INFORMATION SOURCES PROVIDED IN THE EIS

For information given in the EIS, the EIS must state:

(a) the source of the information

(b) how recent the information is

(c) how the reliability of the information was tested

(d) what uncertainties (if any) are in the information.

16 CONCLUSION

An overall conclusion as to the environmental acceptability of the proposed action should be provided, including discussion on compliance with principles of ESD, and the objects and requirements of the EPBC Act. Reasons justifying undertaking the proposed action in the manner proposed should also be outlined.

Measures proposed or required by way of offset for any unavoidable impacts on controlling provisions, and the relative degree of compensation, should be restated here.

APPENDIX D – EIS CROSS REFERENCES

Appendix D – EIS cross references

1.0 Overview

The Environmental Impact Statement (EIS) has been prepared to meet the legislative requirements under the *Environment Protection and Biodiversity Act 1999* (EPBC Act) and the *Planning Act 2023* (Planning Act).

This appendix responds to requirements set out by the Territory Planning Authority (TPA) within the ACT Environment, Planning and Sustainable Development Directorate (EPSDD) under the Planning Act 2023 (Section 2.0), and the Department of Climate Change, Energy, the Environment and Water (DCCEEW) under the EPBC Act (Section 3.0).

The Scoping Document issued by the TPA is provided in Appendix B, and the EIS Guidelines issued by DCCEEW is Appendix C to the Environmental Impact Statement (EIS).

2.0 Territory Planning Authority – Scoping Document

Requirements for the EIS set out in the Scoping Document were issued by the TPA on 4 March 2024. Table 2-1 outlines these requirements, and where each requirement is addressed in the EIS.

Table 2-1 Requirements for the EIS as set out in the EPSDD Scoping Document

Ref.	Scoping Document requirements	Where this is addressed in the EIS
General requirements for the EIS		
1	The cover page must clearly display the following: • The name of the proposal (project title) • The block identifier(s) and street address for the proposal • The date of the preparation of the document • Full name and postal address of the designated proponent • Full name and postal address of the designated applicant • Name and contact details of the person/organisation who prepared the documents (if different to the above)	EIS cover page and inside cover
2	Provide a glossary of technical terms, acronyms and abbreviations used in the EIS.	Appendix A (Glossary and abbreviations)
Executive Summary		
3	Provide a non-technical summary of the EIS including a description of the proposal, key findings and recommendations.	Executive summary
Introduction		
4	Summarise the proposal background and justification for the proposal.	Chapter 1 (Introduction) Sections 1.1 to 1.3
Proposal Details		
5.1	Provide a description of the proposal, including:	
	a) The objectives and justification for the proposal, with supportive evidence	Chapter 2 (Need for the Project) Sections 2.4 and 2.5

Ref.	Scoping Document requirements	Where this is addressed in the EIS
	b) The location of the land to which the proposal relates, including detailed maps	Chapter 5 - Project description (Section 5.1 including Figures 5-1 to 5-17) Chapter 6 – (Construction) Section 6.1 including Figures 6-1 to 6-4
	c) The division and/or district names and block and/or section numbers of the land under the Districts Act 2002	Appendix K (Property and land use planning)
	d) If the land is leased – the lessee's name	
	e) If the land is unleased or public land – the custodian of the land	
	f) The purposes for which the land may be used, including land zonings	Chapter 11 (Project-wide issues) Section 11.8 Appendix K (Property and land use planning)
	g) A clear identification of all lands subject to direct disturbance from the proposal and associated infrastructure and geomorphic features such as waterways and wetlands. This is to be supported by a map showing all affected lands	
	h) An outline of any developments that have been, or are being, undertaken by the proponent, or other person(s) or entities, within the proposal area and broadly in the region. Describe how the proposal relates to these developments	Chapter 11 (Project-wide issues) Section 11.8.1 Chapter 20 (Cumulative impacts) Appendix K (Property and land use planning)
	i) A description of all the components of the proposal, including the proposal specifications, the predicted timescale for implementation (design, approvals, construction and decommissioning) and project life	Chapter 5 (Project description) Chapter 6 (Construction) Sections 6.1 to 6.4
	j) A plan/description of the precise location of any works to be undertaken, structures to be built or elements of the proposal that may have relevant impacts	Chapter 5 (Project description) Sections 5.1, and 5.3 to 5.11 including Figures 5-1 to 5-41 Chapter 6 (Construction) Sections 6.1 to 6.4, 6.6, and 6.7 including Figures 6-1 to 6-4, and 6-11 to 6-16
	k) A description of the construction methodologies for the proposal, including transitions between stages and wire and wire free alignments.	Chapter 6 (Construction) Sections 6.2 to 6.4 including Figures 6-6 to 6-10
5.2	Alternatives to the proposal: Provide details of any alternatives to the proposal considered in developing the proposal including a description of: a) Any alternatives to the proposal and provide reasons for selecting the preferred option with an analysis of site selection as an attachment to the EIS	Chapter 2 (Need for the Project) Section 2.4

Ref.	Scoping Document requirements	Where this is addressed in the EIS
	b) The criteria used for assessing the performance of any alternative to the proposal considered;	Chapter 3 (Project development) Section 3.2
	c) Any matters considered to avoid or reduce potential impacts prior to the selection of the preferred option	Chapter 3 (Project development) Section 3.4 to 3.8
	d) Details of the consequences of not proceeding with the proposal.	Chapter 2 (Need for the Project) Section 2.4.3
Legislative and Strategic Context		
6	A description of the EIS process including any statutory approvals obtained or required for the proposal, and how the proposal is aligned with strategic priorities for the ACT.	Chapter 2 (Need for the Project) Section 2.2 Chapter 8 (Legislation and policy) Chapter 9 (Approach to the environmental assessment)
6.1	Statutory requirements: The description must include information on statutory requirements for the preparation of an EIS: • *Planning Act 2023 (including confirmation of relevant Schedule 1 triggers based on impacts identified in the scoping document and any studies undertaken in preparing the draft EIS)* • *Planning (General) Regulation 2023* • *Urban Forest Act 2023* • *Heritage Act 2004* • *Nature Conservation Act 2014* • *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)* • *Environment Protection and Biodiversity Conservation Regulations 2000 (Commonwealth)* • Related statutory approvals. • Requirements for Works Approval from the National Capital Authority	Chapter 8 (Legislation and policy) Sections 8.2 to 8.4
6.2	Other requirements: The description must also include information on how the proposal is consistent with each of the following: • Territory Plan 2023 • ACT Planning Strategy • National Capital Plan • *Climate Change and Greenhouse Gas Reduction Act 2010* • The ACT Climate Change Strategy 2019-2025 • Canberra's Living Infrastructure Plan: Cooling the City • Relevant Environment Protection Policies and Separation Distance Guidelines for Air Emissions • Transport for Canberra policy • *Environment Protection Act 1997* • *Environment Protection Regulation 2005* • Plans of Management for any public land	Chapter 2 (Need for the Project) Sections 2.2.1 to 2.2.3 Chapter 7 (Sustainability) Section 7.2 Chapter 8 (Legislation and policy) Sections 8.2 to 8.4 Chapter 11 (Project-wide issues) Section 11.8 Appendix K (Property and land use planning)

Ref.	Scoping Document requirements	Where this is addressed in the EIS
	• Any relevant Master Plan • Other relevant planning and environmental guidelines and management plans.	
6.2.1	Ecologically sustainable development: Provide a description of how the proposed development demonstrates Economically Sustainable Development (ESD). This is to include long-term and short-term considerations related to economic development, social development, and environmental protection at local, regional, and national scales. The proponent should ensure that the EIS adequately addresses the ESD principles as defined by section 9 of the Planning Act.	Chapter 7 (Sustainability) Section 7.5
6.2.2	Territory Plan Planning Principles and Strategic Links: A statement must be provided regarding the proposal's consistency with the principles in the Planning Principles and Strategic Links in the Territory Plan 2023 (Part C - Planning Principles and Strategic Links).	Appendix K (Property and land use planning)
Risk Assessment		
7.1	Risk Assessment Methodology: Provide a risk assessment in accordance with the Australian and New Zealand Standard for risk management AS/NZS ISO 31000:2009 Risk Management – Principles and guidelines.	Appendix J (Environmental risk assessment)
	The proposed criteria for determining which risks are potentially significant impacts must be described.	Appendix J (Environmental risk assessment)
	Provide a table with the headings below to describe the risks identified and the original risk rating without any mitigation strategies in place. Table headings should include: • Risk • Likelihood • Consequence • Risk Rating This table format is one option, however alternative formats can be used provided the methodology is clearly described and in accordance with AS/NZS ISO 31000:2009 Risk Management – Principles and guidelines.	Appendix J (Environmental risk assessment)
	The Preliminary Risk Assessment (PRA) submitted as part of the request for a scoping document must be revised to include, but not be limited to, the risks identified by the Authority in Table 1 (Potentially significant risks section below).	Appendix J (Environmental risk assessment)
	The risks identified in Table 1 are based on the scoping document application and comments received from entities on the application. All of these risks are considered potentially significant (i.e. a medium risk level or above), and must be addressed in the EIS. Should any risk levels change during the preparation of the EIS or any new risks become apparent, these must be assessed and included with a justification in the EIS, and where relevant, the residual risk assessment.	Appendix J (Environmental risk assessment) Chapter 21 (Environmental management and mitigation measures)

Ref.	Scoping Document requirements	Where this is addressed in the EIS
Potentially significant risks – Biodiversity		
7.2.1	Potential impact to endangered ecological communities within or adjacent to the project area.	Biodiversity assessment sections in Part B (Environmental impact assessment) Chapter 11 (Project-wide issues) Section 11.2 Technical Report 2 – Biodiversity Section 5 and Appendix B
	Potential impact to threatened flora within or adjacent to the project area.	Biodiversity assessment sections in Part B (Environmental impact assessment) Chapter 11 (Project-wide issues) Section 11.2 Technical Report 2 – Biodiversity Section 5 and Appendix B
	Potential impact to threatened fauna within or adjacent to the project area.	Biodiversity assessment sections in Part B (Environmental impact assessment) Chapter 11 (Project-wide issues) Section 11.2 Technical Report 2 – Biodiversity Section 5 and Appendix B
	Increased fragmentation of habitats.	Biodiversity assessment sections in Part B (Environmental impact assessment) Chapter 11 (Project-wide issues) Section 11.2 Technical Report 2 – Biodiversity Section 5
	Impacts to previously unrecorded threatened/sensitive species/communities.	Biodiversity assessment sections in Part B (Environmental impact assessment) Chapter 11 (Project-wide issues) Section 11.2 Technical Report 2 – Biodiversity Section 4.4.7

Ref.	Scoping Document requirements	Where this is addressed in the EIS
	Clearing of native vegetation.	Biodiversity assessment sections in Part B (Environmental impact assessment) Chapter 11 (Project-wide issues) Section 11.2 Technical Report 2 – Biodiversity Section 5.2
	Direct impacts to threatened/non-threatened fauna during demolition and construction.	Biodiversity assessment sections in Part B (Environmental impact assessment) Chapter 11 (Project-wide issues) Section 11.2 Technical Report 2 – Biodiversity Section 5
	Impact to migratory species and habitat.	Biodiversity assessment sections in Part B (Environmental impact assessment) Chapter 11 (Project-wide issues) Section 11.2 Technical Report 2 – Biodiversity Section 5 and Appendix B
	Fauna strike by Light Rail Vehicles (LRVs).	Biodiversity assessment sections in Part B (Environmental impact assessment) Chapter 11 (Project-wide issues) Section 11.2 Technical Report 2 – Biodiversity Section 6
	Increase in light pollution affecting sensitive habitats/species.	Biodiversity and Landscape, character and visual amenity assessment sections in Part B (Environmental impact assessment) Chapter 11 (Project-wide issues) Section 11.2 Technical Report 2 – Biodiversity Section 6

Ref.	Scoping Document requirements	Where this is addressed in the EIS
Potentially significant risks – Trees		
7.2.2	Potential impacts to mature native trees (MNT) within or adjacent to the project area.	Biodiversity assessment sections in Part B (Environmental impact assessment) Chapter 11 (Project-wide issues) Section 11.2 Appendix I (Public Domain Master Plan) – Appendix B (Tree Assessment Plan and Arborist Report) Technical Report 2 – Biodiversity Section 5
	Impacts to protected trees within or adjacent to the project area.	
	Tree removal in general that will impact values/landscape character.	Landscape character and visual amenity sections in Part B (Environmental impact assessment) Technical Report 10 – Landscape character and visual amenity
Potentially significant risks – Heritage		
7.2.3	Direct and indirect impacts to known heritage values during demolition and construction, including physical character.	Historic heritage and First Nations heritage sections in Part B (Environmental impact assessment) Chapter 11 (Project-wide issues) Sections 11.3 and 11.4 Technical Report 3 – Heritage
	Impacts on unexpected finds.	Historic heritage and First Nations heritage sections in Part B (Environmental impact assessment) Chapter 11 (Project-wide issues) Sections 11.3 and 11.4 Technical Report 3 – Heritage Appendix L (Environmental management plan outline)
	Impacts to views from vertical infrastructure.	Historic heritage sections in Part B (Environmental impact assessment) Chapter 11 (Project-wide issues)

Ref.	Scoping Document requirements	Where this is addressed in the EIS
		Section 11.4 Technical Report 3 - Heritage
	Impacts to burial sites	Technical Report 3 – Heritage Appendix E (Cultural Heritage Assessment)
	Impacts to landscape character, buildings and structures.	Historic heritage and Landscape character and visual amenity sections in Part B (Environmental impact assessment) Technical Report 3 – Heritage Technical Report 10 - Landscape character and visual amenity
Potentially significant risks – Noise, vibration and lighting		
7.2.4	Increased noise from demolition and construction.	Noise and vibration sections in Part B (Environmental impact assessment) Technical Report 9 - Noise and vibration
	Increased noise from operation.	
	Vibration from demolition and construction.	
	Vibration from operation.	
	Lighting during demolition and construction.	Landscape character and visual amenity sections in Part B (Environmental impact assessment) Technical Report 10 - Landscape character and visual amenity
Potentially significant risks – Landscape character and visual amenity		
7.2.5	Visual impact during demolition and construction.	Landscape character and visual amenity sections in Part B (Environmental impact assessment) Technical Report 10 - Landscape character and visual amenity
	Visual impacts of new infrastructure.	
	Increased opportunity for graffiti and vandalism.	Technical Report 10 - Landscape character and visual
	Inconsistency with special requirements under the National Capital Plan	Landscape character and visual amenity sections in Part B (Environmental impact assessment) Appendix K (Property and land use planning)

Ref.	Scoping Document requirements	Where this is addressed in the EIS
		Chapter 11 (Project-wide issues) Section 11.8 Technical Report 10 - Landscape character and visual amenity
Potentially significant risks – Traffic and transport		
7.2.6	Reduced road network performance during demolition and construction.	Traffic and transport assessment sections in Part B (Environmental impact assessment) Chapter 11 (Project-wide issues) Section 11.1 Technical Report 1 - Traffic and transport
	Disruption to property access along alignment.	
	Disruptions to emergency access during demolition, construction and operational phases.	Chapter 11 (Project-wide issues) Section 11.1 Technical Report 1 - Traffic and transport
	Disruptions to pedestrians/cyclists demolition and construction.	Traffic and transport assessment sections in Part B (Environmental impact assessment) Chapter 11 (Project-wide issues) Section 11.1 Technical Report 1 - Traffic and transport
	Reduced road network performance during operation.	
	Impact on available parking spaces.	Traffic and transport assessment sections in Part B (Environmental impact assessment) Technical Report 1 – Traffic and transport
	Disruptions to existing public transport routes.	Traffic and transport assessment sections in Part B (Environmental impact assessment) Chapter 11 (Project-wide issues) Section 11.1 Technical Report 1 - Traffic and transport
	Disruptions that would adversely affect mobility impaired people.	
Potentially significant risks – Air quality		
7.2.7	Increase in air pollution during demolition and construction.	Chapter 11 (Project-wide issues) Section 11.9
	Impacts to sensitive receivers.	

Ref.	Scoping Document requirements	Where this is addressed in the EIS
Potentially significant risks – Surface and groundwater		
7.2.8	Increased surface water runoff.	Hydrology, flooding and water quality assessment sections in Part B (Environmental impact assessment) Chapter 11 (Project-wide issues) Section 11.5 Technical Report 4 – Hydrology, flooding, water quality and groundwater
	Increased risk of flooding events.	
	Flooding, impacting services during operation.	
	Increased pollution to stormwater.	
Potentially significant risks – Contamination, soils and geology		
7.2.9	Unexpected contaminated land.	Chapter 11 (Project-wide issues) Section 11.6 Technical Report 5 – Contamination Section 8 Appendix L (Environmental Management Plan outline)
	Contamination of groundwater.	Chapter 11 (Project-wide issues) Sections 11.5 and 11.6 Technical Report 5 – Contamination Sections 8 and 9
	Fuel spills.	Chapter 11 (Project-wide issues) Section 11.13
	Sediment runoff polluting waterways.	Chapter 11 (Project-wide issues) Sections 11.5 and 11.6 Technical Report 5 – Contamination Sections 6 and 8 Technical Report 4 – Hydrology, flooding and water quality Appendix L (Environmental Management Plan outline)
	Increased pollution during operation due to public gathering, littering, waste management, etc.	Chapter 11 (Project-wide issues) Section 11.12

Ref.	Scoping Document requirements	Where this is addressed in the EIS
Potentially significant risks – Socioeconomic and health		
7.2.10	Impacts to amenity during demolition and construction.	Socioeconomic assessment sections in Part B (Environmental impact assessment) Chapter 11 (Project-wide issues) Section 11.7 Technical Report 6 – Socioeconomic Sections 8.3 to 8.6
	Economic impacts.	
	Impacts to values held by first nations stakeholders.	Chapter 11 (Project-wide issues) Section 11.4 Technical Report 3 – Heritage
	Confrontation with non-amenable community members.	Technical Report 6 – Socioeconomic Section Section 8.2
	Impacts to community safety during operation due to an increase in opportunities for antisocial behaviour.	Technical Report 6 – Socioeconomic Sections 8.1, 8.3, 8.5, and 8.8
Potentially significant risks – Utilities and Services		
7.2.11	Disruption to existing services.	Chapter 11 (Project-wide issues) Section 11.13
	Damage to existing services during demolition and construction.	Chapter 5 (Project description) Section 5.13 Chapter 11 (Project-wide issues) Section 11.13
	Unexpected finds.	Chapter 11 (Project-wide issues) Section 11.13
	Accidental damage during operation.	
	Increased demand on services.	Chapter 11 (Project-wide issues) Section 11.12
Potentially significant risks – Materials, Waste and Resources		
7.2.12	Increased waste to land fill during demolition and construction.	Chapter 11 (Project-wide issues) Section 11.12
	Spread of waste to the adjoining areas (particularly open spaces, residential areas, other sensitive receivers) during demolition, construction and operation.	

Ref.	Scoping Document requirements	Where this is addressed in the EIS
	Sourcing construction materials and labour.	For materials: Chapter 11 (Project-wide issues) Section 11.12 Labour/workforce: Chapter 6 (Construction) Section 6.6.2 Technical Report 6 – Socioeconomic Sections 5.2, 8.1, 8.2, 8.3,8.6.1, 8.7, and 8.8
	Stockpiling of waste and materials.	Chapter 11 (Project-wide issues) Section 11.12
	Increased energy usage during operation.	
	Increased waste pollution during operation.	
Potentially significant risks – Planning and land status		
7.2.13	Impacts on public property during demolition and construction.	Chapter 11 (Project-wide issues) Section 11.8
	Acquisition of private land.	
	Compatibility with adjacent land use zonings and uses.	
	Conflicting requirements under Commonwealth and Territory legislation.	
	Impacts associated with delays in the completion of the project due to the planning and approvals process and/or construction timeline delays.	Chapter 11 (Project-wide issues) Section 11.8.2 to 11.8.4
Potentially significant risks – Climate change and greenhouse gas		
7.2.14	Contribute to climate change effects through the burning of fossil fuels used in the vehicles and other plants and equipment employed in the demolition and construction works.	Chapter 11 (Project-wide issues) Section 11.10 Technical Report 7 - Climate change risk Section 5
	Climate change related hazards.	
Potentially significant risks – Hazard and risk		
7.2.15	Environmental incident during demolition and construction.	Chapter 11 (Project-wide issues) Section 11.13
	Injury or fatality during demolition and construction.	
	Injury or fatality due to collisions with pedestrians during demolition, construction and operation.	
	Injury or fatality due to collisions with vehicles during demolition, construction and operation.	
	EMF impacts.	
	Unexpected malfunctioning of the system – traffic lights, electrical faults, battery discharging etc, issues arising during wire free and wired switchover.	
Potentially significant risks – Bushfire		
7.2.16	Bushfires impact on demolition, construction and operation.	Chapter 11 (Project-wide issues) Section 11.13
	Construction works or operation cause a bushfire.	

Ref.	Scoping Document requirements	Where this is addressed in the EIS
Assessment of impacts		
8.1	Sufficient information is required to provide the Authority with an adequate understanding of the environmental impacts associated with the proposal. Each risk identified in Table 1 and in the proponent's PRA must be addressed, and structured, as set out in sections 8.1.1-8.1.5 below.	See detailed references below
8.1.1	Environmental conditions and values: Describe the environmental conditions and identify the environmental values for the environmental themes identified in Table 1. This section should discuss the baseline conditions for the area.	Existing environment sections in Part B (Environmental impact assessment)
8.1.2	Investigations: Identify the findings and results of any environmental investigation in relation to the land to which the proposal relates.	Part B (Environmental impact assessment)
8.1.3	Impacts: Describe the effects of the environmental impact as a result of demolition, construction and operation for the environmental themes identified in Table 1 and in the proponent's risk assessment (including cumulative, consequential and indirect effects) on physical and ecological systems and human communities. Particular emphasis should be placed on the potentially significant impacts identified in the risk assessment and this scoping document. Include a discussion of the timeframes of impacts i.e. short or long term, their nature and extent and whether they are reversible or irreversible, unknown or unpredictable. Include an analysis of the significance of the relevant impacts. Information must include any technical data and other information used or needed to make a detailed assessment of the relevant impacts.	Part B (Environmental impact assessment)
8.1.4	Mitigation: Discuss the proposed safeguards and mitigation measures proposed to be taken for the environmental management of the land to which the proposal relates for the environmental themes identified in Table 1 and the proponent's risk assessment. This is to include:	Chapter 21 (Environmental management and mitigation measures)
	a) A description and an assessment of the proposed impact prevention, mitigation or offsetting measures to deal with the environmental impact of the proposal, along with which stage the mitigation measures will be adopted	Chapter 21 (Environmental management and mitigation measures)
	b) Any statutory or policy basis for the mitigation measures	Chapter 21 (Environmental management and mitigation measures) Section 21.2 as applicable
	c) An outline of an environmental management plan (EMP) that sets out the framework for continuing management, mitigation and monitoring programs for the relevant impacts of the action, including any provisions for independent environmental auditing	Appendix L (Environmental management plan outline)

Ref.	Scoping Document requirements	Where this is addressed in the EIS
	d) The frequency, duration and objectives of monitoring proposed	Chapter 21 (Environmental management and mitigation measures) Section 21.2 Appendix L (Environmental management plan outline)
	e) The name of the agency responsible for endorsing or approving each mitigation measure or monitoring program	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline)
	f) A description of the cost effectiveness of environmental mitigation or rehabilitation measures proposed and the expected or predicted effectiveness of those measures	Chapter 21 (Environmental management and mitigation measures) Section 21.4
	Offsets: If any offsets are required, the offset package must provide compensation for any unavoidable impacts arising from the proposal on listed threatened species and communities. The offset package must include, but not be limited to, measures to address the long-term protection and management of relevant listed threatened species and communities at offset sites in the ACT (or surrounding area) and may also include management measures to improve the ecological values. Offsets should directly contribute to the ongoing viability of protected matters impacted by the project and deliver an overall conservation outcome that improves or maintains the viability of protected matters as compared to what is likely to have occurred under the status quo, that is if neither the action nor the offset had taken place.	Technical Report 2 – Biodiversity Appendix E (Environmental offset strategy)
8.1.5	Residual risk: Provide a table that details the residual risk for the potentially significant impacts identified for the environmental themes in Table 1 and the proponent's risk assessment. A residual risk assessment is only required where the significance of impact is determined as medium or above. The calculation of the residual risk should take into account the influence of implementation of mitigation or offsetting measures on the impacts identified by the risk assessment. A discussion of how the calculations were determined should also be included, including the expected or predicted effectiveness of the mitigation measures.	Chapter 21 (Environmental management and mitigation measures) Appendix J (Environmental risk assessment)
Detailed requirements – Biodiversity		
8.2.1	Provide a description of the ecological values (including native vegetation, vulnerable ecological communities and threatened species) and their habitat on, and adjacent to the site, including but not limited to: • Natural Temperate Grassland (NTG) • Superb Parrot *(Polytelis swainsonii)* • Swift Parrot *(Lathamus discolor)* • Striped Legless Lizard *(Delma impar)* • Perunga Grasshopper *(Perunga ochrea)*	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Section 4 and Appendix B

Ref.	Scoping Document requirements	Where this is addressed in the EIS
	• Gang-gang Cockatoo *(Callocephalon fimbriatum)* • Grey-headed Flying-fox *(Pteropus poliocephaluthese)* • Golden Sun Moth *(Synemon plana)* • Button Wrinklewort *(Rutidosis leptorrhynchoides)* • Hoary Sunray *(Leucochrysum albicans subsp. Tricolor*)	
	Ecological surveys must be undertaken by a qualified ecologist for each impacted species and their habitats.	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Section 3.3 Appendix G (Study team)
	Provide maps and GIS shapefiles showing the location of all habitat and overlay all aspects of the proposed development to show the extent of any impact.	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Section 4
	Describe the direct and indirect impacts on ecological values. The description must include all areas that may be impacted by the demolition, construction and installation of the project and any areas that will be impacted by maintenance works or operation (e.g. lighting, noise and vibration) following completion of construction.	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Section 6
	Consider the direct and indirect impacts of the development on fauna species likely to occur within or adjacent to the project area, including any burrowing mammals.	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Sections 5 and 6
	Consider impacts on clearing of potential habitat for migratory species identified within the wider locality of the proposal.	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Sections 5, 6 and Appendix B
	Consider the impact of weed spread due to soil disturbance and any key habitat that is at risk of being affected.	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Sections 6

Ref.	Scoping Document requirements	Where this is addressed in the EIS
	Describe measures for avoidance and mitigation of the impacts identified and, if proposed, any offset measures.	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Section 7
	Impact and offset metrics (using the Environment Protection and Biodiversity Conservation Act 1999 calculator) must be provided for, but not limited to, Golden Sun Moth, Gang-gang Cockatoo, Superb Parrot, Striped Legless Lizard, Swift Parrot, Button Wrinklewort and Hoary Sunray.	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Appendix E (Environmental offset strategy), Section 5
	Outline alternative design options that have been explored to avoid or reduce the impact.	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Section 6
Detailed requirements – Trees		
8.2.2	Provide an assessment of all registered and protected trees, as defined in the *Urban Forest Act 2023*, within the study area and identify those that may be impacted or removed by the project.	Biodiversity assessment sections in Part B (Environmental impact assessment) Appendix I (Public Domain Master Plan) - Appendix B (Tree Assessment Plan and Arborist Report) Technical Report 2 – Biodiversity Section 4.1.3
	The number and location of Mature Native Trees (MNT), as defined in the Nature Conservation (Loss of mature native trees key threatening process) Action Plan 2023, must also be mapped and assessed.	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Section 3.3.4 and 4.4.4
	Undertake a hollow assessment of all hollow-bearing trees within the project footprint, with the potential to be used by Gang-gang Cockatoos for breeding.	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Section 3, 4 and 5

Ref.	Scoping Document requirements	Where this is addressed in the EIS
	Consider impacts of removal of trees and the possible impacts on breeding habitat, connectivity and landscape character of the project area and surrounds.	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Section 5 Landscape character and visual amenity sections in Part B (Environmental impact assessment) Technical Report 10 - Landscape character and visual amenity Section 4
	The EIS must assess how the development can meet the blue-green network initiatives identified in the Woden District Strategy, particularly initiatives 1.1, 1.4 and 1.5.	Chapter 2 (Need for the Project) Section 2.2.3
	Landscaping design, including tree replacement/replanting must be compliant with ACT Bushfire Management Standards 2023.	Chapter 21 (Environmental management and mitigation measures) Appendix I (Public Domain Master Plan) Chapter 11 (Project-wide issues) Section 11.13
Detailed requirements – Heritage		
8.2.3	The EIS must provide a detailed written description and mapping of the proposed development, including both alignment options, and provide an assessment of the potential heritage impacts of the proposal, including noise and vibration impacts to heritage listed buildings. This impact assessment should include direct and indirect impacts on known heritage values within and directly adjacent to the proposed development; spanning places nominated to and registered on the ACT Heritage Register, and any Aboriginal places and objects that may be identified through further research.	Chapter 11 (Project-wide issues) Section 11.3 Heritage assessment sections in Part B (Environmental impact assessment) Technical Report 3 – Heritage Sections 1.2, 4.7.1, 6.2 and Appendix E (Cultural Heritage Assessment) Noise and vibration sections in Part B (Environmental impact assessment) Technical Report 9 - Noise and vibration
	A Cultural Heritage Assessment (CHA) must be prepared by a suitably qualified heritage practitioner, and in consultation with RAOs covering the whole project footprint including any extended boundary for works including access roads, site	Technical Report 3 – Heritage Appendix E (Cultural Heritage Assessment;

Ref.	Scoping Document requirements	Where this is addressed in the EIS
	compound areas, earthworks and infrastructure to facilitate the development, in line with ACT Heritage Council requirements.	Sections 1.4.3, 1.4.4, 2, 3 and 4)
	Where proposed development may diminish heritage significance values or damage Aboriginal places and objects, alternatives and measures to minimise heritage impacts should be considered and adopted where reasonably practicable.	Heritage assessment sections in Part B (Environmental impact assessment) Technical Report 3 – Heritage Sections 6.2.2, 7.1, and Appendix E (Cultural Heritage Assessment) Chapter 21 (Environmental management and mitigation measures)
	Where impacts to heritage places and objects are identified and cannot be avoided, recommendations should be presented on ways to minimise and mitigate heritage impacts, reflecting the principles of the Burra Charter (Australia ICOMOS 2013) and related Practice Notes.	Chapter 21 (Environmental management and mitigation measures)
	Develop a Conservation Management Plan that considers the impact of the proposed development on heritage items: • Survey and locate each item of heritage significance. • Describe the measures to be taken to prevent damage during demolition and construction. • Include a monitoring and evaluation framework to ensure that all items of heritage significance are protected during demolition, construction and operation and where impacts cannot be avoided present ways to minimise and mitigate heritage impacts. • Include an Unexpected Finds protocol for any additional items of heritage significance that may be identified during demolition and construction.	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline) Technical Report 3 – Heritage Section 7
Detailed requirements – Noise, Vibration and Lighting		
8.2.4	Identify any potentially sensitive receivers which may be affected by noise, vibration and light pollution from the demolition, construction and operation of this proposal.	Noise and vibration sensitive receivers: Noise and vibration assessment sections in Part B (Environmental impact assessment) Technical Report 9 - Noise and vibration Section 2.1 and Appendix A Sensitive visual receivers (to light pollution): Landscape character and visual amenity sections in Part B (Environmental impact assessment)

Ref.	Scoping Document requirements	Where this is addressed in the EIS
		Technical Report 10 - Landscape character and visual amenity Section 4
	Discuss the magnitude, duration and frequency of any noise, vibration and lighting impacts that might arise from the demolition and construction phase.	Noise and vibration sensitive receivers: Noise and vibration assessment sections in Part B (Environmental impact assessment) Technical Report 9 - Noise and vibration Section 6 Sensitive visual receivers (to light pollution): Landscape character and visual amenity sections in Part B (Environmental impact assessment) Technical Report 10 - Landscape character and visual amenity Section 4
	Discuss the types, duration and frequency of any noise and/or vibration impacts during operation of the proposal.	Noise and vibration assessment sections in Part B (Environmental impact assessment) Technical Report 9 - Noise and vibration Section 6
	Prepare a Noise and Vibration Management Plan and Light Spill Plan that identifies any measures to reduce impacts associated with noise, vibration or light pollution.	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline)
Detailed requirements – Landscape Character and Visual Amenity		
8.2.5	Undertake a visual impact assessment of the site and surrounds to describe the current landscape character of the area.	Landscape character and visual amenity sections in Part B (Environmental impact assessment) Technical Report 10 - Landscape character and visual amenity Section 3
	Identify important view sheds and significant views and vistas to and from the site.	Landscape character and visual amenity sections in Part B (Environmental impact assessment)

Ref.	Scoping Document requirements	Where this is addressed in the EIS
		Technical Report 10 - Landscape character and visual amenity Section 4
	Conduct a visual impact analysis that details the predicted demolition, construction and operational impacts the proposal may have on the landscape character of the site and surrounds	Landscape character and visual amenity sections in Part B (Environmental impact assessment) Technical Report 10 - Landscape character and visual amenity Section 4 and 5
	Provide perspectives and/or a visual analysis of the proposal from local vantage points.	Landscape character and visual amenity sections in Part B (Environmental impact assessment) Technical Report 10 - Landscape character and visual amenity Section 4
Detailed requirements – Traffic and Transport		
8.2.6	Describe arrangements for the transport of construction materials, equipment, products, wastes and personnel during the demolition, construction phase and operational phase of the development proposal.	Chapter 6 (Construction) Section 6.7 Chapter 11 (Project-wide issues) Section 11.1 Traffic and transport assessment sections in Part B (Environmental impact assessment) Technical Report 1 - Traffic and transport Section 5.1.5
	Include a description of the volume of traffic generated during demolition, construction and operation.	Chapter 11 (Project-wide issues) Section 11.11 Traffic and transport assessment sections in Part B (Environmental impact assessment) Technical Report 1 - Traffic and transport Section 5.1.7
	Include details of vehicle traffic, transit routes and transport of heavy and oversize loads (including types and composition).	Chapter 6 (Construction) Section 6.7 Chapter 11 (Project-wide issues) Section 11.1

Ref.	Scoping Document requirements	Where this is addressed in the EIS
		Traffic and transport assessment sections in Part B (Environmental impact assessment) Technical Report 1 - Traffic and transport Section 5.1.6, 5.1.7, 5.2.1, 5.2.2, 6.3.3, 6.4.3, 6.5.3, 6.6.3, 6.7.3, 6.8.3, 6.9.3, 6.10.1
	A comprehensive Traffic Impact Assessment (TIA) must be prepared in accordance with the TCCS TIA Guideline.	Technical Report 1 - Traffic and transport
Detailed requirements - Air quality		
8.2.7	Discuss the potential air emissions from the proposed development during demolition, construction and operation	Chapter 11 (Project-wide issues) Section 11.9
Detailed requirements - Surface and groundwater		
8.2.8	Describe and include a map of the present and potential water bodies within or adjacent to the project area.	Hydrology, flooding and water quality sections in Part B (Environmental impact assessment) Technical Report 4 – Hydrology, flooding and water quality Section 3.6
	Describe any mitigation measures required to prevent sediment and erosion from impacting on water quality.	Chapter 21 (Environmental management and mitigation measures) Technical Report 4 – Hydrology, flooding and water quality Section 7.3
	Describe current water flow across the proposal site and impacts from the proposal on water flow both on site and in the surrounding area/catchment.	Hydrology, flooding and water quality sections in Part B (Environmental impact assessment) Technical Report 4 – Hydrology, flooding and water quality Sections 3.6, 3.9, 4.2, and 5.2
	Describe the current surface water and groundwater quality and measures proposed to maintain and monitor water quality.	Hydrology, flooding and water quality sections in Part B (Environmental impact assessment) Technical Report 4 – Hydrology, flooding and water quality Sections 3.4, 3.8, 7.1, and 7.2

Ref.	Scoping Document requirements	Where this is addressed in the EIS
	Consider any potential flood risks and describe any mitigation measures to reduce the impact on the infrastructure.	Chapter 11 (Project-wide issues) Sections 11.5 and 11.10 Hydrology, flooding and water quality sections in Part B (Environmental impact assessment) Chapter 21 (Environmental management and mitigation measures) Technical Report 4 – Hydrology, flooding and water quality Sections 4.2, 5.2, 7.1, and 7.2 Technical report 7 - Climate change risk Sections 5 and 6
	Provide information on stormwater/wastewater management during demolition, construction and operation including any water quality protection measures. This should include consideration of any chemicals into the receiving environment.	Chapter 11 (Project-wide issues) Sections 11.5 and 11.6 Hydrology, flooding and water quality sections in Part B (Environmental impact assessment) Chapter 21 (Environmental management and mitigation measures) Technical Report 4 – Hydrology, flooding and water quality Section 8.3

Ref.	Scoping Document requirements	Where this is addressed in the EIS
Detailed requirements – Contamination, Soils and Geology		
8.2.9	Describe the soil and geology features of the area.	Soils and contamination sections in Part B (Environmental impact assessment) Technical Report 5 – Contamination Section 3.1
	Describe how the site will be remediated if contaminated materials are found on site.	Technical Report 5 – Contamination Section 8
	Include the controls required to prevent spillage or leakage of hazardous materials into the surrounding groundwater and the mitigation measures to prevent the contamination of stormwater systems.	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline)
	Describe the controls required to prevent spillage or runoff of soil into surrounding water bodies.	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline) Section 2.12.3 and 2.12.5
	Describe impacts from clearing of vegetation in relation to erosion and sedimentation and measures to reduce the impacts.	Chapter 21 (Environmental management and mitigation measures) Technical Report 4 – Hydrology, flooding and water quality Appendix L (Environmental Management Plan outline)
	Provide a Sediment and Erosion Control Plan (SECP) that details measures to reduce the impacts of sediment and erosion, including dust suppression.	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline)
	Describe the composition and source of all fill intended for use at the site.	Chapter 6 (Construction) Section 6.3.2
	Provide an Unexpected Finds Protocol (UFP) for all demolition and construction activities on site.	Technical Report 5 – Contamination Section 8 Appendix L (Environmental Management Plan outline)

Ref.	Scoping Document requirements	Where this is addressed in the EIS
Detailed requirements - Socioeconomic and health		
8.2.10	Provide an analysis of the potential impacts on human health and any measures incorporated into the development to mitigate these impacts.	Chapter 21 (Environmental management and mitigation measures) Socioeconomic assessment sections in Part B (Environmental impact assessment) Technical Report 6 – Socioeconomic Sections 8.3, 8.4, 8.6.2, 8.8, and 8.10
	Describe the suitability of the land for the type of proposal described in terms of socio-economic and health.	Socioeconomic assessment sections in Part B (Environmental impact assessment) Technical Report 6 – Socioeconomic Sections Section 6, 6.2, 6.3, 6.5, 7, 7.2.1, 8.10
	Provide maps showing sensitive receivers.	Socioeconomic assessment sections in Part B (Environmental impact assessment) Technical Report 6 – Socioeconomic Appendix D, Figures D.1 – D.8
Detailed requirements - Utilities and Services		
8.2.11	Describe the existing utilities located on the land subject to this proposal.	Chapter 5 (Project description) Section 5.11
	Describe any decommissioning/removal, realignments or new utility connections required as a result of this development including mitigation measures proposed.	
Detailed requirements - Materials, waste and resources		
8.2.12	Describe the nature, sources, location and quantities of all materials to be handled, including the storage, stockpiling and disposal of materials and waste.	Chapter 11 (Project-wide issues) Sections 11.6, 11.11 and 11.12 Chapter 6 (Construction) Section 6.3.2 Technical Report 8 - Greenhouse gas Sections 4, 5, 6,
	Describe measures required to minimise spread of litter into the receiving environment during operation.	Chapter 11 (Project-wide issues) Section 11.12

Ref.	Scoping Document requirements	Where this is addressed in the EIS
		Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline)
Detailed requirements - Planning and land status		
8.2.13	Include a description of planning context of the area where the project will be located.	Chapter 11 (Project-wide issues) Section 11.8 Chapter 8 (Legislation and policy)
	Describe planning and development status of any land or project relevant to the proposal.	Chapter 11 (Project-wide issues) Section 11.8 Chapter 8 (Legislation and policy)
	Describe land use of the proposed land and any land to be affected (including, but not limited to, zoning, lessee(s) or custodian of the land, the permissibility of the proposed use defined in the Territory Plan).	Chapter 11 (Project-wide issues) Section 11.8
	Describe any areas used for recreation (formal and informal) and the potential for the proposal to impact on these areas.	Chapter 11 (Project-wide issues) Section 11.8 Socioeconomic assessment sections in Part B (Environmental impact assessment) Technical Report 6 – Socioeconomic Sections 6.7, 7.6, 8.4, 8.8, and Appendix D
	Consider the potential impacts associated with delays in the completion of the project due to the planning and approvals process and/or construction timeline delays.	Chapter 11 (Project-wide issues) Section 11.8
Detailed requirements - Climate change and greenhouse gas		
8.2.14	Outline the greenhouse gas emissions that will be generated by the proposed development during demolition, construction and operation, including measures to mitigate the impact.	Chapter 11 (Project-wide issues) Section 11.11 Technical Report 8 - Greenhouse gas Sections 4, 5, 6,
	Provide a quantitative estimate of emissions produced during operation.	
	Outline how the proposal has assessed and responded to increased natural disaster risk being driven by climate change, particularly the extreme events of heatwaves, droughts, storms with flash flooding, and bushfires.	Chapter 11 (Project-wide issues) Section 11.10 Technical Report 7 - Climate change risk Sections 2.2, 5 and 6
	Describe the impacts of the proposed development on urban heat and the local microclimate.	Chapter 11 (Project-wide issues)

Ref.	Scoping Document requirements	Where this is addressed in the EIS
		Section 11.10 Technical Report 7 - Climate change risk Section 3.5.2 and 4.4.3
Detailed requirements - Hazard and risk		
8.2.15	Consider potential safety hazards during the demolition, construction and operation of the proposal including: • impacts of any hazards on residents, workers the community and the environment; • impacts of unauthorised access to site and associated risk of contact with electrical equipment; • electromagnetic field (EMF) limits and any impacts on human health; and • system malfunctions.	Chapter 11 (Project-wide issues) Section 11.13
	Describe how the site is suitable for the proposed use by considering identified hazards and risks.	
Detailed requirements - Bushfire		
8.2.16	Consider the risk of bushfire during demolition and construction, including the cessation of construction works during periods of escalated fire danger.	Chapter 11 (Project-wide issues) Section 11.13 Technical Report 7 – Climate change risk
	Consider the risk of a bushfire starting from malfunction of the project infrastructure (substation, faults in cable connections, weather impacts etc).	
	Provide a detailed bushfire assessment report that considers the bushfire attack level of the project span and protection measures to be implemented in proximity to the infrastructure, including asset protection zones, vegetation management/fuel load reduction strategies.	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline)
Detailed requirements – All other risks		
8.2.17	Describe any other potential risks that have been identified subsequent to the scoping document and not in the previous sections.	Part B – Environmental Impact Assessment Appendix J – Environmental risk assessment
Entity requirements		
8.3	The EIS must address the entities comments provided in Attachment A. If the issues raised by entities have been addressed in other sections of the EIS, this must be cross referenced.	See below for detailed references
A1	ACT Health: The Health Protection Service (HPS) notes that the proposed project includes extending the light rail from the approved Stage 2A Commonwealth Park stop on the northern side of Lake Burley Griffin, via the National Triangle, continuing onto Adelaide Avenue and Yarra Glen to a proposed Callam Street terminus in Woden Town Centre. The Health Protection Service (HPS) has reviewed the documents and advised the applicant that:	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline) Technical Report 6 – Socioeconomic Section 8.7 Technical Report 9 – Noise and vibration

Ref.	Scoping Document requirements	Where this is addressed in the EIS
	• The scoping document should provide detailed mitigation measures to minimise impacts related to dust, air quality and sediment runoff, as noted in the "Preliminary Risk Assessment" dated 11 November 2023 by AECOM. • The HPS supports the development of a Construction Environmental Management Plan and an Unexpected Finds Protocol. There are no further public health concerns in relation to the proposed EIS scoping document.	Section 8
A2	ACT Emergency Services Agency: ACTF&R has reviewed EIS 202400003 – Light Rail Stage 2B and have no objections at this point in time, however, provide the following comment: Please note, a section of light rail located north of the Royal Australian Mint, adjacent Adelaide Ave/Yarra Glen and Kent St/Cotter Road in Deakin will be located in a Bushfire Prone Area (BPA) as mapped by the ESA.	Chapter 11 (Project-wide issues) Section 11.13
A3	ACT Heritage Council: As a delegate of the Council, I advise that heritage assessment requirements are identified for the EIS scoping document. 1. Further investigation of the potential heritage values of the project area. To evaluate the potential Aboriginal impacts of the proposal, a Cultural Heritage Assessment (CHA) must be prepared, which must: a. Be prepared by a qualified archaeologist in consultation with Representative Aboriginal Organisations (RAOs); b. Assess the potential for the project area to contain unrecorded Aboriginal places or objects, informed by RAO consultation and a desktop review of available information c. Include a physical inspection of any locations with heritage potential d. Meet the information requirements of the Council's Cultural Heritage Reporting Policy, which is available at https://www.environment.act.gov.au/heritage/publications-and-resources e. Be submitted to the Council for review, and for advice on any further heritage assessment requirements.	Technical Report 3 – Heritage Appendix E (Cultural Heritage Assessment)
	2. Further assessment of the potential heritage impacts of proposed development. The EIS must provide a detailed written description and mapping of the proposed development and provide an assessment of the potential heritage impacts of the proposal. This impact assessment should include direct and indirect impacts on known heritage values within and directly adjacent to the proposed development; spanning places nominated to and registered on the ACT Heritage Register, and any Aboriginal places and objects that may be identified through further research.	Technical Report 3 – Heritage Section 1.2 and 6.2

Ref.	Scoping Document requirements	Where this is addressed in the EIS
	3. Recommended management in accordance with Heritage Act 2004 provisions. Reflecting Heritage Act 2004 provisions, where proposed development may diminish heritage significance values or damage Aboriginal places and objects, alternatives and measures to minimise heritage impacts should be considered and adopted where reasonably practicable. Where impacts to heritage places and objects are identified and cannot be avoided, recommendations should be presented on ways to minimise and mitigate heritage impacts, reflecting the principles of the Burra Charter (Australia ICOMOS 2013) and related Practice Notes. In addition, it is noted that Heritage Act 2004 approvals would be required for the project in the event that: a. Archaeological excavation is required to adequately assess the potential heritage values of the project area, and the potential heritage impacts of the proposal b. Where required, this investigation is subject to Council approval of an Excavation Permit under Section 61F of the Heritage Act 2004 The development would damage Aboriginal places or objects or diminish the heritage significance of places or objects. Where required, these impacts are subject to Council approval of a Statement of Heritage Effect under Section 61H of the Heritage Act 2004.	Technical Report 3 – Heritage Sections 6 and 7
A4	Conservator of Flora and Fauna: I have identified several matters in the scoping document that are of environmental and conservation interest. I have described these at Attachment A. I also wish to advise that on 13 April 2023 I made the decision to Provisionally Register a range of Eucalyptus trees on Sections 57 and 58 HUGHES on 13 April 2023. This nomination was made under the Tree Protection Act 2005 and proposed that the trees met the criteria for Scientific Value. Due to the strong and convincing evidence submitted with the original nomination, I have requested an independent and external ecological assessment of Sections 57 and 58 Hughes. This assessment will consider the ecological role and significance of the Sections within the broader landscape, and in particular their function in protecting and supporting the survival of threatened species according to the ACT's and Commonwealth conservation advice. The result of this assessment may require me to pursue other measures to protect environmental values of these blocks in addition to the measures under the ACT's tree protection legislation. Under the Tree Protection Act 2005, I am required to make a final decision regarding the addition of the trees to the Tree Register by 13 April 2024.	Technical Report 2 – Biodiversity Section 4.4.5 and Appendix E (Environmental offset strategy) Appendix I (Public Domain Master Plan) – Appendix B (Tree Assessment Plan and Arborist Report)
	1. Gang-gang Cockatoos- Given the proximity of the proposed development area to existing nest sites, and the importance of the area for foraging, all hollow-bearing trees within the footprint, and with the potential to be used by Gang-gang Cockatoos for breeding, be	Technical Report 2 – Biodiversity Section 3.3.5.5

Ref.	Scoping Document requirements	Where this is addressed in the EIS
	climbed and the hollows assessed (including measurements taken). This will provide an overview of the hollows that have been used by Gang-gangs in the past or if they are suitable for future nesting attempts. Conservation Officials within my office are available to assist with this process.	
	2. Grey-headed Flying-fox- this species (*Pteropus poliocephaluthese*) are a threatened species in the ACT. Due to their nesting site in Commonwealth Park, which is adjacent to the development area, an assessment on the risk of the project to the Grey-headed Flying-fox must be undertaken. The assessment must include the risk of electrocution should overhead lines be the preferred source of energy.	Technical Report 2 – Biodiversity Section 3.3.7.4
	3. Burrowing mammals- The ACT supports six species of native burrowing animals protected under the Nature Conservation Act 2014 (the Act): Bare-nosed Wombat (*Vombatus ursinus*), Short-beaked Echidna (*Tachyglossus aculeatus*), Rosenburg's Goannas (*Varanus rosenbergi*), Platypus (*Ornithorynchus anatinus*), Rakali (*Hydromys chrysogaster*) and Eastern Long Neck turtles (*Chelodina longcollis*). These species vary in their habitat requirements, but they all create burrows where they shelter and nest. Any identified burrows/shelter sites suitable for native burrowing mammals should be avoided at the planning stage wherever practicable.	Technical Report 2 – Biodiversity Section 5
	4. Mature Native Trees - The number and location of Mature Native Trees, as defined in the Nature Conservation (Loss of mature native trees key threatening process) Action Plan 2023, must be mapped and assessed.	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Arborist report
	5. Blue-green network initiatives - The EIS must assess how the development can meet the Blue-green network initiatives identified in the Woden District Strategy, particularly initiatives 1.1, 1.4 and 1.5.	Chapter 2 (Need for the Project) Section 2.2
	6. Impact and offset metrics (using the Environment Protection and Biodiversity Conservation Act 1999 calculator) must be provided for Golden Sun Moth, Gang-gang Cockatoo, Golden Sun Moth, Superb Parrot, Striped Legless Lizard, Swift Parrot, Button Wrinklewort and Hoary Sunray	Technical Report 2 – Biodiversity Appendix E (Environmental offset strategy)
	7. Areas of native vegetation, as defined in the Nature Conservation Act 2014, must be mapped and assessed.	Technical Report 2 – Biodiversity Section 4
	8. Connectivity- Impacts on, and opportunities to enhance, avian connectivity must be identified and assessed.	Technical Report 2 – Biodiversity Section 5
	9. Bushfire considerations - Light Rail Stage 2B passes through Bushfire Prone areas, Asset Protection Zones and Strategic Fire Advantage zones as identified on	Chapter 11 (Project-wide issues) Section 11.13

Ref.	Scoping Document requirements	Where this is addressed in the EIS
	ACTmapi. Landscaping design, including tree replacement/replanting must be compliant with ACT Bushfire Management Standards 2023.	
A5	EPSDD, Climate Change and Energy Division: The Division has identified two impacts related to Climate Change and Energy that should be included in the EIS. The Division recommends the following text to be added to the scoping document: Greenhouse Gas Emissions This proposal is likely to produce significant greenhouse gas emissions and may impact on the ACT's greenhouse gas emissions targets. It is recommended that the scoping document requires provision of quantitative estimates of the Scope 1 and 2 greenhouse gas emissions that will be generated by the proposed development during construction and operation. Mitigation and/or offsetting measures proposed and the extent to which they reduce emissions must also be quantified. The following emissions are relevant for transport projects: • Changes in transport greenhouse gas emissions resulting from the project, including emissions caused by changes in demand and substitution between modes of transport, as well as emissions reductions due to any decrease in congestion. • Scope 1 and 2 greenhouse gas emissions resulting from the operational energy use of the infrastructure itself. • Estimates must be calculated in a way that is comparable to the greenhouse gas emissions targets in the Climate Change and Greenhouse Gas Reduction Act 2010. Noting our understanding that the light rail project will be using the Infrastructure Sustainability rating (https://www.iscouncil.org/is-ratings/), it would also be useful to include provision of quantitative estimates of the Scope 3 greenhouse gas emissions that will be generated by the proposed development during construction and operation. Mitigation and/or offsetting measures proposed and the extent to which they reduce emissions should, where available, also be quantified. The greenhouse gas protocol guidance for scope 3 emissions may be a useful resource in relation to providing this information: https://ghgprotocol.org/scope-3-calculation-guidance-2. Natural disaster risk The ACT is already experiencing unavoidable climate change impacts such as longer, hotter heatwaves, increased bushfire risk, changing rainfall patterns and increased intensity of storms and rainfall events. These impacts are expected to intensify in future. The Division recommends that if the proposal is required to consider flood, bushfire and urban heat issues, the effects of climate change on future flood, bushfire and urban heat risk are considered. This would take the form of documenting how the proposal has assessed and responded to increased natural disaster risk being driven by climate change.	Technical Report 7 - Climate change risk Sections 2.2, 5 and 6 Technical Report 8 – Greenhouse gas Sections 4, 5, 6.1

Ref.	Scoping Document requirements	Where this is addressed in the EIS
A6	EPSDD, Planning and Urban Policy In relation to Chapter 6 pg. 20 - 'Requirement for and Environmental Impact Assessment' Item 1 – PUP notes that this item has been marked as 'not applicable'. With reference to Risk No's. D.1-D.4 of the Preliminary Risk Assessment (Attachment 2-3-4) PUP recommends that MPC continue discussions with the NCA and ACT Heritage regarding noise/vibration issues as they pertain to heritage listed buildings. Pending assessments of existing buildings in adjacent lands – vibrations and noise during construction/operation of LRVs may emit to the commercially zoned surrounding lands of the immediate work area. The identified risk mitigations should ensure adjacent buildings (notably heritage listed buildings along the National Triangle-Barton option) assess impacts on aged buildings and potential of low performing glazing. PUP notes that these issues are likely to persist broadly across both alignment options (as identified in the Preliminary Environment Assessment pg. 35 and 38), and cross both planning jurisdictions. PUP recommends that the Noise and Vibration Management Plan should stipulate how MPC will monitor these issues across both the construction and operational phases.	Technical Report 9 – Noise and vibration Sections 3.2, 4.2, 5, 6, and 8
A7	Environment Protection Authority: The EPA has reviewed the draft EIS 202400003 – Light Rail Stage 2B. At this moment the EPA has no further comments. However, it should be noted that for the DA, the entire construction area will need to be assessed from a contamination perspective. The adequacy of all assessments for the site and any proposed management methodologies must be reviewed and accepted by an accredited contaminated land Auditor. Prior to the site being used for the proposed uses, the Auditor's site audit statement and report into the site's suitability for its proposed uses and any proposed on-going site management plan must be reviewed and endorsed by the EPA. Given this kind of assessment is time consuming, it would be prudent to inform the responsible entity of this requirement in advance.	Chapter 21 (Environmental management and mitigation measures) Technical Report 5 – Contamination
A8	ICON Water: 1. Please find below our response from water network: Proposed alignment under the Light Rail Stage 2B will cross existing water network in multiple locations. It will also run parallel to existing water network which might conflict at several locations. Asset relocation and where necessary specific asset protection will be required. Detailed assessment will be required once more information becomes available at design stage. Some of the highlighted locations which conflicted proposed alignment with water network are: a. Stromlo to Redhill bulk supply main (DN 750 mm and DN 450 mm) at Yarra Glen b. Black Mountain Bulk Supply main (DN 450mm) at the crossing of Adelaide Avenue, Kent Street and Novar Street. Existing scouring point is at	Chapter 5 (Project description) Section 5.12 Chapter 11 (Project-wide issues) Section 11.13

Ref.	Scoping Document requirements	Where this is addressed in the EIS
	the middle of the crossing. A project is underway on the Black Mountain bulk supply main renewal c. DN 375 mm distribution main will cross proposed light rail alignment at Yarra Glen and Project Site 4 at section 117/block2 in Curtin. d. Multiple crossings at sizes DN 225 mm in several locations e. DN 600 and DN 300 mains run parallel to State Circle and crosses at multiple locations. f. Prime Ministers Lodge (block1/section3 Deakin) is connected with DN 150 main across Adelaide Avenue by DN 40 mm property service connection. 2. Please find below our response on sewer: It's noted the list of impacted sewer asset has been collected. It will require loading impact assessment to the crossing sewer mains and mitigation measures shall be proposed for shallow ones in the design phase. The main outfall sewer (MOS) will stress with capacity within the coming 10 years, so as the dual DN600 mains running through Curtin and Phillip. However, since the detailed plan of the Stage 2B growth corridor is still pending, further detailed capacity assessment will be performed when more information is available. It's also noted that a few interactions of the proposed routes and strategic options of sewer system at Commonwealth Ave. and State Circle. Given Icon Water is still in the optioneering phase (IWMP project), it is anticipated that Icon Water shall work closely with MPC . a. Icon Water acknowledged that the proponents of the project have already been in discussion with Icon Water. Icon Water expect the consultation to continue as the proponent's project progresses b. Icon Water notes that the proposed light rail route will interact with a number of Icon Water's projects in the medium to long term. Icon Water will continue to work with the proponent in good faith to achieve mutually agreeable outcomes in relation to these Icon Water projects c. There are a number of critical Icon Water assets in the proposed route which are required to be relocated/treated/protected to continue water and sewer service to the large community, namely: i. 750mm and 450mm diameter bulk supply water mains from Stromlo Treatment Plant to Redhill Reservoir ii. 450mm diameter Black Mountain Bulk Supply main iii. Heritage listed major gravity sewer main of diameter 1676mm referred as main outfall sewer (MOS) iv. 750mm and 600mm diameter trunk sewer	

Ref.	Scoping Document requirements	Where this is addressed in the EIS
	v. 450mm and 500mm diameter sewer rising mains *Note: This list must not be considered exhaustive, and the proponent must undertake investigations to identify and protect all critical Icon Water assets to the satisfaction of Icon Water.* d. There are other Icon Water assets as well those listed above, which may be in the area indicated in the proposal. These assets must be identified and protected to the satisfaction of Icon Water. e. The proponent must identify all Icon Water assets which may be impacted by the design, construction and operation of the proposed Light Rail works including a comprehensive analysis of each Icon Water asset so identified. f. All impacted Icon Water assets must be relocated or 'maintenance free' treatment provided in such a manner acceptable to Icon Water to allow Icon Water to operate and maintain its assets without additional cost, traffic control measures, or other implications being imposed on Icon Water. g. The proponent is advised that some Icon Water assets are heritage listed and cannot be relocated/impacted without heritage advice and agreement. The proponent must undertake any investigations necessary and obtain separate approvals for such assets. h. Fire hydrant requirements are subject to ACT Fire and Rescue advice and agreement. i. Detailed water and sewer design plans must follow Icon Water design acceptance process and be conducted in accordance with Icon Water requirements, standards and guidelines. 3. Its noted that EIS lists the following as a key feature of the project: Upgrade of the existing stabling depot and maintenance facility in Mitchell to accommodate additional light rail vehicles (LRVs). a. The owner and occupier of this site will need to work with Icon Water liquid trade waste team to review the existing liquid trade waste approval. We must be contacted during planning stages of the upgrade so that we can work together to ensure appropriate measures are put in place to manage changes to liquid trade waste discharging to sewer. b. It appears at this stage there are no other proposals to discharge liquid trade waste to sewer as a part of the work. Should this change, the proponent must submit an application to discharge liquid trade waste to sewer prior to doing so. More information, including application forms can be found on our website www.iconwater.com.au\tradewaste.	

Ref.	Scoping Document requirements	Where this is addressed in the EIS
A9	National Capital Authority: In order to consider the whole of the environment in the EIS, the NCA believes that the project cannot be assessed without regard to those parts of the project that lie with Designated Areas under the National Capital Plan. In addition, the EIS may have gaps in relation to the National Capital Plan requirements and therefore the EIS should cover Designated Areas. Key impacts that the EIS should consider, in addition to the topics already to be covered, that are relevant to the NCA include: • Wire-free running in Designated Areas • No TPS (traction power station) in the Parliamentary Zone • Visual impacts on the Land Axis as well as Parliament House • Alignment through the woodland vegetation between State Circle and Capital Circle • Importance of the Griffin geometries and horticultural heritage, including within the Barton area • Other off-site works necessary to construct the light rail system, e.g. changes to road network, changes to landscape	Chapter 3 (Project development) Chapter 5 (Project description) Technical Report 1 – Traffic and transport Sections 5.1.3, 6.3.2, 6.4.2, 6.5.2, 6.6.2, 6.7.2, 6.8.2, 6.9.2, 6.10.1 Technical Report 3 – Heritage Technical Report 10 – Landscape character and visual amenity
A10	Utilities Technical Regulator: Utilities Technical Regulation has no comments on this EIS Scoping Document application.	N/A
Community and stakeholder consultation		
9.1	Consultation must be undertaken with: • Lease holders and land managers of land potentially impacted by the proposal • Any recreational groups which may be affected by the proposal • Any volunteer conservation, landscape management or land care groups active in the area to be affected by the proposal • The local community; and businesses owners and employees.	Chapter 4 (Stakeholder and community consultation) Sections 4.2 to 4.5 Appendix H (Consultation) Section 3 and 5 Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental management plan outline)
9.2	Provide a consultation report that includes: A description of the methodology and criteria for identifying stakeholders and how they were identified. Details and plans must be provided showing potential impacts on the local and wider community to justify how stakeholders were identified. • An outline of the communication methods used. A variety of communication methods must be adopted to ensure all stakeholders are engaged appropriately, such as face to face, email/letters, community meetings and information sessions and website notifications.	Chapter 4 (Stakeholder and community consultation) Sections 4.2 to 4.5 Appendix H (Consultation) Section 3 Technical Report 6 – Socioeconomic Section 5
	• Details on the information provided during the community consultation process.	Appendix H (Consultation) Section 4.1
	• A summary of the responses and the main comments raised by the stakeholders and the community.	Appendix H (Consultation) Section 4.1

Ref.	Scoping Document requirements	Where this is addressed in the EIS
	• Evidence must be provided demonstrating that consultation has been undertaken with each relevant group/person including specific detail on how these concerns were addressed.	Appendix H (Consultation) Section 5
	• A description on how any concerns have been considered and identify any changes that have been made to the proposal. Consultation must occur as early as possible and avoid, or make allowances for public holidays, school holidays and the summer holiday (Christmas) shutdown period. The level of engagement must be comparable with the size, location and nature of the development and potential impact on the wider community	Appendix H (Consultation) Section 5
9.3	Consideration of public representations from Draft EIS notification: The revised EIS must include a consultation report outlining the representations received, issues raised in the representations and a response to the issues and values identified. The summary response must clearly identify the representation(s) to which the responses relate.	To be addressed in the revised, final EIS
Recommendations		
10	Provide a summary of any commitments to impact prevention, mitigation measures, offsetting measures and other actions within the EIS. Describe the monitoring parameters, monitoring points, frequency, data interpretation and reporting proposals.	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline)
Other relevant information		
11	The proponent may wish to include issues outside the scope of the EIS as a separate section of the EIS. This allows the proponent to identify matters not required to be addressed in the EIS, but that would be subject to development assessment consideration and notification. This can provide additional context for members of the public regarding management of environmental issues, by ensuring that the public is aware that these issues will be addressed in the detailed design of the proposal.	Throughout the EIS
References		
12	A reference list using standard referencing systems must be included.	Appendix F (Information sources and references)
Required Appendices		
13.1	Scoping document for the EIS: A copy of the scoping document should be included in the EIS. Where it is intended to bind appendices in a separate volume from the main body of the EIS, the scoping document should be bound with the main body of the EIS for ease of cross-referencing.	Appendix B (Scoping Document)
13.2	Scoping Document Reference: Include a table that cross-references the EIS to the scoping document. If the EIS addresses the scoping document in multiple places then this must be also referenced.	Appendix D (EIS cross references)

Ref.	Scoping Document requirements	Where this is addressed in the EIS
13.3	Proponent's Environmental History: Provide details of any proceedings under a Commonwealth 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 • For an action for which a person has applied for a permit, the person making the application. If the person proposing to take the action is a corporation, then provide details of the corporation's environmental policy and planning framework. Enough information is required to satisfy s136(4) of the EPBC Act.	Appendix E (Proponent's environmental history)
13.4	Information Sources: For information given the following must be stated: • The author or any reports or studies • The publication date • The source of the information • How recent the information is (i.e. when a study was conducted or when primary sources were produced) • How the reliability of the information was tested • What uncertainties (if any) are in the information.	Appendix F (Information sources and references)
13.5	Study team: The qualifications and experience of the study team and specialist sub-consultants and expert reviewers must be provided.	Appendix G (Study team)
13.6	Specialist studies: All reports generated based on specialist studies undertaken as part of the EIS are to be included as appendices.	Technical Reports 1 to 10
13.7	Research: Any proposals for researching alternative environmental management strategies or for obtaining any further necessary information should be outlined in an appendix.	No proposals for research are proposed as part of the Project at this stage.

3.0 Department of Climate Change, Energy, the Environment and Water EIS Guideline requirements

Requirements for the EIS set out in the EIS Guidelines were issued by the Commonwealth Minister for Environment and Water on 25 July 2024. Table 3-1 outlines these requirements, and where each requirement is addressed in the EIS.

Table 3-1 Guidelines for the content of a draft EIS

Ref.	Guideline requirements	Where this is addressed in the EIS
General Advice		
1.1	General content: The EIS must be a stand-alone document that contains sufficient information to avoid the need to search supplementary reports and other appendices.	Throughout the EIS
	At a minimum, the EIS must meet the requirements of Schedule 4 of the EPBC Regulations 2000 (EPBC Regulations).	Throughout the EIS
	The EIS must include a table which clearly identifies where the requirements of the EIS Guidelines have been addressed in the EIS and its appendices.	Appendix D (EIS cross references)
	The information in the EIS must be objective, clear, and succinct and, where appropriate, be supported by maps, plans, diagrams, or other descriptive detail.	Throughout the EIS
	The extent to which the limitations, if any, of available information that may influence the conclusions of the assessment must be discussed.	Chapter 10 (Assessment methodologies) Appendix F (Information sources and references) Technical Reports 1 to 10
	The EIS must be written in a clear and concise style that is easily understood by all interested stakeholders, including those who may not be familiar with the proposed action or the technical elements of the assessment. Technical jargon and acronyms must be avoided or otherwise be explained in a simple and clear manner.	Throughout the EIS
	Information, studies, or investigations necessary to support the information in the EIS must be included as appendices, with electronic links provided where possible. References to all supporting documents (including websites) must be used to avoid unnecessary duplication of information.	Appendices A to L Appendix F (Information sources and references) Technical Reports 1 to 10
	The EIS must take into consideration: • Significant Impact Guidelines 1.1: Matters of National Environmental Significance (Significant Impact Guidelines 1.1). • Significant Impact Guidelines 1.2: Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies (Significant Impact Guidelines 1.2). • Other relevant EPBC Act policy statements and guidelines, including conservation advices, recovery plans, and threat abatement plans	Throughout the EIS but particularly in: Technical Report 2 - Biodiversity Section 7, Appendix C and the Offset management strategy Technical Report 3 - Heritage

Ref.	Guideline requirements	Where this is addressed in the EIS
	available on the department's Species Profile and Threats (SPRAT) Database. • The Interim Engaging with First Nations People and Communities on Assessments and Approvals under Environment Protection and Biodiversity Conservation Act 1999 (interim guidance) (2023) – DCCEEW. • The Department of Climate Change, Energy, the Environment and Water's offsets mitigation hierarchy: Offsets mitigation hierarchy – DCCEEW. • EPBC Act Environmental Offsets Policy (2012).	
1.2	Format and Style: The EIS must comprise three elements, namely: a) the executive summary b) the main text of the stand-alone document c) appendices containing technical information and other information that is used to support the information in the stand-alone document.	Throughout the EIS
	The EIS must include a list of abbreviations, a glossary of terms, and appendices containing: a) a copy of these EIS Guidelines b) a list of the persons and agencies consulted during the preparation of the EIS c) contact details for the proponent d) the names of the persons involved in preparing the EIS and work done by each of these persons.	Cover page Appendix A (Glossary and abbreviations) Appendix C (EIS guidelines) Appendix G (Study team) Appendix H (Consultation)
Specific Content		
2	The EIS must include the background and context of the proposed action including: a) the title of the proposed action	Cover page and throughout the EIS
	b) the full name and postal address of the designated proponent	Inside cover page
	c) a clear outline of the objective of the proposed action	Chapter 2 (Need for the Project) Sections 2.2 to 2.4
	d) the location(s) of the proposed action	Chapter 5 (Project description) Section 5.1 including Figures 5-1 to 5-17 Chapter 6 (Construction) Section 6.1.1 including Figures 6-1 to 6-4
	e) the background to the development of the proposed action	Chapter 2 (Need for the Project) Sections 2.2 to 2.4 Chapter 3 (Project development) Sections 3.1 to 3.9

Ref.	Guideline requirements	Where this is addressed in the EIS
		Chapter 5 (Project description) Section 5.1
	f) how the proposed action relates to any other actions (of which the proponent should reasonably be aware) that have been, or are being, taken or that have been approved in the region affected by the proposed action	Chapter 11 (Project-wide issues) Section 11.8 Chapter 20 (Cumulative impacts)
	g) the current status of the proposed action	Chapter 1 (Introduction) Sections 1.1 and 1.2 Chapter 8 (Legislation and policy) Section 8.1
	h) the consequences of not proceeding with the proposed action.	Chapter 2 (Need for the Project) Section 2.4.3
Description of the action		
3	The EIS must describe the proposed action in sufficient detail to allow interested stakeholders to understand all relevant stages and components of the proposed action. a) A description of all known pre-construction, construction, and operational components of the proposed action	Chapter 5 (Project description) Chapter 6 (Construction)
	b) The proposed location of all works to be undertaken, structures to be built and any other elements of the proposed action such as grade separations, based on the concept design, that have the potential to impact on the controlling provisions with relevant supporting documentation, including but not limited to: i. the location and extent of overhead wiring for the light rail, and the nature and location of any non-wired sections of the light rail	Chapter 5 (Project description) Section 5.1 including Figures 5-1 to 5-17 Chapter 6 (Construction) Section 6.1.1 including Figures 6-1 to 6-4
	ii. grading changes to roads and any temporary or permanent changes to road infrastructure, traffic flow and accessibility	Chapter 5 (Project description) Section 5.1 including Figures 5-1 to 5-17 Chapter 6 (Construction) Section 6.1.1 including Figures 6-1 to 6-4 Traffic and transport assessment sections in Part B (Environmental impact assessment) Technical Report 1 - Traffic and transport
	iii. the location of substations and construction compounds	Chapter 5 (Project description)

Ref.	Guideline requirements	Where this is addressed in the EIS
		Section 5.1 including Figures 5-1 to 5-17 Chapter 6 (Construction) Section 6.1.1 including Figures 6-1 to 6-4
	iv. an overview of the design concept and 3D renders of the light rail bridge along Commonwealth Avenue	Chapter 5 (Project description) Section 5.5.1 Appendix I (Public Domain Master Plan)
	v. the location of platforms, tracks, barriers, and signage in relation to all relevant heritage places	Chapter 11 (Project-wide issues) Section 11.3 Heritage assessment sections in Part B (Environmental impact assessment) Technical Report 3 – Heritage Section 4
	vi. what action will be taken that could directly or indirectly affect listed threatened species and communities	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Sections 5 and 6
	vii. what action will be taken that could directly or indirectly affect National Heritage places	Heritage assessment sections in Part B (Environmental impact assessment) Technical Report 3 – Heritage Section 6
	c) Detail of how the works for each component of the proposed action are to be undertaken (including stages of development and their timing), the design parameters for the structures or elements of the proposed action that may impact on relevant protected matters, and the indicative timing and duration of each component of the proposed action.	Chapter 6 (Construction)
	d) Clear delineation of the project site, disturbance footprint and avoidance areas for relevant matters of national environmental significance (MNES) including the size of these areas (in hectares). Shapefiles for these areas must be included as an appendix to the EIS.	Heritage assessment sections in Part B (Environmental impact assessment) Biodiversity assessment sections in Part B (Environmental impact assessment)

Ref.	Guideline requirements	Where this is addressed in the EIS
3.1	Design Justification and Alternatives: The EIS must contain a discussion on the design of the proposed action, including the alignment options as presented in the referral, or, in the event that a preferred alignment has been selected from the two options presented in the referral, for that preferred alignment.	Chapter 3 (Project development) Chapter 2 (Need for the Project) Section 2.4
	a) discuss how the proposed action aligns with the requirements of the National Capital Authority's (NCA) National Capital Plan, relevant ACT Heritage Management Plans, and relevant ACT Precinct Codes	Chapter 2 (Need for the Project) Section 2.2.1 Chapter 11 (Project-wide) Section 11.8 Heritage assessment sections in Part B (Environmental impact assessment) Technical Report 3 – Heritage Appendix D (Heritage Management Plan Consistency) Appendix K (Property and land use planning)
	b) detail the Registered Aboriginal Organisations (RAOs) consultation regarding project design alternatives to avoid both permanent and temporary impacts on First Nations cultural heritage values	Chapter 11 (Project-wide issues) Section 11.4 Technical Report 3 – Heritage Appendix D Appendix H (Consultation)
	c) discuss the reasoning behind the proposed rail alignment(s)	Chapter 3 (Project development) Sections 3.2, and 3.4 to 3.8
	d) detail how the design of the proposed action is consistent with any EPBC Act approval conditions relevant to the project site (e.g. light rail stages 1 and 2A).	Chapter 8 (Legislation and policy)
	The EIS must contain details on any potential alternative(s) to the proposed action which have been considered, including: a) if relevant, the alternative of taking no action b) a comparative summary of the impacts of each alternative on relevant MNES c) advantages and disadvantages of each alternative d) sufficient detail to make clear why any alternative is preferred to another e) how the choice of alternative(s) ensures impacts on relevant MNES are appropriately	Chapter 3 (Project development)

Ref.	Guideline requirements	Where this is addressed in the EIS
	avoided, minimised and managed to an acceptable level.	
Description of the existing environment		
4	The EIS must include a description of the environment of the project site and the surrounding areas that may be impacted by the proposed action. The description must be sufficiently detailed to inform the assessment of potential impacts on relevant protected matters, supported by maps where appropriate. At a minimum, this section must include: a) detailed mapping of land tenure within the project site, including of Territory and National lands	Chapter 8 (Legislation and policy) Appendix K (Property and land use planning)
	b) the topography across the entirety of the project site, supported by topographic maps	Chapter 11 (Project-wide issues) Figure 11-53
	c) details of the terrestrial ecosystems, including key vegetation communities and features (e.g. hollow-bearing trees, soil types, etc.)	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Section 4.4
	d) details of any aquatic ecosystems, including aquatic riparian values, and surface water hydrology and quality	Technical Report 2 – Biodiversity Section 4.4 Technical Report 4 – Hydrology, flooding and water quality Section 3
	e) details of any native flora and fauna, including common species and species listed under the EPBC Act and Nature Conservation Act 2004 (NC Act)	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Section 4.4
	f) details of any pest species and weeds	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Section 4.4
	g) the location of relevant National Heritage places (see Section 5.1)	Historic heritage assessment sections in Part B (Environmental impact assessment) Technical Report 3 – Heritage Sections 4 and 5

Ref.	Guideline requirements	Where this is addressed in the EIS
	h) the location of relevant Commonwealth Heritage places (see Section 5.3.4)	Historic heritage assessment sections in Part B (Environmental impact assessment) Technical Report 3 – Heritage Sections 4 and 5
	i) cultural heritage places and values (Indigenous and non-Indigenous), people and communities, and other relevant social considerations	Historic and First Nations heritage assessment sections in Part B (Environmental impact assessment) Technical Report 3 – Heritage Sections 4 and 5 Technical Report 6 – Socioeconomic Sections 6 and 8
	j) the location of known and potential contamination sources, and the nature and extent of any previous removal and/or remediation activities (see Section 5.3.1.2).	Appendix L (Environmental Management Plan outline) Technical Report 5 – Contamination Sections 4 and 5
Description of the protected matters		
5.1	National Heritage: The EIS must include a description of all National Heritage places across the project site that are likely to be impacted by the proposed action. This should include a copy of the listed heritage values and Statement of Significance for each place. At a minimum, the EIS must include information on: • Old Parliament House and Curtilage (Place ID: 105774) • The High Court – National Gallery Precinct (Place ID: 105745) The EIS must include detailed mapping of the proposed action, which differentiates between those parts of the footprint that are proposed to be within the final light rail corridor alignment(s) as opposed to the construction site, including proposed locations for construction boundaries, underground works, grade separations, overhead wires, substations, or other infrastructure based on the concept design, and show where these overlap with or are adjacent to the boundaries of National Heritage places.	Chapter 11 (Project-wide issues) Sections 11.3 and 11.4 Heritage assessment sections in Part B (Environmental impact assessment) Technical Report 3 – Heritage Section 4.2 and Appendix F

Ref.	Guideline requirements	Where this is addressed in the EIS
5.2	Listed threatened species and communities: The EIS must include information on the presence (or likelihood of presence) of any EPBC Act-listed threatened species and ecological communities that are likely to be impacted by the proposed action. At a minimum, this must include: • Natural Temperate Grasslands of the South Eastern Highlands threatened ecological community • White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland threatened ecological community • Golden Sun Moth (*Synemon plana*) • Gang-gang Cockatoo (*Callocephalon fimbriatum*) • Superb Parrot (*Polytelis swainsonii*) • Swift Parrot (*Lathamus discolor*) • Southern Whiteface (*Aphelocephala leucopsis*) • Brown Treecreeper (south-eastern) (*Climacteris picumnus victoriae*) • Striped Legless Lizard (*Delma impar*) • Canberra Grassland Earless Dragon (*Tympanocryptis lineata*) • Key's Matchstick Grasshopper (*Keyacris scurra*) • Grey-headed Flying-fox (*Pteropus poliocephalus*) • Button Wrinklewort (*Rutidosis leptorhynchoides*) • Small Purple Pea (*Swainsona recta*) • Matted Flax-lily (*Dianella amoena*) • Hoary Sunray (*Leucochrysum albicans subsp. tricolor*)	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Section 4 and Appendix B
	The EIS must consider relevant listed threatened species and ecological communities at the local, regional, and national level and must include the following information: a) A description of the desktop assessment methodology used to inform a likelihood of occurrence assessment and the field surveys within and/or adjacent to the project site, including known historical records in the broader region.	Chapter 10 (Assessment methodologies) Section 10.2 Technical Report 2 – Biodiversity Section 3
	b) Details of the scope, timing (survey season[s]), effort and methodology for field studies or surveys undertaken to provide information on the presence of listed threatened species and ecological communities (e.g. sightings, scats, calls, etc.) within and adjacent to the project site.	Chapter 10 (Assessment methodologies) Section 10.2 Technical Report 2 – Biodiversity Section 3
	c) Details of the scope, timing (survey season[s]), effort and methodology for field studies or surveys undertaken to provide information on habitat for listed threatened species and ecological communities (e.g. vegetation assessments, tree hollow	Chapter 10 (Assessment methodologies) Section 10.2 Technical Report 2 – Biodiversity Section 3

Ref.	Guideline requirements	Where this is addressed in the EIS
	measurements, soil characteristics, etc.) within and adjacent to the project site.	
	d) Details of how the field studies or surveys are consistent with relevant Commonwealth statutory documents (including but not limited to conservation advice and recovery plans), departmental guidelines or policy statements, or are undertaken in accordance with best practice for studies or surveys.	Chapter 10 (Assessment methodologies) Section 10.2 Technical Report 2 – Biodiversity Section 3
	e) A description of any uncertainties/limitations with the field studies or surveys, including but not limited to timing, weather conditions and technology.	Technical Report 2 – Biodiversity Section 3
	f) Justification for divergence from relevant Commonwealth statutory documents, departmental guidelines or policy statements, or best practice for studies or surveys (if relevant).	N/A
	g) Study or survey outcomes, including the total number of records (individuals and evidence of presence) of listed threatened species and ecological communities within and/or adjacent the project site, and a brief description of the habitat in which each record was found.	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Section 4
	h) An assessment of the habitat available within and adjacent to the project site, including an assessment of specific habitat requirement(s) relevant to each listed threatened species and ecological community (e.g. breeding, foraging, dispersal, known important habitat, suitable habitats, roosting, etc.).	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Section 4
	i) Justification for the habitat assessment with consideration of field studies or surveys, the SPRAT Database, relevant departmental documents and other published sources (e.g. published research).	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Section 3
	j) Amount of each type of habitat (in hectares) within and adjacent to the project site for each listed threatened species and ecological community, where required by relevant management plans and policies for those species.	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Section 4
	k) A description of the importance and value of potentially impacted environmental features at a local and regional scale.	Technical Report 2 – Biodiversity Section 5 and Appendix C

Ref.	Guideline requirements	Where this is addressed in the EIS
Description of the protected matters - Whole of the Environment (Commonwealth land)		
5.3	The EIS must include a description of the heritage values and the environment at the project site that are likely to be impacted by the proposed action.	See below for detailed references
5.3.1	Ecosystems and their constituent parts, including people and communities: The EIS must include a description of the ecosystems and their constituent parts in relation to the project site and surrounding areas. This must include a discussion of plants, animals, pollutants, chemicals and toxic substances, water resources, people and communities, and landscape and soils, as described in the Significant Impact Guidelines 1.2.	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Sections 4 and 5
5.3.1.1	Plants and animals: The EIS must include information on the presence (or likelihood of presence) of species listed under the NC Act, and locally rare, endemic, or otherwise valuable species at the project site and in surrounding areas that are likely to be impacted by the proposed action. The ACT Scientific Committee's ACT Rare Plant list must be considered to identify rare plants in the region. At a minimum, the EIS must include information on: • Natural Temperate Grassland as listed under the NC Act • Box-Gum Grassy Woodland as listed under the NC Act • Perunga Grasshopper (*Perunga ochracea*) • Canberra Raspy Cricket (*Coorabooorama canberrae*)	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 - Biodiversity Sections 4 and 5
5.3.1.2	Pollutants, chemicals, and toxic substances. The project site should be subject to a preliminary site investigation in accordance with Commonwealth-endorsed guidelines including the National Environment Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM), the Per- and Polyfluoroalkyl Substances (PFAS) PFAS National Environmental Management Plan 2.0 (HEPA 2020) (PFAS NEMP), and the National Water Quality Management Strategy. Where potential contaminated sites are identified, a detailed site investigation must be undertaken, either prior to the completion of the EIS, or planned for completion as part of a CEMP. The EIS should: a) provide detailed descriptions and maps of all past and current contaminated sites within and directly adjacent to the project site, including a discussion of sites which will need to be disturbed due to the proposed action, at any stage of the proposed action b) provide detailed information regarding proposed works, based on current designs, so that the potential to encounter, remobilise,	Chapter 21 (Environmental management and mitigation measures) Technical Report 5 – Contamination Section 10

Ref.	Guideline requirements	Where this is addressed in the EIS
	introduce, and/or redistribute contamination can be independently assessed.	
5.3.1.3	People and communities: The EIS must include a description of the types of people and communities that are likely to be impacted by the proposed action and how they will be impacted by the proposed action. This includes but is not limited to government entities, commercial businesses, road and public transport network users, recreational area users, tourists, community and residential groups, and emergency services.	Socioeconomic assessment sections in Part B (Environmental impact assessment) Technical Report 6 – Socioeconomic Sections 6, 7, Appendix B
5.3.2	Natural and physical resources: The EIS must include a description of the natural and physical resources that are likely to be impacted by the proposed action including but not limited to: • Lake Burley Griffin and surround • Surface waters (stormwater, creeks, rivers, and dams) • Groundwater • Soils and quarry materials.	Hydrology, flooding and water quality, and soils and contamination sections in Part B (Environmental impact assessment) Technical Report 4 – Hydrology, flooding and water quality Section 3.4, 3.5, and 3.6 Chapter 11 (Project-wide issues) Section 11.6.1 Section 11.12.2
5.3.3	Qualities and characteristics of locations, places, and areas: The EIS must include a description of the qualities and characteristics of all locations, places, and areas that area likely to be impacted by the proposed action. At a minimum, the EIS must include information on: • Mature street trees, plantings, and landscaping features • Vistas, views, and general aesthetic features • General ambience (e.g. noise levels, intensity of road and foot traffic, air quality, shade quality, temperature etc.).	Chapter 11 (Project-wide issues) Section 11.9 Biodiversity, Noise assessment, and Landscape character and visual amenity assessment sections in Part B (Environmental impact assessment) Technical Report 1 – Traffic and transport Sections 5.2.1, 6.3.3, 6.4.3, 6.5.3, 6.6.3, 6.7.3, 6.8.3, 6.9.3 Technical Report 9 - Noise and vibration Section 2 Technical Report 2 – Biodiversity Technical Report 3 – Heritage

Ref.	Guideline requirements	Where this is addressed in the EIS
		Technical Report 10 - Landscape character and visual amenity
5.3.4	Heritage: The EIS must include a description of the identified heritage values at the project site that are likely to be impacted by the proposed action. At a minimum, the EIS must include information on: • Parliament House Vista (Place ID: 105466) • Lake Burley Griffin and Adjacent Lands (Place ID: 105230) • National Library of Australia and Surrounds (Place ID: 105470) • High Court – National Gallery Precinct (Place ID: 105544) • High Court of Australia (Place ID: 105557) • National Gallery of Australia (105558) • Old Parliament House and Curtilage (Place ID: 105318) • Old Parliament House Gardens (Place ID: 105616) • West Block and the Dugout (Place ID: 105428) • National Rose Gardens (Place ID: 105473) • King George V Memorial (Place ID: 105352) • York Park North Tree Plantation (Place ID: 105242) • Commencement Column Monument (Place ID: 105347) • The Surveyor's Hut (Place ID: 105467) • Patent Office (former) (Place ID: 105454) • Edmund Barton Offices (Place ID: 105476) • John Gorton Building (Place ID: 105472) • Communications Centre (John Gorton Building Bunker) (Place ID: 105618) • The Lodge (Place ID: 105452) • State Circle Cutting (Place ID: 105733)	Heritage assessment sections in Part B (Environmental impact assessment) Technical Report 3 – Heritage Sections 4, 6.2 and Appendix B
	Additionally, any other places that are not explicitly included on the Commonwealth Heritage List, but have either historic, natural and/or Indigenous values must also be included in the EIS. At a minimum, the EIS must include information on: • Parliament House • Commonwealth Avenue • Aboriginal Tent Embassy • Albert Hall • Hotel Canberra (Hyatt Hotel Canberra) • Treasury Building • Presbyterian Church of St Andrew • Capital Hill • Hotel Kurrajong	Heritage assessment sections in Part B (Environmental impact assessment) Technical Report 3 – Heritage Sections 4, 6.2 and Appendix B

Ref.	Guideline requirements	Where this is addressed in the EIS
5.3.5	Social, economic, and cultural aspects: The EIS must include a description of the social, economic, and cultural aspects relevant to those elements of the environment outlined in Sections 5.3.1 through 5.3.4. Further information regarding the inclusion of social, economic, and cultural considerations in the EIS can be found in Section 13 of these EIS Guidelines.	Socioeconomic assessment sections in Part B (Environmental impact assessment) Technical Report 6 – Socioeconomic Sections 6, 7, 8, Appendix B, Appendix C, and Appendix E
Relevant Impacts		
6	Relevant impacts of the proposed action must be assessed in accordance with relevant departmental policies and guidelines, and the information provided in the SPRAT Database. The EIS must include a description of relevant impacts of the proposed action (direct, indirect, cumulative, and facilitated) on listed threatened species and ecological communities, National and Commonwealth heritage values, and the whole of the environment.	Throughout the EIS
	a) A detailed assessment of the nature and extent of the likely direct, indirect, and facilitated short-term and long-term impacts on relevant protected matters.	Threatened species and ecological communities: Technical Report 2 – Biodiversity Sections 5 and 6 National and Commonwealth heritage values: Technical Report 3 - Heritage Section 6 Whole of the environment: Throughout the EIS Chapter 20 (Cumulative impacts) Sections 20.4, 20.5, and 20.6
	b) A statement, with supporting evidence, on whether any impacts are likely to be unknown, unpredictable, or irreversible.	Throughout the EIS Chapter 21 (Environmental management and mitigation measures)
	c) Any technical data and other information used or needed to make a detailed assessment of the impacts.	Technical Report 1 to Technical Report 10 Appendix D (Information sources and references)
	d) A conclusion as to whether the impacts are consistent with the relevant conservation advice, recovery plans, and other departmental policies and guidelines (e.g. key threatening processes).	Chapter 23 (Justification and conclusion) Technical report 2 – Biodiversity Section 5 and Appendix C

Ref.	Guideline requirements	Where this is addressed in the EIS
	The EIS should identify and discuss cumulative impacts on relevant MNES, where potential impacts from the proposed action are in addition to existing impacts of other activities (including known potential future expansions or developments by the proponent and other proponents in the vicinity and region [e.g. light rail stage 1 and stage 2A]). Quantification and assessment of impacts should: a) be against appropriate background/baseline levels b) be prepared according to best practice guidelines and compared to best practice standards c) consider seasonal and temporal variations where appropriate (including temporal changes in the sensitivity of the receptor) d) be supported by maps, graphs and diagrams as appropriate to ensure information is readily understandable e) explain and justify guidelines and standards used to quantify baselines and impacts.	Chapter 20 (Cumulative impacts)
	The EIS must take into consideration the following international conventions and demonstrate that the proposed action will not be inconsistent with the objectives and principles of: • the Biodiversity Convention • the Convention on the Conservation of Nature in the South Pacific (Apia Convention) • the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).	Technical Report 2 – Biodiversity Section 9
6.1	National Heritage: The EIS must include supporting information for the impact assessment on the values of all National Heritage places (see Section 5.1). A Heritage Impact Assessment (HIA) must be included as an appendix that addresses all potential impacts on heritage within and adjacent to the project site. The requirements on the HIA are detailed in Section 7.5.1.	Technical Report 3 - Heritage
6.2	Listed threatened species and communities: For each threatened ecological community, the EIS must include: a) the total direct impact (in hectares) to each identified patch, within and adjacent to the project site, and compared to its current extent b) a discussion on the post-impact viability of each individual patch within and adjacent to the project site to be directly and indirectly impacted (e.g. fragmentation, edge effects, etc.) if the proposed action was to proceed as proposed.	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Section 4, 5 and Appendix C

Ref.	Guideline requirements	Where this is addressed in the EIS
	For each listed threatened species, the EIS must include: a) the total direct impact (in hectares) to each identified type of habitat (e.g. breeding, foraging, dispersal, known important habitat, suitable habitats, roosting, etc.) within and adjacent to the project site b) details of the indirect impacts on species and their habitats (e.g. fragmentation, edge effects, population connectivity, individual mortality, increase in noise, light, and dust, increase in people and pet interactions, etc.) as a result of the proposed action.	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Section 4, 5 and Appendix C
	Detailed mapping of habitat for relevant listed threatened species and ecological communities that are found to be, or may potentially be, present within and/or adjacent to the project site must be included in the EIS, and must: a) be specific to the habitat assessment undertaken for each listed threatened species and ecological community (see Section 5.2) b) include an overlay of the disturbance footprint c) include known records of individuals (or evidence of individuals) derived from desktop analysis and/or field surveys.	Biodiversity assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Section 4, 5 and Appendix C
Whole of the environment (Commonwealth land)		
6.3.1	Plants and animals: With regards to plants and animals on Commonwealth land, the EIS must include: a) a description of the impacts on common native species, rare, endemic, or usual native species, native and non-native vegetation, and species listed under the NC Act. This should include a discussion of impacts on the species listed in Section 5.3.1.	Technical Report 2 – Biodiversity Section 5
	b) a discussion regarding the potential cumulative impacts of the proposed action on ecosystem resilience within and adjacent to the project site (e.g. connected vegetation communities, connected species habitat, etc.) noting that cumulative impacts may include past, present, and future human activities and natural variations over time, and can be both positive and negative.	Technical Report 2 – Biodiversity Section 5
	c) the cumulative effects of climate change impacts of the proposed action on the environment in the assessment of ecosystem resilience, particularly where climate change is identified as a specific risk to a species, ecological community and/or vegetation community. Where relevant to the potential impacts of the proposed action, a risk assessment must be conducted, summarised	Technical Report 2 – Biodiversity Section 8 Technical Report 7 – Climate change risk Sections 5.2 and 6.2

Ref.	Guideline requirements	Where this is addressed in the EIS
	in the EIS, and attached in full as an appendix.	
6.3.2	Pollutants, chemicals, and toxic substances: The EIS must include as an appendix a Preliminary Site Investigation Report detailing the characterisation and delineation of known contamination, or detailing potential sources of contamination, on and immediately adjacent to the project site. This report must be prepared by a suitably qualified person in accordance with Section 5.3.1.2. The EIS must include a summary of the findings of the preliminary site investigation, including an assessment of the potential for redistribution or mobilisation of contaminants as a result of the proposed action and the associated likelihood and severity of impacts to human health and the environment (including soil, sediment, groundwater, surface water, biota and air). This should include information relating to the potential for redistribution, mobilisation/remobilisation of contaminated material and discuss the severity of impacts to media potentially affected (such as soil, groundwater, surface water, air) and any other ecosystem and sensitive receptors.	Technical Report 5 – Contamination Appendix G (Study team)
6.3.3	People and communities: The EIS must include a description of the impacts on any people and communities during both construction and operation phases of the proposed action. At a minimum, the EIS must include information on: a) changes to traffic flow and access	Technical Report 1 – Traffic and transport Sections 5.2.1, 6.3.3, 6.4.3, 6.5.3, 6.6.3, 6.7.3, 6.8.3, 6.9.3
	b) changes to public transport and parking spaces	Technical Report 1 – Traffic and transport Sections 5.2.4, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10, 6.1.3, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10
	c) changes to pedestrian and cyclist flow and access	Technical Report 1 – Traffic and transport Sections 5.2.5, 6.3, 6.4, 6.5, 6.7, 6.8, 6.9, 6.10
	d) disruptions to emergency services and access.	Technical Report 1 – Traffic and transport Sections 5.1.3, 5.2.6, 6.2.5

Ref.	Guideline requirements	Where this is addressed in the EIS
6.3.4	Natural and physical resources: The EIS must include a description of the impacts, based off a desktop assessment, on key surface water resources including but not limited to impacts on or associated with: a) turbidity and soil erosion b) contamination from litter, pollutants, and chemicals, either directly caused by the proposed action or through remobilisation of existing contaminants c) changes to overland flow paths	Hydrology, flooding and water quality, and soils and contamination sections in Part B (Environmental impact assessment) Technical Report 4 – Hydrology, flooding and water quality Section 3.8, 3.9, 4.1, 5.1, 5.2, 7.1, and 7.2 Technical Report 5 – Contamination Section 6
	The EIS must also include a description of how the proposed action may impact on any groundwater resources and Groundwater Dependent Ecosystems (GDEs), including but not limited to impacts on: a) groundwater quality b) groundwater flow regimes c) perched aquifer storage and connectivity to deeper aquifers d) water availability to GDEs and springs The EIS must include a discussion as to how these impacts are predicted to adversely affect receptors (e.g. ecosystems, surface water or groundwater users) and the potential pathways of the impacts from sources to receptors. This should include a discussion on how the pathways might interact with each other	Technical Report 2 – Biodiversity Section 4 Technical Report 4 – Hydrology, flooding and water quality Section 3.8, 3.9, 4.1, 5.1, 5.2, 7.1, and 7.2
6.3.5	Heritage: As noted in Section 6.1, a HIA is required as an appendix to the EIS. In addition to the impact assessment on National Heritage values, the HIA must address potential impact on all heritage values within and adjacent to the project site, including Commonwealth Heritage places (see Section 5.3.4). The requirements of the HIA are detailed in Section 7.5.1.	Heritage assessment sections in Part B (Environmental impact assessment) Technical Report 3 – Heritage Section 6.2
6.3.6	General environmental impacts: Assessment of impacts to the environment (as defined in section 528 of the EPBC Act), during both construction and operation of the proposed action, should also include but not be limited to the following:	See detailed references below
	a) road noise and vibration impacts on the community and natural environment	Noise and vibration assessment sections in Part B (Environmental impact assessment) Technical Report 9 - Noise and vibration Sections 5 and 6

Ref.	Guideline requirements	Where this is addressed in the EIS
	b) impacts on air quality (e.g. dust, including consideration of seasonal and meteorological variations that influence local air quality)	Chapter 11 (Project-wide issues) Section 11.9
	c) lighting impacts on the community and natural environment	Landscape character and visual amenity sections in Part B (Environmental impact assessment) Technical Report 10 - Landscape character and visual amenity Section 4
	d) changes in recreational use and amenity of natural & urban areas	Socioeconomic assessment sections in Part B (Environmental impact assessment) Technical Report 6 – Socioeconomic Sections 6, 8.3, 8.8, and 8.10
	e) social, economic, and cultural impacts	Socioeconomic assessment sections in Part B (Environmental impact assessment) Technical Report 6 – Socioeconomic Section 8
	f) creation of any risks or hazards to people or property that may be associated with any component of the proposed action.	Chapter 11 (Project-wide issues) Section 11.13
Proposed safeguards and mitigation measures		
7	The EIS must provide information on proposed safeguards and mitigation measures to deal with the relevant impacts of the proposed action. It must include detailed information on feasible measures to further avoid and minimise the proposed impacts on relevant protected matters detailed in Section 5 of these EIS Guidelines. Specific and detailed descriptions of proposed measures must be provided and substantiated, based on best available practices and must include the following elements. Consideration of relevant agreements and plans that cover impacts or known threats to a matter protected by a controlling provision, including: a) any recovery plan and/or conservation advice for the affected species or ecological community b) any threat abatement plan for a process that threatens an affected species or ecological community c) any relevant strategic assessment undertaken in accordance with an agreement under Part 10 of the EPBC Act	Chapter 8 (Legislation) Section 8.2.1 Biodiversity and heritage assessment sections in Part B (Environmental impact assessment) Technical Report 2 – Biodiversity Section 7 Technical Report 3 Heritage

Ref.	Guideline requirements	Where this is addressed in the EIS
	d) any relevant management plans for heritage places.	
	A consolidated list of mitigation measures proposed to be undertaken to prevent, minimise or compensate for the relevant impacts of the proposed action, including: a) a description of the environmental outcomes the measures are expected to achieve including details of any baseline data or proposed monitoring to demonstrate progress towards achieving these outcomes b) a description of proposed safeguards and mitigation measures to deal with relevant impacts of the action, including by considering mitigation measures proposed to be taken by the ACT Government, other authorities or the proponent c) assessment of the expected or predicted effectiveness of the mitigation measures d) any statutory or policy basis for the mitigation measures e) a conclusion as to whether, following implementation of all safeguard and mitigation measures, any residual impacts are acceptable.	Chapter 21 (Environmental management and mitigation measures) Technical Report 2 – Biodiversity Section 7
7.1	Plants and animals: The EIS must provide information regarding: a) native buffer zones (in metres) or design measures proposed to be implemented to protect the outer edge of patches of ecological communities and habitat for listed threatened species b) commitments to avoidance, mitigation, and management measures that are consistent with relevant departmental statutory documents, best practice guidelines and/or scientific evidence c) avoidance, mitigation, and management measures to reduce lighting impacts on local and migratory species, especially at sensitive times of day (e.g. at night).	Chapter 21 (Environmental management and mitigation measures) Technical Report 2 – Biodiversity Sections 6 and 7
7.2	Pollutants, chemicals, and toxic substances: The EIS must provide information or approaches regarding: a) management and mitigation controls to prevent construction activity from releasing contaminates into the environment b) management of dust suppression and emission (within the context of pollutants, chemicals, and toxic substances) c) plans for remediation and rehabilitation of all contaminated areas, where required d) management of rainwater in open pits and detention basins, including dewatering, disposal, and reuse processes	Hydrology, flooding and water quality sections in Part B (Environmental impact assessment) Soils and contamination sections in Part B (Environmental impact assessment) Chapter 21 (Environmental management and mitigation measures)

Ref.	Guideline requirements	Where this is addressed in the EIS
	e) management measures for handling and disposal of contaminated material.	Technical Report 4 – Hydrology, flooding and water quality Sections 7.1 and 7.2 Technical Report 5 – Contamination Section 9
7.3	People and communities: The EIS must provide information or approaches regarding: a) avoidance, mitigation and management measures to reduce the impact of changes to traffic and public transport options, including to vulnerable sections of the community	Chapter 21 (Environmental management and mitigation measures) Technical Report 1 – Traffic and transport Section 7 Technical Report 6 – Socioeconomic Sections 8.7 and 8.8
	b) avoidance, mitigation, and management measures to reduce both the levels and impact of noise and vibration, especially at sensitive times of day (e.g. at night near residential areas, during school hours near schools, etc.)	Chapter 21 (Environmental management and mitigation measures) Technical Report 9 – Noise and vibration Section 8
	c) avoidance, mitigation, and management measures to reduce both the levels and impact of dust/particulate matter (PM10 and PM2.5) on human health and other sensitive receptors	Chapter 11 (Project-wide issues) Section 11.9 Chapter 21 (Environmental management and mitigation measures)
	d) avoidance, mitigation, and management measures to reduce lighting impacts on local people and communities, especially at sensitive times of day (e.g. at night near residential areas).	Chapter 21 (Environmental management and mitigation measures) Technical Report 10 – Landscape character and visual amenity Section 6

Ref.	Guideline requirements	Where this is addressed in the EIS
7.4	Natural and physical resources: The EIS must provide information regarding: a) management and mitigation controls to prevent construction activity from impacting on soil, surface water, and groundwater b) management of rainwater in open pits and detention basins, including dewatering, disposal, and reuse processes c) optimisation of reuse of soils where possible.	Hydrology, flooding and water quality sections in Part B (Environmental impact assessment) Soils and contamination sections in Part B (Environmental impact assessment) Technical Report 4 – Hydrology, flooding and water quality Section 7.1 Chapter 11 (Project-wide issues) Section 11.12
Heritage		
7.5.1	Heritage Impact Assessment: The EIS must include a HIA for the potential alignments as referred – National Triangle Barton and State Circle East. The HIA will be updated to reflect the selection of a final alignment. The HIA should: a) address historic heritage, natural heritage, and Indigenous heritage including consultation with the Canberra RAOs and evidence of best practice consultation with First Nations communities (see Section 7.5.2 and Section 11.1)	Heritage assessment sections in Part B (Environmental impact assessment) Technical Report 3 – Heritage Section 4 and Appendix D
	b) note that the referral documentation described direct and indirect significant impacts on Old Parliament House and Curtilage, Commonwealth Avenue, the Edmund Barton Building, Lake Burley Griffin and Adjacent Lands, and the Patent Office (former) and should clarify whether the final design option is likely to have significant impacts on these or any other heritage places	Technical Report 3 – Heritage Section 6.2
	c) include information on the values of all National and Commonwealth Heritage places and the heritage values of places that may not be included on official lists. These places include, but are not limited to, those listed in Section 6.1 and Section 6.3.5. The HIA should address any potential impacts that the proposed actions will have on the heritage values of these places	Technical Report 3 – Heritage Sections 4, 6.2, and Appendix B
	d) address the potential impact that the proposed actions will have on significant heritage sight lines associated with the Parliament House Vista and visual impact assessment supported by visual renderings of those sightlines	Technical Report 3 – Heritage Section 6.2

Ref.	Guideline requirements	Where this is addressed in the EIS
	e) address: i. changes to, and/or new construction associated with, Commonwealth Avenue Bridge ii. proposed tree removal and replacement, changes to the public domain and landscape iii. impacts on adjacent heritage values and physical fabric (both listed and identified) iv. methodology for dealing with unanticipated finds (detailed below).	Technical Report 3 – Heritage Sections 6.2.2 and 6.3
	f) include any relevant heritage assessment reports or advice and address any impacts that the proposed action will have on the heritage values identified in these reports	Technical Report 3 – Heritage Sections 4, 6.2, 7.1.2 and Appendix D
	g) specify plants proposed to be removed by the proposed action, which are included in Commonwealth Heritage listings or have other historic, natural or First Nations heritage values. A map identifying these plants must be included in the HIAs	Technical Report 3 – Heritage Appendix B to Appendix I
	h) be undertaken by expert consultants with relevant qualifications and experience	Appendix G (Study team)
	i) meet the standards of the EPBC Act (Significant Impact Guidelines 1.2)	Technical Report 3 – Heritage Entire HIA but particularly addressed in Section 6
	j) take account of any relevant heritage management plan policies	Technical Report 3 – Heritage Section 3 and Appendix E
	k) include a framework for the avoidance, mitigation, and management of the relevant impacts of each stage of the proposed action (for each proposed alignment) on relevant heritage values within and adjacent to the project site	Technical Report 3 – Heritage Sections 6.2 and 7
	l) include information on First Nations cultural heritage, including but not limited to: i. details on how any proposed mitigation strategies to be applied to the project site will operate to protect sensitive Indigenous heritage areas (e.g. conservation in situ, site avoidance, restricted access, buffer zones, creation of a conservation area) ii. commitment to provide details on where the salvaged artefacts will be relocated, how they will be managed, and any documentation and access arrangements discussed with the RAOs from consultation	Technical Report 3 – Heritage Sections 6.2, 7.1 and Appendix D

Ref.	Guideline requirements	Where this is addressed in the EIS
	m) include an unexpected finds protocol addressing First Nations, natural and historic heritage finds (including the potential discovery of archaeological remains) and the steps required to deal with these.	Technical Report 3 – Heritage Section 7.1 and Appendix D
7.5.2	Indigenous cultural heritage: The EIS must include details on any ongoing and proposed RAO consultation regarding alternative project design options to avoid both permanent and temporary impacts on Indigenous cultural heritage values. The proponent must undertake First Nations consultation in accordance with the department's Interim Engaging with First Nations People and Communities on Assessments and Approvals under the Environment Protection and Biodiversity Conservation Act 1999 (interim guidance) (2023). The unexpected finds protocol must include appropriate steps to work with the RAO in safeguarding and mitigating impacts to cultural artefacts and/or remains that may be uncovered during excavation and construction works. The proponent should consider and discuss arrangements for an appropriate keeping place with the RAO and relevant heritage authorities, in line with the HIA requirements in Section 7.5.1.	Heritage assessment sections in Part B (Environmental impact assessment) Technical Report 3 – Heritage Section 7.1 and Appendix D
7.5.3	Geoheritage: The EIS must take into consideration the State Circle Cutting Heritage Management Plan 2016 (nca.gov.au).	Heritage assessment sections in Part B (Environmental impact assessment) Technical Report 3 – Heritage Section 3
7.5.4	National Heritage: The EIS must take into consideration the National Heritage management principles, as outlined in Schedule 5B of the EPBC Regulations, and demonstrate how the proposed action will not be inconsistent with those principles.	Technical Report 3 – Heritage Section 6.6
7.5.5	Commonwealth Heritage: The EIS must take into consideration the Commonwealth Heritage management principles, as outlined in Schedule 7B of the EPBC Regulations, and demonstrate how the proposed action will not be inconsistent with those principles.	Technical Report 3 – Heritage Section 6.2
7.6	Environmental Management Plan: The EIS must include a detailed outline of an Environmental Management Plan (EMP) as an appendix. The EMP outline must be prepared in accordance with the department's Environmental Management Plan Guidelines (2014) as amended from time to time and must:	Chapter 21 (Environmental management and mitigation measures) Appendix L (Environmental Management Plan outline)

Ref.	Guideline requirements	Where this is addressed in the EIS
	a) set out the proposed action, including any provisions for independent environmental auditing. As a minimum, the EMP outline must consider the impacts outlined in Section 6 and must consider the proposed safeguards and mitigation measures outlined in Section 7 b) address the project phases (construction and operation) separately. It must state the environmental objectives, performance criteria, monitoring, reporting, corrective actions, responsibility and timing for each environmental issue c) describe contingencies for events such as failure of sewerage systems, heavy or prolonged rainfall, or chemical spills d) include an unexpected finds protocol for contaminated materials and heritage artefacts. As necessary, the EIS must also include the name of the agency responsible for endorsing or approving each mitigation measure, management plan or monitoring program.	
Environmental Offsets		
8	The EIS must include an assessment of the likelihood of residual significant impacts occurring on National heritage values, listed threatened species and communities, and the environment (including Commonwealth and First Nations heritage values) after avoidance, mitigation and management measures have been applied. If it is determined that a residual significant impact is likely on relevant MNES, then environmental offsets will be required in accordance with the principles of the EPBC Act Environmental Offsets Policy (2012) (Offsets Policy). If environmental offsets are required, an offset within the ACT must be sought in the first instance, in consultation with the ACT Parks and Conservation Service. Where this is not possible, and an alternative sought, justification must be provided in the EIS for this decision. If environmental offsets are required, an Offset Management Strategy (OMS) or an Offset Management Plan (OMP) prepared by a suitably qualified professional must be included as an appendix to the EIS, with a summary of its key elements included in the body of the EIS. If an offset area(s) has been nominated, include an OMP. If an offset site has not been nominated, include an OMS. The relevant requirements for the OMS and OMP are outlined below.	Chapter 21 (Environmental management and mitigation measures) Chapter 22 (Summary of assessment), Section 22.1 Technical Report 2 – Biodiversity Appendix E (Environmental offset strategy)

Ref.	Guideline requirements	Where this is addressed in the EIS
8.1	Offset Management Strategy: For relevant listed threatened species and communities, the OMS must contain, at a minimum: a) details of the proposed environmental offset(s) to compensate for the residual significant impacts of the proposed action on each relevant listed threatened species and ecological community, and/or their habitat.	Technical Report 2 – Biodiversity Appendix E (Environmental offset strategy)
	b) details of how the proponent will ensure that proposed environmental offset(s) will meet the requirements of the Offsets Policy, including the Offsets Assessment Guide.	Technical Report 2 – Biodiversity Appendix E (Environmental offset strategy), Section 6 *(noting that further details would be include in the final offset strategy once offset site(s) are identified)*
	c) details of a strategy for the staging of environmental offset(s) for each project stage (if proposed).	Offset site(s) have not yet been selected. Reasoning for this is outlined in Technical Report 2 – Biodiversity, Appendix E (Environmental offset strategy)
	d) information about how the connectivity with other relevant habitats and biodiversity corridors provided by any proposed offset area(s) will be assessed.	Technical Report 2 – Biodiversity Appendix E (Environmental offset strategy), Section 5
	e) the methodology, with justification and supporting evidence, used to inform the inputs of the Offsets Assessment Guide in relation to the impact site for each relevant listed threatened species and ecological community, including: i. quantum of impact – area (in hectares) ii. quantum of impact – quality	Technical Report 2 - Biodiversity Section 3
	f) the methodology, with justification and supporting evidence, used to inform the inputs of the Offsets Assessment Guide in relation to each potential offset area(s) for each relevant listed threatened species and ecological community, including: i. time over which loss is averted (maximum 20 years) ii. time until ecological benefit iii. risk of loss (%) without offset iv. risk of loss (%) with offset v. confidence in result (%)	Technical Report 2 – Biodiversity Appendix E (Environmental offset strategy), Sections 3 and 6
	g) what evidence will be provided that the relevant listed threatened species and	Offset site(s) have not yet been selected. Reasoning for this is outlined in

Ref.	Guideline requirements	Where this is addressed in the EIS
	ecological community, and/or their habitat, is present in any proposed offset area(s).	Technical Report 2 – Biodiversity Appendix E (Environmental offset strategy), Section 5
	h) details of the proposed mechanism to legally secure any proposed offset area(s), such that legal security remains in force over the offset area(s) for at least 20 years to provide enduring protection for the offset area(s) against development incompatible with conservation.	Technical Report 2 – Biodiversity Appendix E (Environmental offset strategy), Sections 5.2 (for offsets established in NSW) and 6.4 (for offsets established in the ACT).
8.2	Offset Management Plan: For relevant listed threatened species and communities, the OMP must be prepared by a suitably qualified person and must include, at a minimum: a) information on the residual significant impacts to each relevant listed threatened species and ecological community that will be compensated for by the environmental offset(s)	An offset management plan would be prepared following the identification of a suitable offset site(s)
	b) a description of the offset area(s), including location, size, condition, environmental values present and surrounding land uses	
	c) details of how the environmental offset(s) meets the requirements of the Offsets Policy, including the Offsets Assessment Guide	
	d) baseline data and other supporting evidence, including ecological field data that documents the presence of each relevant listed threatened species and ecological community and the quality of their habitat within the offset area(s)	
	e) details of the field surveys undertaken within proposed offset areas in accordance with Commonwealth guidelines, State and Territory guidelines, and/or best practice survey methodologies	
	f) commitments to achievable improved ecological benefits at the proposed offset area(s) and the expected timeframes in which they will be achieved	
	g) details of how the offset area(s) will provide connectivity with other habitats and biodiversity corridors and/or will contribute to a larger strategic offset for each relevant listed threatened species and ecological community	
	h) maps and shapefiles to clearly define the location and boundaries of the offset area(s), accompanied by the offset attributes (e.g. physical address of the offset area(s),	

Ref.	Guideline requirements	Where this is addressed in the EIS
	coordinates of the boundary points in decimal degrees, the listed threatened species and ecological communities that the environmental offset(s) compensates for, and the size of the environmental offset(s) in hectares)	
	i) specific offset completion criteria derived from the site habitat quality to demonstrate the improvement in the quality of habitat in the offset area(s) over a 20-year period	
	j) details of the management actions, and timeframes for implementation, to be carried out to achieve the offset completion criteria	
	k) interim milestones that set targets at 5-yearly intervals to demonstrate progress towards achieving the offset completion criteria	
	l) details of the nature, timing, and frequency of monitoring, and submission of monitoring reports to demonstrate progress against achieving the 5-yearly interim milestones	
	m) timing for the implementation of corrective actions if monitoring activities indicate the interim milestones have not been achieved	
	n) risk analysis and a risk management and mitigation strategy to identify and control all risks to the successful implementation of the OMP and/or the timely achievement of the offset completion criteria, including a rating of all initial and post-mitigation residual risks in accordance with an appropriate risk assessment matrix	
	o) evidence of how the management actions and corrective actions take into account relevant approved conservation advice and are consistent with relevant recovery plans and threat abatement plans	
	p) Details of the proposed mechanism to legally secure the proposed offset area(s), such that legal security remains in force over the offset area(s) for at least 20 years to provide enduring protection for the offset area(s) against development that is incompatible with conservation.	
	Supporting evidence must be included in the OMP to justify how the proposed management action(s) are additional to the existing requirements (e.g. weed and pest management requirements) of the landholder in managing their land as required by the Offsets Policy. The OMP must also include scientific evidence (e.g. published research, pilot studies, previously successful projects/programs, etc.) to demonstrate how successful proposed measures will be to create, revegetate, regenerate and/or improve habitat (e.g.	

Ref.	Guideline requirements	Where this is addressed in the EIS
	tree planting, nest boxes, artificial hollows, etc.) in the proposed offset area(s) for each relevant listed threatened species and ecological community.	
8.3	Other Endorsed Offset Frameworks: If efforts to obtain an offset site within the ACT have not been successful, options for offsets within NSW may be considered, including the use of an endorsed offset framework such as the NSW Biodiversity Offset Scheme (BOS). If an endorsed offset framework is proposed to be used, the report detailing the outcomes (including the credit report) must be discussed in the EIS. The report must be included as an appendix to the EIS.	A multijurisdictional approach for the establishment of offset site(s) would be proposed (Technical Report 2 – Biodiversity Appendix E (Environmental offset strategy), Section 5), however until it is confirmed which species will require offsets in NSW a report detailing the outcomes of this approach cannot be prepared.
Risk assessment		
9	The EIS must describe the likelihood and consequence of any potential risks that may arise if the environmental objectives for proposed action were not met (e.g. the effectiveness of proposed mitigation measures/offsets, or the ability of the proponent to implement these measures). In taking account of the likelihood and consequence of each risk, the acceptability of each risk should also be considered and discussed, along with any proposed mitigation measures. The risk assessment must be included as an appendix to the EIS.	Appendix J (Environmental risk assessment) Chapter 21 (Environmental management and mitigation measures)
Other approvals and conditions		
10	The EIS must include information on any other requirements for approval or conditions that apply, or that the proponent reasonably believes are likely to apply, to the proposed action. This must include: a) details of any NCA planning scheme, or plan or policy under any local or Australian Government planning system that deals with the proposed action, including: i. what environmental assessment of the proposed action has been, or is being, carried out under the scheme, plan or policy ii. how the scheme provides (if at all) for the prevention, minimisation and management of any impacts on relevant protected matters iii. details of the existing Development Control Plans (DCP), including the desired planning outcomes. b) details on any intended DCP amendment process and its indicative timeframe. c) a description of any approval that has been obtained from any Commonwealth or Territory	Chapter 8 (Legislation and policy) Section 8.2.2 and 8.2.3

Ref.	Guideline requirements	Where this is addressed in the EIS
	agency or authority (other than an approval under the EPBC Act), including any conditions that are relevant to protected matters. d) a statement identifying any additional approval(s) that are required, including but not limited to a Works Approval from the NCA and Parliamentary Approval. e) a description of the monitoring, enforcement and review procedures that apply, or are proposed to apply, to the proposed action.	
Consultation		
11	The EIS must include details of any consultation about the proposed action, including: a) any consultation that has already taken place	Chapter 4 (Stakeholder and community consultation) Appendix H (Consultation) Section 1.6
	b) proposed consultation about relevant impacts of the proposed action	Appendix H (Consultation) Section 4
	c) any documented response to, or result of, the consultation	Appendix H (Consultation) Section 5.2.3
	d) identification of affected parties, including a statement mentioning any communities that may be affected and describing their views.	Appendix H (Consultation) Section 5
11.1	First Nations Engagement: The EIS must describe engagement that has been undertaken to date, and a process for ongoing consultation with First Nations peoples and communities throughout the duration of the proposed action. This must include, but not be limited to: a) an engagement plan for ongoing consultation during the construction and operational stages of the proposed action, and how this will be conducted in a culturally appropriate way	Chapter 4 (Stakeholder and community consultation) Section 4.4.6 Appendix H (Consultation) Section 7.2 Technical Report 3 – Heritage Appendix E (Cultural Heritage Assessment; Sections 5.4 and 6.1)
	b) information demonstrating that Traditional Owners have been consulted on the requirements in these EIS Guidelines.	Technical Report 3 – Heritage Appendix E (Cultural Heritage Assessment; Sections 1.4.4 and 2.3.1)
	c) the names of the Traditional Owners, First Nations stakeholders, and/or representative bodies	Technical Report 3 – Heritage Appendix E (Cultural Heritage Assessment; Sections 1.4.4 and 2.3.1)
	d) identification of existing or potential Native Title rights and interests, including any areas and objects that are of particular significance to Indigenous peoples and communities, with the potential to be impacted by the proposed action and the potential need to avoid, mitigate, and manage those impacts	Technical Report 3 – Heritage Appendix E (Cultural Heritage Assessment; Section 1.5.3)

Ref.	Guideline requirements	Where this is addressed in the EIS
	e) a discussion demonstrating how feedback from Traditional Owners and First Nations stakeholders has been incorporated into project planning and design, construction, and operation	Chapter 4 (Stakeholder and community consultation) Section 4.4.6 Technical Report 3 – Heritage Appendix E (Cultural Heritage Assessment; Section 5.4) Appendix I (Public Domain Master Plan) Section 3.3
	f) details on the reasons why feedback from Traditional Owners and First Nations stakeholders has not been incorporated (if required)	Not applicable as feedback has been considered and incorporated.
	g) information from the RAO confirming consultation is proposed or ongoing and will result in a designing with country framework that will inform future stages of the proposed action and bring an inclusive cultural value to the proposed action. The proponent must undertake First Nations consultation in accordance with the department's Interim Engaging with First Nations People and Communities on Assessments and Approvals under the Environment Protection and Biodiversity Conservation Act 1999 (interim guidance) (2023). In addition, the proponent should consider contacting the department for recommendations and guidance on effective engagement with First Nations peoples and communities, with respect to assessment under the EPBC Act.	Chapter 4 (Stakeholder and community consultation) Section 4.4.6 Technical Report 3 – Heritage Appendix E (Cultural Heritage Assessment; Section 2.3.1)
Environmental record of person(s) proposing to take the action		
12	The EIS must include 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: a) the person proposing to take the action b) for an action for which a person has applied for a permit, the person making the application. The EIS must include details of any environmental policy and/or heritage strategy relevant to the person proposing to take the action.	Appendix E (Proponent's environmental history)

Ref.	Guideline requirements	Where this is addressed in the EIS
Economic and social matters		
13	The economic and social impacts of the proposed action, both positive and negative, must be assessed in the EIS. Matters of interest may include, but are not limited to: a) details of any public consultation activities undertaken and their outcomes, including with First Nations peoples and communities b) projected economic costs and benefits of the proposed action, including the basis for their estimation through a cost/benefit analysis or similar study c) employment opportunities expected to be generated by the proposed action, including during the pre-construction, construction, and operational stages. Economic and social impacts must be considered at the local, regional, and national levels.	Socioeconomic assessment sections in Part B (Environmental impact assessment) Technical Report 6 – Socioeconomic Section 8 Appendix H (Consultation)
Principles of ecologically sustainable development		
14	The EIS must provide information about how the proposed action is consistent with the principles of ecologically sustainable development (ESD). The principles of ESD are outlined in section 3A of the EPBC Act and specified below: a) decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations b) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation c) the principle of inter-generational equity – that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations d) the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making e) improved valuation, pricing and incentive mechanisms should be promoted.	Chapter 7 (Sustainability) Section 7.5
Information sources provided in the EIS		
15	For information given in the EIS, the EIS must state: a) the source of the information b) how recent the information is c) how the reliability of the information was tested d) what uncertainties (if any) are in the information.	Chapter 10 (Assessment methodologies) Appendix F (Information sources and references)

Ref.	Guideline requirements	Where this is addressed in the EIS
Conclusion		
16	An overall conclusion as to the environmental acceptability of the proposed action should be provided, including discussion on compliance with principles of ESD, and the objects and requirements of the EPBC Act. Reasons justifying undertaking the proposed action in the manner proposed should also be outlined. Measures proposed or required by way of offset for any unavoidable impacts on controlling provisions, and the relative degree of compensation, should be restated here.	Chapter 23 (Justification and conclusion)

APPENDIX E – PROPONENT'S ENVIRONMENTAL HISTORY

Appendix E – Proponent's environmental history

1.0 Infrastructure Canberra

Following the success of Light Rail Stage 1 (LRS1), the ACT Government is continuing to meet Canberra's need for accessible, high-capacity, and high-quality transport by expanding the Light Rail network with the Project. In the Parliamentary Agreement for the 10th Legislative Assembly for the Australian Capital Territory (the Parliamentary Agreement), effective from November 2020, the ACT Government committed to delivering the Project, extending the Light Rail network from Civic to Woden.

To advance the expansion of the Light Rail network with the Project, Infrastructure Canberra (iCBR; formerly Major Projects Canberra), a division within the ACT Government, is overseeing the Project. iCBR was created to oversee the planning and delivery of infrastructure projects across the ACT. In November 2024, Major Projects Canberra was renamed to iCBR.

iCBR has an excellent environmental record. It applies very high environmental standards to its projects, including all light rail projects. It has developed constructive relationships with Commonwealth and ACT environmental regulatory agencies and the local communities in which it operates. iCBR has not had any legal proceedings under a Commonwealth or Territory law for the protection of the environment, or the conservation and sustainable use of natural resources. In addition, iCBR has not received any fines, penalty notice or other enforcement action under a Commonwealth or Territory law relating to environmental matters.

The Project would be undertaken in accordance with relevant ACT Government policies and guidelines, including:

- The Major Projects Canberra Sustainability Policy - The sustainability policy details iCBR's vision to deliver the inherent sustainability benefits of light rail
- ACT Planning Strategy 2018 - The ACT Planning Strategy 2018 is the key strategic document for managing growth and change in the ACT
- The ACT Climate Change Strategy 2019-25 - This strategy outlines the next stage of the ACT Government's climate change response and identifies actions to meet targets and prepare for climate change.

The Project would be delivered in line with the Major Projects Canberra Strategic Plan: 2020-25, which is the key strategic document for implementing projects. Each of the strategies/policies detail the aims to improve the intermodal transport system within the ACT whilst targeting net zero emissions.

APPENDIX F – INFORMATION SOURCES AND REFERENCES

Appendix F – Information sources

No additional information sources, other than those shown in the Project reference list have been identified. Each of the references listed in the Project reference list are considered to be reliable, publicly available information sources.

1.1 References

Australian Broadcasting Corporation (ABC) News. (2017). *Canberra weather: Emergency services to work throughout the night in response to heavy rain.* Retrieved 2024, from https://www.abc.net.au/news/2017-12-02/canberra-to-prepare-for-months-worth-of-rain/9219396

ABC News. (2022). *ACT records its wettest October since 1934, with three times the average monthly rainfall*. Retrieved 2024, from https://www.abc.net.au/news/2022-11-08/act-breaks-record-wettest-october-in-living-memory/101626692

ABC News. (2022). *Hail and strong winds damage cars and homes in Canberra as thousands lose power.* Retrieved 2024, from https://www.abc.net.au/news/2022-01-03/act-storm-fells-trees-and-cuts-power-thousands-canberra/100736752

ABC News. (2023). *Heavy rainfall causes flash flooding on Canberra's roads, damages homes and businesses.* Retrieved 2024, from https://www.abc.net.au/news/2023-01-04/heavy-rain-causes-flooding-evacuations-canberra/101827870

Australian Capital Territory (ACT) Bureau of Sport and Recreation. (2000a). *Inner Canberra's urban parks and sportsgrounds : plan of management*. [Canberra] : Canberra Urban Parks and Places and Bureau of Sport and Recreation

Australian Capital Territory (ACT) Bureau of Sport and Recreation. (2000). *Tuggeranong's urban parks and sportsgrounds : plan of management*. [Canberra] : Canberra Urban Parks and Places and Bureau of Sport and Recreation

Australian Capital Territory (ACT) Emergency Services Agency. (2022). *Update on Heavy Rainfall Response*. Retrieved 2024, from https://esa.act.gov.au/update-heavy-rainfall-response

Australian Capital Territory Environment Protection Authority (ACT EPA). (2008). *Water Quality Environment Protection Policy*.

Australian Capital Territory Environment Protection Authority (ACT EPA). (2009). *Noise Measurement Manual.*

Australian Capital Territory Environment Protection Authority (ACT EPA). (2017). *Contaminated Sites Environment Protection Policy*.

Australian Capital Territory Environment Protection Authority (ACT EPA). (2022a). *'Information sheet 7 – Guidance for undertaking preliminary contamination investigations in the ACT*.

Australian Capital Territory Environment Protection Authority (ACT EPA). (2022b). *'Information sheet 11 – EPA Report Submission Requirements*.

Australian Capital Territory Environment Protection Authority (ACT EPA). (2022c). *Environment Protection Guidelines for Construction and Land Development in the ACT.*

Australian Capital Territory Environment Protection Authority (ACT EPA). (2022d). *Hazardous Materials Environment Protection Policy*.

ACT Government. (2012). *ACT Pest Animal Strategy 2012-2022*.

ACT Government. (2014a). *City Plan - Final Report.*

ACT Government. (2014b). *Australian Capital Territory Climate Change snapshot*.

ACT Government. (2015). *ACT Environmental Offsets Calculator Assessment Methodology*.

ACT Government (2017a) *Past and Projected future components of electricity supply to the ACT, and resultant emissions intensity.* Australian Capital Territory Government, Environment and Planning Directorate, Climate Change.

ACT Government. (2017b). *ACT Native Grassland Conservation Strategy and Action Plans*. Retrieved July 16, 2024.

ACT Government (2018). *Flood Information for Molonglo River*.

ACT Government. (2019a). *Infrastructure Plan*.

ACT Government. (2019b) *Superb Parrot Preferred Plants List*. ACT Superb Parrot Monitoring and Research Program. Environment, Planning and Sustainable Development Directorate, ACT Government.

ACT Government. (2021). *Urban Forest Strategy 2021-2045*.

ACT Government. (2022). *ACT Government Population Projections 2022-2060.* Chief Minister, Treasury and Economic Development Directorate, ACT Government.

ACT Government. (2023a). *Territory Plan.*

ACT Government. (2023b). *ACTmapi*. Bushfire Map. https://www.actmapi.act.gov.au/

ACT Government. (2023c). *Urban Tree Canopy Coverage Report.*

ACT Government. (2023d). *ACT Tree Register: Provisional Tree Registration RT1116 Group*. Retrieved July 15, 2024.

ACT Government. (2023e). *ACT Urban Design Guide.*

ACT Government. (2023f). *Australian Capital Territory Air Quality Report 2022.*

ACT Government. (2024a). *ACT Infrastructure Plan update – Transport.*

ACT Government. (2024b). *Light Rail Stage 2B Environmental Impact Statement Engagement: What We Heard Report.*

ACT Government. (2024). *ACTmapi.* https://app2.actmapi.act.gov.au/actmapi/index.html?viewer=flood

ACT Government. (2024). *ACTmapi*. Significant Species, Vegetation Communities and Registered Trees. Retrieved July 16, 2024, from https://app2.actmapi.act.gov.au/actmapi/index.html?viewer=ssvcrt

ACT Scientific Committee. (2020). *Nature Conservation (Perunga Grasshopper) Conservation Advice 2020*.

ACT Scientific Committee. (2020). *The Nature Conservation (Natural Temperate Grassland) Conservation Advice 2020*.

AECOM. (2021). *Raising London Circuit Air Quality Assessment*. Major Projects Canberra, ACT Government.

AECOM. (2022a). *Light Rail Commonwealth Avenue Masterplan (LRCAM).* Major Projects Canberra, ACT Government.

AECOM. (2022b). *Climate Change Risk Assessment for the ACT Summary*. ACT Government.

AECOM. (2022c). *Climate and Natural Hazards Assessment Technical Report - Light Rail City to Commonwealth Park*. Major Projects Canberra, ACT Government.

AECOM. (2023). *Light Rail Stage 2A City to Commonwealth Park Environmental Assessment.* Major Projects Canberra, ACT Government.

ALCUS. (2023). *AusLCI Carbon Emission Factors*, Version 1.42, ALCUS Australian Life Cycle Assessment Society.

Australian and New Zealand Environment and Conservation Council (ANZECC). (2000). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*.

Australian and New Zealand Environment and Conservation Council (ANZECC). (2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*.

Australian Radiation Protection and Nuclear Safety Agency. (n.d.). *Occupational exposure: Workers exposed to extremely low frequency electric and magnetic fields*. https://www.arpansa.gov.au/understanding-radiation/sources-radiation/occupational-exposure/occupational-exposure-workers-exposed-extremely-low-frequency#what-are-the-possible-health-effects

Arup. (2018). *Canberra Light Rail Stage 2, Geotechnical Investigation Specification*, 09 February 2018.

Arup. (2018). *Canberra Light Rail Stage 2, Geotechnical Factual Report*, 09 February 2018.

Arup. (2018). *Canberra Light Rail Stage 2, Geotechnical Interpretive Report*, 09 February 2018.

Arup. (2021a). *Canberra Light Rail Stage 2B Golden Sun Moth Surveys*. Prepared for Major Projects Canberra, Canberra.

Arup. (2021b). *Major Projects Canberra, Canberra Light Rail Stage 2, Traction Power Model*, Revision A, August 2021.

Arup Hassell RPS. (n.d.). *Canberra Light Rail Stage 2,* Geotechnical Desktop Study, 9 February 2018.

AS/NZS ISO 31000:2018 Risk Management – Guidelines.

Atlas of Living Australia (AoLA). (2024). *Atlas of Living Australia Spatial Portal*. Retrieved July 16, 2024, from http://www.spatial.ala.org.au.

Australian Government Bureau of Meteorology. (n.d.). *Previous droughts*. http://www.bom.gov.au/climate/drought/knowledge-centre/previous-droughts.shtml

Australian Government Bureau of Meteorology. (2024a). *Monthly Climate Statistics, All years of record for Canberra Airport*. http://www.bom.gov.au/climate/averages/tables/cw_070351_All.shtml

Australian Government Bureau of Meteorology. (2024b). *Climate Driver Update History*. http://www.bom.gov.au/climate/enso/wrap-up/archive.shtml

Australian Government Bureau of Meteorology. (2024). *Australian Capital Territory in 2023*. http://www.bom.gov.au/climate/current/annual/act/archive/2023.summary.shtml

Australian Government Bureau of Meteorology. (2024). *Climate Classification Maps*. http://www.bom.gov.au/climate/maps/averages/climate-classification/

Australian Government Bureau of Meteorology. (2024). *Water Data Online*. http://www.bom.gov.au/waterdata/

Australian Government Bureau of Statistics (ABS). (2021). *Population: Census*. https://www.abs.gov.au/statistics/people/population/population-census/latest-release

Australian Institute of Disaster Resilience. (2017). *Australian Disaster Resilience Guideline 7-3 Flood hazard.*

Australian Institute for Disaster Resilience. (2018). *Australian Capital Territory flash flooding, 2018*.

Australian Institute for Disaster Resilience. (2019). *Australian Disaster Resilience Glossary*.

Baines, G., Webster, M., Cook, E., Johnston L., & Seddon, J. (2013). *The Vegetation of the Kowen, Majura and Jerrabomberra Districts of the Australian Capital Territory.*

Baker-Gabb, D. (2011). *National Recovery Plan for the Superb Parrot* Polytelis swainsonii*.* Department of Sustainability and Environment, Melbourne.

Ball J, B. M. (2019). *Australian Rainfall and Runoff*. Geoscience Australia.

Barret and Love. (2012). *Fine Scale Modelling Of Fauna Habitat And Connectivity Values In The Act Region.* Conservation Planning and Research, Environment and Sustainable Development Directorate, ACT Government.

Beitzel, M., Evans, L., & Jekabsons, M. (2018). *Lake Burley Griffin Fisheries Survey 2017.* National Capital Authority, Australian Government.

Bell, A. (2017, September 25). *How many embassies are there in Canberra and are there rules about how they're designed?* ABC News. https://www.abc.net.au/news/specials/curious-canberra/2017-09-25/how-many-embassies-are-there-in-canberra-and-are-there-rules/8967562

Biosis. (2019). *Commonwealth Park to Woden Preliminary Environmental Assessment: Biodiversity.*

Brundtland Commission. (1987). *Our Common Future.* Oxford: Oxford University Press.

Canberra Daily. (2022). *Parts of Canberra smashed by large hailstones*. https://canberraweekly.com.au/parts-of-canberra-smashed-by-large-hailstones/

Capital Ecology. (2018). *2017 Grassland Quality and Extent Mapping– ACT Government*. Environmental Offsets, ACT Parks, and Conservation Service, ACT Government.

Climate Active. (2022). *Climate Active Carbon Neutral Standard for Products and Services.* Australian Government.

Climate Change Authority. (2023). *2023 Annual Progress Report*. Climate Change Authority, Australian Government.

Commonwealth Scientific and Industrial Research Organisation (CSIRO). (2017). *Mapping surface urban heat in Canberra*.

Chief Minister, Treasury and Economic Development Directorate (CMTEDD). (2016). *Canberra: A Statement of Ambition*.

City Renewal Authority. (2021). *ACT Sustainability Strategy.* ACT Government.

City Renewal Authority. (2022). *Strategic Plan 2025: May 2022 Update.* ACT Government.

City Renewal Authority. (2024). *Acton Waterfront Project.* ACT Government. https://www.act.gov.au/cityrenewal/places/acton-waterfront-project

Commonwealth Scientific and Industrial Research Organisation (CSIRO). (2022). *State of the Climate 2022*.

Cook, W., Jenkins, B., Young, M., Murphy, C., Milford, H., & Muller, R. (2016). *Soil Landscapes of the Australian Capital Territory.* NSW Office of Environment and Heritage.

Department of Agriculture, Water and the Environment (DAWE). (2021a). *Guide to providing maps and boundary data for EPBC Act projects.* Australian Government.

Department of Agriculture, Water, and the Environment (DAWE). (2021b). *Conservation Advice for* Synemon plana *(Golden Sun Moth).* Australian Government.

Department of Agriculture, Water, and the Environment (DAWE). (2021c). *National Recovery Plan for the Grey-headed Flying-fox* Pteropus poliocephalus. Australian Government. Retrieved July 22, 2024.

Department of Agriculture, Water and the Environment (DAWE). (2021d). *National Climate Resilience and Adaptation Strategy.* Australian Government.

Department of Agriculture, Water, and the Environment (DAWE). (2022). *Conservation Advice for* Callocephalon fimbriatum *(Gang-gang Cockatoo).* Australian Government.

Department of Climate Change, Energy, Environment and Water (DCCEEW). (2011). *ACT Water Report 2009-2010.* ACT Government.

Department of Climate Change, Energy, Environment and Water (DCCEEW). (2023). *Conservation Advice for* Stagonopleura guttata *(Diamond firetail).* Australian Government. Retrieved July 16, 2024.

Department of Climate Change, Energy, Environment and Water (DCCEEW). (2023). *Conservation Advice for* Aphelocephala leucopsis *(Southern Whiteface).* Australian Government. Retrieved July 16, 2024.

Department of Climate Change, Energy, Environment and Water (DCCEEW). (2023). *Conservation Advice for* Climacteris picumnus victoriae *(Brown Treecreeper (South-Eastern)).* Australian Government. Retrieved July 16, 2024.

Department of Climate Change, Energy, Environment and Water (DCCEEW). (2023). *Australian National Greenhouse Accounts Factors August 2023*. Department of Climate Change, Energy, the Environment and Water, Australian Government.

Department of Climate Change, Energy, Environment and Water (DCCEEW). (2023). *National Light Pollution Guidelines for Wildlife.* Department of Climate Change, Energy, the Environment and Water, Australian Government.

Department of Climate Change, Energy, Environment and Water (DCCEEW). (2024a). *Protected Matters Search Tool.* Retrieved July 16, 2024.

Department of Climate Change, Energy, Environment and Water (DCCEEW). (2024b). *National Recovery Plan for the Swift Parrot* (Lathamus discolor). Australian Government. Retrieved June 20, 2024.

Department of Climate Change, Energy, Environment and Water (DCCEEW). (2024c). *National Flying-fox Monitoring Viewer*. Australian Government. Retrieved July 21, 2024, from https://www.environment.gov.au/webgis-framework/apps/ffc-wide/ffc-wide.jsf

Department of Climate Change, Energy, Environment and Water (DCCEEW). (2024d). eSPADE Spatial Viewer. Australian Government. Retrieved July 21, 2024, from https://www.environment.nsw.gov.au/eSpade2Webapp/#

Department of Climate Change, Energy, Environment and Water (DCCEEW). (2024). *National Climate Risk Assessment First pass assessment report.* Australian Government.

Department of Environment (DoE). (2013a). *Matters of National Environmental Significance, Significant Impact Assessment Guidelines 1.1.* Australian Government.

Department of Environment (DoE). (2013b). *Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies*. Australian Government.

Department of the Environment (DoE). (2015). *Referral Guideline for Management Actions in Grey-Headed and Spectacled Flying-Fox Camps: EPBC Act Policy Statement*. Australian Government.

Department of Environment and Climate Change (DECC). (2009) *Interim Construction Noise Guideline*. NSW Government.

Department of Environment and Conservation (DEC). (2006). *Assessing Vibration: a technical guideline.* NSW Government.

Department of Environment and Energy (DoEE). (2016a). *Conservation Advice for* Lathamus discolor *swift parrot*. Australian Government.

Department of Environment and Energy (DoEE). (2016b). *Threat abatement plan for competition and land degradation by rabbits*. Australian Government.

Department of Environment and Energy (DoEE). (2018). *Threat abatement plan for disease in natural ecosystems caused by* Phytophthora cinnamomi. Australian Government.

Department of Environment, Land, Water and Planning (DELWP). (2017). *Our Wildlife Fact Sheet Common Long-necked Turtle.* Victorian Government. Retrieved July 20, 2024.

Department of Environment, Land, Water and Planning (DELWP). (2018). *Our Wildlife Fact Sheet Platypus.* Victorian Government. Retrieved July 20, 2024.

Department of the Environment, Water, Heritage, and the Arts (DEWHA). (2009) *Significant impact guidelines for the critically Golden Sun Moth* (Synemon plana). Australian Government.

Department of Planning and Environment (DPE). (2021). *Social Impact Assessment Guideline.* NSW Government.

Department of Planning, Industry and Environment (DPIE). (2022). *Cumulative Impact Assessment Guidelines for State Significant Projects.* NSW Government.

Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC). (2011a). *Survey guidelines for Australia's threatened reptiles.* Australian Government.

Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC). (2011b). *Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads.* Australian Government.

Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA). (2024). *Green Vehicle Guide.* Australian Government. Retrieved August 13, 2024, from https://www.greenvehicleguide.gov.au/

Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA). (2024). *Transport and Infrastructure Net Zero Roadmap and Action Plan*. Australian Government. Retrieved March 19, 2024, from https://www.infrastructure.gov.au/infrastructure-transport-vehicles/transport-and-infrastructure-net-zero-roadmap-and-action-plan

Ecosure. (2020). *Commonwealth Park Grey Headed Flying-Fox Camp Management Plan*. National Capital Authority, Australian Government.

ED Corporation. (2024). *Cofferdam Construction Using Dredge Pumps*. https://eddypump.com/education/cofferdam-construction-using-dredge-pumps/.

Encyclopaedia Britannica. (2023). *Cofferdam.* In *Britannica*. https://www.britannica.com/technology/cofferdam

Environment and Planning Directorate (EPD). (2015a). *ACT Environmental Offsets Policy.* ACT Government.

Environment and Planning Directorate (EPD). (2015b). *ACT Environmental Offsets Calculator: Assessment Methodology.* ACT Government.

Environment and Sustainable Development Directorate (ESDD). (2011). *ACT Waste Management Strategy 2011–2025.* ACT Government.

Environment and Sustainable Development Directorate (ESDD). (2012). *Transport for Canberra Policy.* ACT Government.

Environment, Planning, and Sustainable Development Directorate (EPSDD). (2016). *Soil Landscapes of the Australian Capital Territory*. ACT Government.

Environment, Planning, and Sustainable Development Directorate (EPSDD). (2017). *ACT Practice Guidelines for Water Sensitive Urban Design*. ACT Government.

Environment, Planning and Sustainable Development Directorate (EPSDD). (2018). *ACT Planning Strategy*. ACT Government.

Environment, Planning and Sustainable Development Directorate (EPSDD). (2019a). *ACT Wellbeing Framework.* ACT Government.

Environment, Planning, and Sustainable Development Directorate (EPSDD). (2019b). *ACT Climate Change Strategy 2019-25*. ACT Government.

Environment, Planning and Sustainable Development Directorate (EPSDD). (2019c). *Canberra's Living Infrastructure Plan.* ACT Government.

Environment, Planning, and Sustainable Development Directorate (EPSDD). (2019d). *ACT Native Woodland Conservation Strategy and Action Plans*. ACT Government. Retrieved May 15, 2024.

Environment Planning and Sustainable Development (EPSDD). (2020). *Waterways: Water Sensitive Urban Design Code.* ACT Government.

Environment, Planning and Sustainable Development Directorate (EPSDD). (2021). *Environmental Standards: Assessment and Classification of Liquid and Non-Liquid Wastes.* ACT Government.

Environment, Planning and Sustainable Development Directorate (EPSDD). (2023a). *Part Four Inner North and City District Strategy*. ACT Government.

Environment, Planning and Sustainable Development Directorate (EPSDD). (2023b). *Part Five Inner South District Strategy*. ACT Government.

Environment, Planning and Sustainable Development Directorate (EPSDD). (2023c). *Part Nine Woden District Strategy*. ACT Government.

Environment, Planning and Sustainable Development Directorate (EPSDD). (2023d). *District Strategies 2023 - Volume One - Metropolitan context and big drivers*. ACT Government.

Environment, Planning, and Sustainable Development Directorate (EPSDD). (2023e). *ACT Greenhouse Gas Inventory for 2022-23*, Prepared by Point Advisory for the Environment, Planning and Sustainable Development Directorate, ACT Government.

Environment, Planning and Sustainable Development Directorate (EPSDD). (2023f). *ACT Biodiversity Sensitive Urban Design Guide.* ACT Government.

Environment, Planning and Sustainable Development Directorate (EPSDD). (2023g). *Loss of Mature Native Trees Key Threatening Process Action Plan 2023.* ACT Government. Retrieved July 16, 2024.

Environment, Planning and Sustainable Development Directorate (EPSDD). (2023h). *Making an EIS Scoping Document and ESO Application.* ACT Government.

Environment, Planning, and Sustainable Development Directorate (EPSDD). (2023i). *ACT Territory Plan*. ACT Government.

Environment, Planning, and Sustainable Development Directorate (EPSDD). (2024a). *Sullivans Creek and Inner North Reticulation Network*. ACT Government. https://www.environment.act.gov.au/water/water-strategies-and-plans/water_sensitive_urban_design/sullivans-creek-and-inner-north-reticulation-network

Evoenergy. (2023). *Storm response update - Saturday evening status.* https://www.evoenergy.com.au/about-us/media-centre/2023-12-09-9pm-update

Geoscience Australia. (2019). *Australian Rainfall and Runoff*. Australian Government.

Han Hao et al. (2017). *GHG Emissions from the Production of Lithium-Ion Batteries for Electric Vehicles in China.* Sustainability 2017 9(4) 504

Heads of Environment Protection Authorities. (2020). *PFAS National Environmental Management Plan.* Australian Government.

Health Protection Service. (2010). *ACT Guidelines for Recreational Water Quality*. ACT Government.

Institute of Air Quality Management (IAQM). (2024). *Guidance on the assessment of dust from demolition and construction.* Version 2.2 Issued April 2024. Institute of Air Quality management, United Kingdom, London.

Institute of Electrical and Electronics Engineers. (2002). IEEE Standard for Safety Levels With Respect to Human Exposure to Electromagnetic Fields, 0-3 kHz*. IEEE Std C95.6-2002*. International Committee on Electromagnetic Safety. doi:10.1109/IEEESTD.2002.94143

Infrastructure Australia. (2021). *2021 Australian Infrastructure Plan.* Australian Government.

Infrastructure Australia. (2024). *Guide to assessing greenhouse gas emissions, information requirements for submissions to Infrastructure Australia*. Australian Government.

Intergovernmental Panel on Climate Change. (2023). *AR6 Synthesis Report: Climate Change 2023*.

International Association for Impact Assessment (IAIA). (2015). *Social Impact Assessment Guidance Document.*

International Commission on Non-Ionizing Radiation Protection. (2010). *International Commission on Non-Ionizing Radiation Protection Guidelines*.

Jenkins A.R., Smallie, J.J. and Diamond, M. (2010). *Avian collisions with power lines: a global review of causes and mitigation with a South African perspective*. Bird Conservation International 20, 263–278, doi:10.1017/S0959270910000122.

Jenkins B.R. (2000). *Soil Landscapes of the Canberra 1:100,000 Sheetmap and report*, Department of Land and Water Conservation, NSW Government.

Justice and Community Safety Directorate (JCSD). (2017). *Territory-Wide Risk Assessment 2017.* ACT Government.

Landcom. (2004, March). *Soils and Construction*, Volume 1, 4th Edition. NSW: New South Wales Government.

Landscape Institute & Institute of Environmental Management and Assessment. (2013). *Guidelines for Landscape and Visual Impact Assessment* (3rd ed.). Routledge.

Major Projects Canberra (MPC). (2021). *Light Rail Sustainability Policy.* ACT Government.

Murray-Darling Basin Authority. (2024). *Murrumbidgee catchment*. https://www.mdba.gov.au/basin/catchments/southern-basin-catchments/murrumbidgee-catchment

National Capital Authority (NCA). (1990). *The National Capital Plan.* Australian Government.

National Capital Authority (NCA). (2007). *Griffin Legacy Snapshot.* Australian Government.

National Capital Authority (NCA). (2011). *Lake Burley Griffin Water Quality Management Plan*. Australian Government.

National Capital Authority (NCA). (2012). *Outdoor Lighting Policy.* Australian Government.

National Capital Authority (NCA). (2017). *Kings and Commonwealth Avenues Design Strategy.* Australian Government.

National Capital Authority (NCA). (2021). *National Capital Plan (revised April 2021)*. Australian Government.

National Capital Authority (NCA). (2022). *Tree Management Policy.* Australian Government.

National Capital Authority (NCA). (2023). *Public Notification: Federation Fountains – Call for Design Concepts.* Australian Government. https://www.nca.gov.au/media-centre/public-notification-federation-centenary-fountains-call-design-concepts

National Capital Authority (NCA). (2025). *Lake Burley Griffin to welcome new fish friends.* Retrieved February 21, 2025, from https://www.nca.gov.au/media-centre/lake-burley-griffin-welcome-new-fish-friends#

National Environment Protection Council. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999*. (ASC NEPM 2013). Australian Government.

National Murray Cod Recovery Team. (2010). *National Recovery Plan for the Murray Cod* Maccullochella peelii peelii. Department of Sustainability and Environment, Victorian Government.

NatureMapr. (2024). *NatureMapr.* Retrieved July 16, 2024, from https://naturemapr.org/

NatureMapr. (2024). Cooraboorama canberrae *(Canberra Raspy Cricket).* Retrieved July 21, 2024, from https://canberra.naturemapr.org/species/3341#:~:text=The%20scientific%20name%20for%20the,to%20keep%20the%20walls%20stable

NatureMapr. (2024). *Map Search* Vombatus ursinus. Retrieved July 19, 2024, from https://canberra.naturemapr.org/sightings/map?speciesId=13862

NatureMapr. (2024). *Map Search* Hydromys chrysogaster. Retrieved July 19, 2024, from https://canberra.naturemapr.org/sightings/map?speciesId=6667

NatureMapr. (2024). *Map Search* Tachyglossus aculeatus. Retrieved July 19, 2024, from https://canberra.naturemapr.org/sightings/map?speciesId=12859

NatureMapr. (2024). *Map Search* Ornithorhynchus anatinus. Retrieved July 19, 2024, from https://naturemapr.org/sightings/map?speciesId=9459

NatureMapr. (2024). *Map Search* Pteropus poliocephalus. Retrieved July 22, 2024, from https://canberra.naturemapr.org/sightings/map?speciesId=11261

NatureMapr. (2024). *Map Search* Tachyglossus aculeatus. Retrieved July 19, 2024, from https://canberra.naturemapr.org/sightings/map?speciesId=12859

Nelson, P. (1987). *Transportation Noise Reference Book*. First edition. Butterworth-Heinemann Ltd. Missouri, United States of America.

NSW Environment Protection Authority (NSW EPA). (2013). *Rail Infrastructure Noise Guideline.*

NSW Environment Protection Authority (NSW EPA). (2017). *Noise Policy for Industry.*

NHMRC. (2008). *Guidelines for Managing Risks in Recreational Water*. National Health and Medical Research Council.

NSW Department of Climate Change, Energy, the Environment and Water. (2017). *South Canberra Hydrogeological Landscape* (HGL 22).

NSW Department of Climate Change, Energy, the Environment and Water. (2017). *Sullivans Creek Hydrogeological Landscape* (HGL 23).

NSW Department of Environment and Climate Change. (2008). *Managing Urban Stormwater: Soils and Construction,* Volume 2D, Main road construction. NSW, Australia: Department of Environment and Climate Change.

NSW Government. (2020). *Surveying Threatened Plants and their Habitats NSW Survey Guide for the Biodiversity Assessment Method*. Department of Planning, Industry, and the Environment.

NSW Government Department of Planning, Industry and Environment. (2020). *Biodiversity Assessment Method.*

NSW Government Office of Environment and Heritage (NSW OEH). (2022). *Rosenberg's Goanna - profile*. Retrieved July 20, 2022, from https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10826

NSW Government. (2020). *Release notes*. Retrieved May 28, 2024, from https://climatedata-beta.environment.nsw.gov.au/reports/documentation#doc-terms

Office of the Commissioner for Sustainability and the Environment. (2023). *State of the Environment Report*. ACT Government.

Powell, A. (2021). *Light Rail: The Future of Smarter Transport Infrastructure.* Infrastructure Magazine.

Program for Climate Model Diagnosis & Intercomparison. (n.d.). *CMIP5 - Coupled Model Intercomparison Project Phase 5 - Overview*. https://pcmdi.llnl.gov/mips/cmip5/

RPS. (2017). *Limited Phase 2 Contaminated Site Assessment Report*, Canberra Light Rail Stage 2, 1st December 2017.

RPS. (2017). *Phase 1 Contaminated Site Assessment Report*, Canberra Light Rail Stage 2, 9th July 2017.

Sift Research. (2023). *ACT & Queanbeyan Household Travel Survey 2022.* Transport Canberra and City Services Directorate and the Queanbeyan-Palerang Regional Council, ACT and NSW.

SMEC and Rowell, A. (2018). *Throsby East Offset GSM monitoring report: Golden Sun Moth habitat mapping 2017*. ACT Government – Environment and Planning. Retrieved July 15, 2024.

Southern ACT Catchment Group. (2023). *ACT Weeds Manual*. Retrieved July 20, 2024.

St Andrews Canberra. (2016). *Spire blue sky.* https://www.standrewscanberra.com/

Sun, W., Thompson, D., Toward, M., Wiseman, M., Ntotsios, E., & Byrne, S. (2020). *The influence of track design on the rolling noise from trams*. Applied Acoustics, 170.

The Canberra Times. (2019). *Hail strikes, trees down in Canberra during stormy start to the weekend.* https://www.canberratimes.com.au/story/5997052/hail-strikes-trees-down-in-canberra-during-stormy-start-to-the-weekend/

The Canberra Times. (2020). *Canberra storm: severe thunderstorm makes its way through the capital.* https://www.canberratimes.com.au/story/7036775/severe-thunderstorm-blows-through-canberra-causes-destruction/

The Canberra Times. (2020). *Icon Water says the Canberra drought is close to the 'worst-case scenario'*. https://www.canberratimes.com.au/story/6586098/canberras-drought-close-to-worst-case-scenario/

The Canberra Times. (2020). *January 2020 one of Canberra's hottest months on record*. https://www.canberratimes.com.au/story/6611507/start-to-2020-brings-a-month-of-weather-chaos/

The Canberra Times. (2023). *Storm clean-up continues as community support hub opens for those still without power*. https://www.canberratimes.com.au/story/8453988/canberra-thunderstorm-clean-up-continues-community-hub-opens-for-those-without-power/

The Guardian. (2020). *Australia fires: massive fire near Canberra airport prompts warning to residents.* https://www.theguardian.com/australia-news/2020/jan/22/nsw-and-victoria-fires-soaring-temperatures-increase-bushfire-danger-once-again

The Guardian. (2020). *Huge hail batters Canberra as severe thunderstorms hit south-eastern Australia.* https://www.theguardian.com/australia-news/2020/jan/20/severe-thunderstorms-and-hail-to-batter-south-eastern-australia

The New Daily. (2021). *Canberra and Queanbeyan residents brace for flooding as dams spill amid heavy rainfall.* https://thenewdaily.com.au/news/2021/03/23/canberrra-queanbeyan-floods/

The Sydney Morning Herald. (2019). *Bushfire burning out of control east of Canberra*. https://www.smh.com.au/national/nsw/bushfire-burning-out-of-control-east-of-canberra-20191129-p53fir.html

Thompson, D. (2009). *Railway Noise and Vibration: Mechanisms, Modelling and Means of Control* (1st ed.). Oxford: Elsevier.

Threatened Species Scientific Committee (TSSC). (2016). *Approved Conservation Advice (including listing advice) for Natural Temperate Grassland of the South Eastern Highlands (EC 152).* Department of the Environment, Australian Government.

Threatened Species Scientific Committee (TSSC). (2016). *Conservation Advice* Polytelis swainsonii *superb parrot*. Department of the Environment, Australian Government.

Thunderstone Aboriginal Cultural & Land Management Services. (2020). *Ngunnawal People.* https://www.thunderstone.net.au/ngunawal-people

Transport Authorities Greenhouse Group (TAGG). (2013). *Greenhouse Gas Assessment Workbook for Road Projects.*

Transport Canberra and City Services Directorate (TCCS). (2015a). *Transport Canberra Light Rail Network.* ACT Government. https://www.transport.act.gov.au/__data/assets/pdf_file/0016/1229011/Transport-Canberra-Light-Rail-Network.pdf

Transport Canberra and City Services Directorate (TCCS). (2015b). *Public Transport Improvement Plan.* ACT Government.

Transport Canberra and City Services Directorate (TCCS). (2018). *Roads ACT Noise Management Guideline.*

Transport Canberra and City Services Directorate (TCCS). (2020a). *ACT Transport Strategy 2020*. ACT Government. https://www.transport.act.gov.au/act-transport-strategy/home

Transport Canberra and City Services Directorate (TCCS). (2020b). *Transport Impact Assessment Guidelines.* ACT Government.

Transport Canberra and City Services Directorate (TCCS). (2021a). *Gender Sensitive Urban Design Implementation Toolkit.* ACT Government.

Transport Canberra and City Services Directorate (TCCS). (2021b). *Municipal Infrastructure Standards (MIS) 08*, Edition 1, Revision 1. ACT Government.

Transport Canberra and City Services Directorate (TCCS). (2021). *Urban Forest Strategy 2021-2045*. ACT Government.

Transport Canberra and City Services Directorate (TCCS). (2022). *Transport Canberra Quarterly Data Report: Issue 14 (Q2-1 October to 31 December 2022)*. ACT Government.

Transport Canberra and City Services Directorate (TCCS). (2023a). *Active Travel Plan 2024-2030.* Canberra: ACT Government.

Transport Canberra and City Services Directorate (TCCS). (2023b). *Gender Sensitive Urban Design Framework.* Canberra: ACT Government.

Transport Canberra and City Services Directorate (TCCS). (2023c). *ACT Circular Economy Strategy.* ACT Government.

Transport Canberra and City Services Directorate (TCCS). (2024a). *Light Rail Five Years On: Benefits Realisation of Light Rail Stage 1 Report.* Transport Canberra and City Services Directorate.

Transport Canberra and City Services Directorate (TCCS). (2024b). *Express Light Rail Services to Woden.* ACT Government.

Transport for NSW. (2011). *NSW Road Noise Policy.* NSW Government.

Transport for NSW (2017). *Carbon Estimate and Reporting Tool Manual.* NSW Government.

Transport for NSW (2017) *Civil Infrastructure Design Standards*, Version 1.0, 25 May 2017, T LR CI 12500 ST. NSW Government.

Transport for NSW (2017) *Durability Requirements for Civil Infrastructure*, Version 1.0, 5 October 2017, T HR CI 12002 ST. NSW Government.

Transport for NSW. (2023a). *Environmental Impact Assessment Practice Note – Guideline for Landscape Character and Visual Impact Assessment EIA-N04.* NSW Government.

Transport for NSW. (2023b). *Landscape Design Guideline.* NSW Government.

Transport for NSW. (2023c). *Construction Noise and Vibration Guideline for Public Transport Infrastructure.* NSW Government.

Transport for NSW. (2024). *Embodied Carbon measurement for Infrastructure*, Technical Guidance, April 2024, NSW Government.

Twyford, L. (2022). *Power back on for all Canberra households after Sunday evening hailstorm*. Riotact. https://the-riotact.com/power-back-on-for-all-canberra-households-after-sunday-evening-hailstorm/617876.

Umwelt. (2013). *Gungahlin Strategic Assessment Biodiversity Plan*. Retrieved July 19, 2024.

Umwelt. (2022a). *North Curtin Horse Paddock Ecological Assessment Report*.

Umwelt. (2022b). *Canberra Light Rail Stage 2B Ecological Assessment Report*.

Umwelt. (2023). *Canberra Light Rail Stage 2B, Preliminary Ecological Assessment – Commonwealth Park to Woden*.

Upper Murrumbidgee Waterwatch. (2023). *Catchment Health Indicator Program: Report Card 2023*.

Victorian Government Department of Environment, Land, Water and Planning (DELWP). (2017). *Our Wildlife Fact Sheet Short-beaked Echidna*. Retrieved July 20, 2024.

WillyWeather. (2021). *Canberra hit by heavy rain, flash flooding inundates homes*. https://www.willyweather.com.au/news/7472/canberra+hit+by+heavy+rain,+flash+flooding+inundates+homes.html

Woodcraft Guild. (2001). *Canberra Street Tree Index*. Retrieved July 23, 2024.

WorkSafe ACT. (n.d.). *Hazardous substances*. https://www.worksafe.act.gov.au/health-and-safety-portal/safety-topics/dangerous-goods-and-hazardous-substances/hazardous-substances

WRI and WBCSD (2013) G*reenhouse Gas Protocol: Technical Guidance for Calculating Scope 3 Emissions (Version 1.0)*, World Resources Institute and World Business Council for Sustainable Development.

Yarra Trams (2020) *Standard, Rolling Stock – Tram – Sanding Systems*, Doc No CE-021-ST-0016, Version 2, 21/05/2020. Retrieved March 6, 2024.

APPENDIX G – STUDY TEAM

Appendix G – Study team

AECOM Australia (AECOM) has prepared this Environmental Impact Statement on behalf of Infrastructure Canberra. Several organisations have also prepared specialist studies as part of the environmental assessment process. The study team, specialist sub-consultants, and expert reviewers are outlined in the relevant tables below.

1.0 EIS Project Team

1.1 EIS delivery team

Table 1-1 outlines the key EIS delivery team from AECOM (the Technical Advisor).

Table 1-1 EIS delivery team

Team members	Role	Qualifications and experience
EIS delivery team – AECOM		
Tessa Drayson	EIS Project Manager	Bachelor of Environmental Management (Honours), University of Queensland
Erin Matarazzo	EIS Deputy Project Manager	Bachelor of City Planning (Honours), University of New South Wales
Scott Jeffries	EIS Lead Reviewer	Master of Environmental Law, University of Sydney Bachelor of Chemical Engineering (Honours), University of Sydney Bachelor of Science (Zoology/Animal Biology), University of New England
Andrew Cook	EIS Reviewer	Bachelor of Town and Regional Planning, The University of Melbourne
Oliver Edgson	Technical Specialist Studies Manager	Bachelor of Science (Environmental Science), Macquarie University Master of Sustainable Development, Macquarie University
Chelsea Borys	EIS Author	Bachelor of Environment and Sustainability, The Australian National University Bachelor of International Relations, The Australian National University
Ema Hagihara	EIS Author	Bachelor of Science (Environmental Engineering Systems), The University of Melbourne Master of Engineering (Environmental), The University of Melbourne
Mia Garland	EIS Author	Bachelor of Environment and Sustainability, The Australian National University Bachelor of Design, The Australian National University
Mitchell Gertos	EIS Author	Bachelor of Environmental Engineering (Honours), University of New South Wales
Kate Morrison	EIS Author	Bachelor of Science (Environmental Engineering Systems), The University of Melbourne Bachelor of Science (Ecosystem Science) (Honours), The University of Melbourne

1.2 EIS technical study teams

Table 1-2 outlines the key team members involved in the preparation of each EIS technical specialist study.

Table 1-2 EIS technical study teams

Team members	Qualifications and experience
Traffic and transport technical assessment – AECOM	
Brigette Humphrey-Robinson	Master of Transport, Monash University Bachelor of Engineering (Civil), University of Wollongong
Mack Brinums	Bachelor of Engineering (Civil) (Honours), University of Queensland
Steven Kemp	Bachelor of Science, Civil Engineering (Honours), City University Master of Business Administration, Middlesex Business School Fellow of the Institution of Highways and Transportation (FIHT) Chartered Engineer (Civil Engineering) (UK)
Cameron Ward	Master of Traffic, Monash University Bachelor of Engineering (Civil) (Honours), University of Technology Sydney Diploma in Engineering Practice, University of Technology Sydney
Noise and vibration technical assessment – AECOM	
Tom Roseby	Master of Engineering Science (Mechanical Engineering), University of New South Wales, Master of Design Science (Audio and Acoustics), University of Sydney
Gayle Greer	Doctor of Philosophy ‘Acoustical characteristics of porous road surfacings’ Post Graduate Diploma in Acoustics and Noise Control Bachelor of Science (Honours) Environmental Health
Peter Dimou	Master of Architectural Science (Audio & Acoustics), University of Sydney Bachelor of Science, University of Sydney
Sarah Lu	Bachelor of Engineering (Hons) (Aerospace) / Bachelor of Arts (Chinese and Film Studies), University of New South Wales
Geoff Lucas	Bachelor of Engineering (Mechanical), University of New South Wales, Australia Doctor of Philosophy (Mechanical), University of New South Wales, Australia
Grace Chesworth	Bachelor of Engineering (Mechanical) (Honours), The Australian National University
Biodiversity technical assessment – Umwelt	
Clare Vincent	Bachelor of Environmental Management and Ecology, La Trobe University Graduate Diploma in Environmental Management, Charles Sturt University
Sharae Hurley	Bachelor of Science (Honours), The Australian National University Bachelor of Environmental Science, The University of Melbourne Bachelor of Environment & Society, The Australian National University
Michael Jones	Bachelor of Science (Honours), The Australian National University Bachelor of Environmental Science, The University of Melbourne Bachelor of Environment & Society, The Australian National University
Clare McInnes	Bachelor of Environmental Science, The University of Canberra
Allison Riley	Graduate Certificate (Business), The Queensland University of Technology Bachelor of Science (Honours), Macquarie University Bachelor Applied Science (Natural Resource Management), University of Canberra

Team members	Qualifications and experience
Landscape character and visual impact technical assessment – AECOM	
Gabi Parke	Bachelor Landscape Architecture (Honours), University of New South Wales Bachelor of Science (Environmental Science, Honours), University of Technology Sydney Bachelor of Science (Urban and Environmental Horticulture), University of Technology Sydney
Georgina Nicol	Bachelor of Landscape Architectural Design, RMIT University
Frank Ciancio	Bachelor of Landscape Architecture, University of Canberra
Stephen Callaghan	Graduate Diploma in Landscape Architecture, The Queensland University of Technology Bachelor of Science in Urban Horticulture, The University of Technology Sydney
Hydrology, flooding and water quality technical assessment – AECOM	
Tony Barrett	Bachelor of Science (Hons) Geography, University of Exeter
Tim Wakefield	Bachelor of Engineering (Civil) (Honours), University of Western Sydney Bachelor of Applied Leadership and Critical Thinking, University of Western Sydney
Sam Burrows	Bachelor of Engineering (Civil) (Honours), University of Southampton
Nicky Lee	Bachelor of Science (Physical Geography), University of Auckland Master of Science (Environmental Science), University of Auckland
Lisa Roach	Bachelor of Engineering (Environmental) (Honours), RMIT University
Climate change risk technical assessment – AECOM	
Jesse Sounness	Graduate Diploma Sustainability and Climate Change Policy, Curtin University Bachelor of Environmental Engineering, University of Western Australia
Mitchell Gertos	Bachelor of Environmental Engineering (Honours), University of New South Wales
Annalise Kerr	Bachelor of Environment, Macquarie University, Sydney
Adam Davis	Master of Environmental Management, Macquarie University Graduate Certificate Environmental Engineering and Management, University of Technology Sydney Bachelor of Applied Science (Environmental Health), University of Western Sydney
Greenhouse gas and air quality technical assessments – AECOM	
Kristen Clarke	Master of Environmental Management (Honours) Bachelor of Environmental Science and Management (Physical Systems) Certified Air Quality Professional (CAQP)
Dylan Turnbull	Bachelor of Environmental Science, University of Newcastle Certified Air Quality Professional (CAQP)
David Rollings	Bachelor of Chemical Engineering, University of Newcastle Certified Air Quality Professional (CAQP)

Team members	Qualifications and experience
Contamination technical assessment – ERM	
Ian Batterley	Bachelor Environmental Science, Macquarie University Master of Science (Honours), Macquarie University Cert IV - Project Management Certificate in Research Preparation, Macquarie University
Madushani Bolonghe	Bachelor of Environmental Engineering (Honours), University of Wollongong
Peter Lavelle	Bachelor of Environmental Science, University of Newcastle
Heritage technical assessment – GML Heritage	
Martin Rowney	Bachelor of Arts (Prehistoric and Historical Archaeology), University of Sydney Honours in Prehistoric Archaeology, University of Sydney Bachelor of Visual Arts (Honours) Sculpture, The Australian National University
Dr. Christina Dyson	PhD, Faculty of Architecture, Building and Planning, University of Melbourne Graduate Diploma in Horticulture, University of Melbourne Bachelor of Arts (Honours) in Art History & Theory and English Literature, University of Sydney
Neil Urwin	Bachelor of Agricultural Science, University of Sydney Research Associate in Geobotany, University of Sydney Research Associate in Archaeobotany, University of Glasgow
Anna Leeson	Master of Museum and Heritage Studies, The Australian National University Bachelor of Interior Architecture, University of Canberra
Therese McCarthy	Master of Cultural Heritage, Deakin University Graduate Diploma in Legal Practice, The Australian National University Bachelor of Laws (First Class Honours), University of Adelaide Bachelor of Arts (First Class Honours), University of Adelaide
Rachel Jackson	Master of Heritage Conservation, University of Sydney Bachelor of Design (Interior Design), University of Technology, Sydney
Socioeconomic technical assessment – Social Atlas	
Angela Peace	Bachelor of Communications, University of Newcastle Graduate Certificate – Social Change and Development, University of NSW
Daniel Parker	Bachelor of International Business (Economics), Griffith University
Catherine Russell	Bachelor of Arts (Organisational Communication and Politics), Charles Sturt University Graduate Certificate in Government Administration
Amanda Cant	Bachelor of Commerce (Public Relations), University of Wollongong