

Planning Secretary's Environmental Assessment Requirements

Section 5.16 of the *Environmental Planning and Assessment Act 1979*

Application Number	SSI-10035
Project Name	Parramatta Light Rail Stage 2
Location	Rydalmere to Sydney Olympic Park, traversing through Ermington, Melrose Park and Wentworth Point. Option to connect at Camellia before linking at Rydalmere.
Proponent	Transport for NSW
Date of Issue	24 December 2021
Date of Expiration	24 December 2023

1. General SEARs

Desired Performance Outcome	Requirement	Current Guidelines ¹
<p>1. Environmental Impact Assessment Process</p> <p>The process for assessment of the proposal is transparent, balanced, well focussed and legal.</p>	<ol style="list-style-type: none"> 1. The Environmental Impact Statement must be prepared in accordance with Part 3 of Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2000</i> (the Regulation). 2. The EIS must be prepared having regard to the Department's <i>State Significant Infrastructure Guidelines</i> and other State Significant Technical Guidelines (the Guidelines), as relevant. 3. The proposal will impact matters of national environmental significance (MNES) protected under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) and will be assessed in accordance with the bilateral assessment agreement between the Australian and NSW governments (<i>Amending Agreement No. 1 2020</i>). The Proponent must assess impacts to MNES protected under the EPBC Act. The assessment must be in accordance with the requirements listed in Attachment A. 4. The onus is on the Proponent to ensure legislative requirements relevant to the proposal are met. 	<p><i>State Significant Infrastructure Guidelines</i> (DPIE, 2021)</p> <p><i>Undertaking Engagement Guidelines for State Significant Projects</i> (DPIE, 2021)</p> <p><i>Social Impact Assessment Guideline for State Significant Projects</i> (DPIE, 2021)</p> <p><i>Cumulative Impact Assessment Guidelines for State Significant Projects</i> (DPIE, 2021)</p> <p><i>EPBC Act Environment Assessment Process</i> (SEWPAC, 2010)</p> <p><i>Matters of National Environmental Significance: Significant Impact Guidelines 1.1</i> (DEWHA, 2013)</p>

¹ Guidelines listed are the current list of guidelines that may be applicable to a SSI project. It is the Proponent's responsibility to identify, and justify, which guidelines have been applied to a specific project.

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<p>2. Environmental Impact Statement</p> <p>The proposal is described in sufficient detail to enable clear understanding that the proposal has been developed through an iterative process of impact identification and assessment and proposal refinement to avoid, minimise or offset impacts so that the proposal, on balance, has the least adverse environmental, social and economic impact, including its cumulative impacts.</p>	<p>1. The EIS must include, but not necessarily be limited to, the following:</p> <ul style="list-style-type: none"> (a) a summary of the proposal as a whole that has regards to the economic, environmental and social impacts of the proposal and the principles of ecologically sustainable development; (b) an introduction; (c) the strategic and project context including: <ul style="list-style-type: none"> - relevant Government strategies, policies or plans which provide strategic support for the proposal, - regional and local land use planning context, - key features of the project corridor including land uses, land ownership, important features in the natural and built environment, - an analysis of any feasible alternatives to the proposal and options within the proposal, including: <ul style="list-style-type: none"> o details of the short-listed route and bridge options considered, and the criteria that were considered in the selection of the preferred route and bridge design, o a concise description of different construction methods for high risk activities (such as those which pass through environmentally sensitive areas or are significant constructions) including their environmental benefits, that were analysed and preferred methods; (d) a project description, including but not limited to: <ul style="list-style-type: none"> - project area, - physical layout and design, including an overview of the proposal in a table that captures the main elements of the proposal and all construction and operational mitigation measures, - uses and activities, including a description of any related development or infrastructure that is required for the proposal or may be developed as a result of the proposal, but would be subject to a separate approval process, - timing and sequencing; (e) the statutory context of the proposal; (f) the community and agency engagement undertaken and to be undertaken for the proposal, and how this has been addressed in the design of the proposal or the assessment of the impacts of the proposal; (g) the project justification and evaluation having regard to: <ul style="list-style-type: none"> - the design of the proposal and what action has been taken to avoid or minimise the impacts of the proposal (e.g. objectives of the proposal, alternatives considered, project 	<p><i>State Significant Infrastructure Guidelines</i> (DPIE, 2021): SSI Guidelines – Preparing an Environmental Impact Statement (Appendix B)</p> <p><i>Undertaking Engagement Guidelines for State Significant Projects</i> (DPIE, 2021)</p>

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	<p>area, physical layout and design, uses and activities, timing, proposed mitigation measures),</p> <ul style="list-style-type: none"> - the consistency of the proposal with the strategic context (e.g. supported by Government policy, consistent with regional plans, avoids impacts on key natural and built features with significant conservation value, provides economic benefits to regional community, the corridor is suitable for the proposal), - compliance with any relevant statutory requirements, - community views about the proposal and how they have been addressed in the design of the proposal or the assessment of the impacts of the proposal, - the scale and nature of the economic, social and environmental impacts of the proposal, including any cumulative impacts, and - any key uncertainties associated with the impact assessment and actions proposed to address these. 	
<p>3. Detailed assessment and mitigation of key impacts</p> <p>Key issue impacts are assessed objectively and thoroughly to provide confidence that the proposal will be constructed and operated within acceptable levels of impact or with appropriate offsets.</p> <p>Key impact issues are nominated by the Proponent in the SSI Scoping Report and by the Department in the SEARs. Key issues need to be reviewed throughout the preparation of the EIS to ensure any new key issues that emerge are captured.</p>	<ol style="list-style-type: none"> 1. The level of assessment of likely impacts must be proportionate to the significance of, or degree of impact on, the issue, within the context of the proposal location and the surrounding environment. The level of assessment must be commensurate to the degree of impact and sufficient to ensure that the Department and other government agencies are able to understand and assess impacts. 2. For each key issue, the EIS must include a summary of the results of the assessment of the potential impacts of the proposal undertaken in detailed studies, including: <ol style="list-style-type: none"> (a) a summary of the condition of the existing environment; (b) a summary of the key findings of the detailed technical studies in the appendices of the EIS, using suitable cross-referencing (including hypertext links) to enhance readability and reduce repetition between the two parts of the EIS; (c) description of the scale and nature of the predicted impacts, including any cumulative impacts, and whether these impacts will comply with the relevant statutory requirements, standards or performance measures; (d) demonstrated ability to avoid, mitigate or offset the impacts of the proposal having regards to: <ul style="list-style-type: none"> - mitigation measures incorporated into the design of the proposal (e.g. changes to the project area, project layout and design, key uses and activities carried out on site, timing), - other mitigation measures that will be implemented, and - any negotiated agreements or offsets proposed to address residual impacts of the proposal following mitigation; 	<p><i>State Significant Infrastructure Guidelines</i> (DPIE, 2021)</p> <p><i>Undertaking Engagement Guidelines for State Significant Projects</i> (DPIE, 2021)</p> <p><i>Social Impact Assessment Guideline for State Significant Projects</i> (DPIE, 2021)</p> <p><i>Cumulative Impact Assessment Guidelines for State Significant Projects</i> (DPIE, 2021)</p>

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	<ul style="list-style-type: none"> (e) detailed reasons justifying any predicted exceedances of relevant standards or performance measures; (f) identification of key uncertainties associated with the assessment and what action will be taken to address these uncertainties; and (g) highlight any key linkages between the assessment of different matters or likely cumulative impacts of the proposal. 	
4. Key Appendices	<p>1. The EIS must include the following appendices:</p> <ul style="list-style-type: none"> (a) a SEARs table, identifying the sections and subsections where individual SEARs have been addressed in the EIS and in the specialist assessment reports; (b) a statutory compliance table, identifying where the relevant statutory requirements have been addressed in the EIS; (c) a community engagement table, identifying where the issues raised by the community during engagement have been addressed in the EIS; (d) a table of the proposed mitigation measures for the proposal (excluding any mitigation measures that are built into the physical layout and design of the proposal and captured in the project description); and (e) any supporting information, including any detailed technical reports prepared by specialists. 	<p><i>State Significant Infrastructure Guidelines</i> (DPIE, 2021)</p> <p><i>Undertaking Engagement Guidelines for State Significant Projects</i> (DPIE, 2021)</p> <p><i>Social Impact Assessment Guideline for State Significant Projects</i> (DPIE, 2021)</p> <p><i>Cumulative Impact Assessment Guidelines for State Significant Projects</i> (DPIE, 2021)</p>

2. Key Issue SEARs

Key Issue and Desired Performance Outcomes	Requirement (specific assessment requirements in addition to the general requirements above)	Current Guidelines
<p>1. Transport and Traffic</p> <p>Network connectivity, capacity, safety and efficiency of the transport system for all users in the vicinity of the proposal are managed to minimise impacts.</p> <p>The safety of transport system customers is maintained.</p> <p>Impacts on network capacity and the level of service for active transportation, public and private transport are effectively managed.</p> <p>Works are compatible with existing infrastructure and future transport corridors.</p>	<p>1. Construction transport and traffic (vehicle, pedestrian and cyclists) impacts, including, but not necessarily limited to:</p> <ul style="list-style-type: none"> (a) a considered approach to route identification and scheduling of construction vehicle movements, with particular consideration of traffic impacts and transport movements outside standard construction hours including cumulative impacts; (b) the indicative number, frequency and size of construction related vehicles (passenger, commercial and heavy vehicles, including spoil management movements); (c) construction worker parking; (d) the nature of existing traffic (types and number of movements) on construction access routes (including consideration of peak traffic times, special event periods, pedestrian and cyclists, and parking arrangements); (e) access constraints and impacts on public transport (infrastructure and services), pedestrians and cyclists; (f) the need to close, divert or otherwise reconfigure elements of the road, pedestrian and cycle network associated with construction of the proposal and the duration of these changes; (g) impacts to on-street parking, including to residents and businesses. <p>2. Operational transport impacts, including:</p> <ul style="list-style-type: none"> (a) performance of key interchanges and intersections by undertaking a level of service analysis at key locations; (b) the legibility and useability of the traffic and transport network; (c) wider transport interactions (local and regional roads, walking and cycling, public and freight transport) including during special event periods; 	<p><i>Guide to Traffic Management</i> (Austroads, 2007)– Part 3 Traffic Studies and Analysis</p> <p><i>Guide to Traffic Generating Developments</i> Version 2.2 (RTA, 2002)</p> <p><i>Cycling Aspects of Austroads Guides</i> (Austroads, 2017)</p> <p>NSW Bicycle Guidelines v 1.2 (RTA, 2005)</p> <p><i>Planning Guidelines for Walking and Cycling</i> (DIPNR, 2004)</p> <p><i>NSW Sustainable Design Guidelines</i> Version 4.0 (TfNSW, 2017)</p> <p>IS Rating Scheme (ISC)</p> <p>Movement and Place Framework relevant guidance including Walking Space Guide (TfNSW), and Cycleway Design Toolbox (TfNSW)</p> <p><i>Parramatta Ways Walking Strategy</i> (City of Parramatta, May 2017)</p> <p><i>Parramatta Bike Plan</i> (City of Parramatta, May 2017)</p>

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	<ul style="list-style-type: none"> (d) property and business access and on-street parking; (e) the accessibility of each stop and the general vicinity of walking and cycling catchments; (f) the provision of infrastructure to support accessible paths of travel and interchange; and (g) an explanation of the scope of the modelled area, including justification of the nominated boundaries. 	
<p>2. Design, Place and Movement</p> <p>The proposal is well-designed and enhances the environment where it is located, including improved accessibility and connectivity for communities and public spaces.</p> <p>The proposal helps to support the health and wellbeing of Country by valuing, respecting, and being guided by Aboriginal people.</p> <p>The proposal contributes to greener places through the enhancement and provision of green infrastructure.</p>	<ol style="list-style-type: none"> 1. A design led process that is informed, collaborative and iterative, which: <ul style="list-style-type: none"> (a) utilises good design processes (such as Design Excellence and Design Review); (b) provides connectivity – active and public transport (at and to stops); (c) retains and enhances existing and new views and vistas; (d) is designed with and connected to Country; (e) is designed with integration of cultural heritage, heritage interpretation and public art; (f) utilises design experts and multidisciplinary teams; (g) demonstrates how design integrity will be maintained in subsequent stages of the assessment process; and (h) involves the community, user groups and other stakeholders. 2. Identify place principles that reflect the design objectives in Better Placed, including a focus on: <ul style="list-style-type: none"> (a) fit – contextually, culturally, local and of its place; (b) performance – sustainable, adaptable and durable; (c) community – inclusive, welcoming, connected, accessible and diverse; (d) people – safe, comfortable and liveable and healthy (such as crime prevention through environmental design); (e) working- functional, efficient and fit for purpose; 	<p><i>Better Placed – An integrated design policy for built environment of New South Wales</i> (Government Architect NSW, 2017)</p> <p><i>Designing with Country</i> (Government Architect NSW, 2020)</p> <p><i>Connecting with Country</i> (Government Architect NSW, 2020)</p> <p><i>Aligning Movement and Place – Outline for understanding places in relation to movement infrastructure</i> (Government Architect of NSW, 2019)</p> <p><i>Practitioner's Guide to Movement and Place</i> (NSW Government 2020)</p> <p><i>Healthy Urban Development Checklist</i> (NSW Health, 2009), section 10</p> <p><i>Creating Walkable Neighbourhoods</i> (Active Living NSW, 2018)</p> <p><i>Sydney Green Grid – Spatial Framework and Project Opportunities</i> (Tyrrell Studio and Office of the Government Architect 2017)</p>

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	<p>(f) value – creating and adding value; and (g) look and feel – engaging, inviting and attractive.</p> <p>3. Include and illustrate place designs, outcomes and actions that protect and facilitate improvements to the built environment and place, including in relation to:</p> <p>(a) built form (including key project elements and amenity impacts on the surrounding environment); (b) public space (including public open space, and how that space has been maximised and protected, access to and the quality of the space); (c) residual land (where it is known that this will be returned as public open space and the reallocation of space); (d) stops as places; and (e) views and vistas (including an assessment of visual impact, and visual representations of the proposal from key locations to illustrate the proposal where visual impacts that are deemed greater than medium).</p> <p>This should also address maintenance of infrastructure, place, landscaping and residual land.</p> <p>4. Identify movement (accessibility and connectivity) principles, outcomes and actions that facilitate improvements to movement, including in relation to:</p> <p>(a) how the proposal considers the relationship between movement and place; (b) how the proposal contributes to more walking, cycling and public transport use (along the alignment and to and from stop(s)), including journey time comparisons for public and active transport for general traffic journey time improvements made, and the matters set out in the Healthy Urban Development Checklist TC1 and TC2 (NSW Health, 2009) (pages 76-78);</p>	<p>Greener Places – Establishing an Urban Green Infrastructure Policy for New South Wales (NSW Government, 2020)</p> <p>Movement and Place Framework relevant guidance including Walking Space Guide (TfNSW), and Cycleway Design Toolbox (TfNSW)</p> <p>AS4282-1997 Control of the obtrusive effects of outdoor lighting</p> <p><i>Bridge Aesthetics: Design guidelines to improve the appearance of bridges in NSW</i> (RMS, 2012)</p> <p><i>Parramatta Ways Walking Strategy – Implementing Sydney’s Green Grid</i> (City of Parramatta Council, 2017)</p> <p><i>Parramatta Bike Plan 2027</i> (City of Parramatta Council, 2017)</p> <p><i>Creativity Guidelines for Transport Systems</i> (TfNSW, 2015)</p> <p>Australia’s Strategy for Protecting Crowded Places from Terrorism</p> <p><i>Crime Prevention and the Assessment of Development Applications</i> (NSW Department of Urban Affairs, 2001)</p> <p><i>National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds</i> (Commonwealth of Australia, 2020)</p>

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	<p>(c) how any walking, cycling or public transport provided by the proposal integrates with wider active and public transport networks.</p> <p>The EIS must demonstrate changes to:</p> <ul style="list-style-type: none"> (a) access to public space; (b) access to community facilities or areas providing services to the community, such as local centres; (c) active transport and other forms of public transport, including local walking and cycling routes maintained or made more direct, safe and comfortable; <p>5. Identify green infrastructure design principles that are reflective of the principles in Greener Places and the Sydney Green Grid.</p> <p>6. Include and illustrate green infrastructure designs, actions and outcomes for the proposal including in relation to:</p> <ul style="list-style-type: none"> (a) green infrastructure, including enhancement of open space that supports recreation, biodiversity and waterway health; (b) how the proposal will achieve a net increase in tree numbers and canopy within proximity of the impacted area. (This relates to the number of trees to be cleared by the proposal (a tree is defined by Australian Standard 4970) that will not be covered by a biodiversity offset strategy). <p>7. Identify how the proposal has been designed with and connected with Country, and reflects the findings of the Aboriginal Cultural Heritage Assessment Report (ACHAR) referenced in 6. Heritage – Aboriginal below.</p> <p>8. Outline the urban design response on the visual amenity and landscape impacts of construction across the alignment and for each precinct on:</p>	

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	<ul style="list-style-type: none"> (a) views and vistas; (b) streetscapes, key sites and buildings (including existing landscape works, greenspace and tree canopy); (c) heritage items including Aboriginal places, environmental heritage and areas of heritage sensitivity; and (d) the local community. <p>Visual representations of the proposal must be provided from key receiver locations to illustrate the proposal and its visual impacts and how the proposal has responded to the visual impact through urban design and landscaping.</p>	
<p>3. Biodiversity</p> <p>The project design considers all feasible measures to avoid and minimise impacts on terrestrial and aquatic biodiversity.</p> <p>Offsets and/or supplementary measures are assured which are equivalent to any residual impacts of project construction and operation.</p>	<ol style="list-style-type: none"> 1. Assess biodiversity impacts (including noise and vibration impacts to fauna) in accordance with s7.9 of the <i>Biodiversity Conservation Act 2016</i> (BC Act), the Biodiversity Assessment Method 2020 (BAM), and be documented in a Biodiversity Development Assessment Report (BDAR). 2. The BDAR must document the application of the avoid, minimise and offset framework in accordance with the BAM. 3. The BDAR must include information in the form detailed in s6.12 of the BC Act, cl6.8 of the <i>Biodiversity Conservation Regulation 2017</i> and the BAM, with specific reference to, but not limited to: <ul style="list-style-type: none"> (a) Green and Golden Bell Frog; (b) White-bellied Sea-eagle; (c) various threatened microbats species; and (d) Powerful Owl. 4. The BDAR must be submitted with all digital spatial data associated with the survey and assessment as per Appendix K of the BAM. 	<p>Biodiversity Assessment Method (OEH, 2020)</p> <p>Policy and Guidelines for Fish Habitat Conservation and Management – Update 2013 (DPI, 2013)</p> <p>Fish Passage Requirements for Waterway Crossings and Policy (DPI, 2003) and Guidelines for Fish Friendly Waterway Crossings (DPI, 2003)</p> <p>Degradation of native riparian vegetation – Key Threatening Process (DPI)</p> <p>Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (NSW Fisheries, 2003)</p> <p>Freshwater threatened species distribution maps</p> <p>Parramatta River Catchment Group Masterplan “10 Steps to a Living River”</p>

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	<p>5. The BDAR must be prepared by a person accredited in accordance with the Accreditation Scheme for the Application of the Biodiversity Assessment Method Order 2020 under s6.10 of the BC Act.</p> <p>6. The BDAR must include details of the measures proposed to address offset obligation as follows:</p> <ul style="list-style-type: none"> (a) the total number and classes of biodiversity credits required to be retired for the developments / proposal; (b) the number of classes of like-for-like biodiversity credits proposed to be retired; (c) the number and classes of biodiversity credits proposed to be retired in accordance with the variation rules; (d) any proposal to fund a biodiversity conservation action; and (e) any proposal to make a payment to the Biodiversity Conservation Fund; and (f) any staged retirement of credits based on when the development is carried out that would impact on biodiversity values. <p><i>Note: If seeking approval to use the variation rules, the BDAR must contain details of the reasonable steps that have been taken to obtain requisite like-for-like biodiversity credits.</i></p> <p>7. Impacts on biodiversity values not covered by the BAM must be assessed. This includes a threatened aquatic species assessment (Part 7A <i>Fisheries Management Act 1994</i>) to address whether there are likely to be any significant impact on listed threatened species, populations or ecological communities listed under the <i>Fisheries Management Act 1994</i> (FM Act).</p> <p>8. Identify whether the proposal, or any component of the proposal, would be classified as a Key Threatening Process (KTP) in accordance with the listings in the BC Act, FM Act and the EPBC Act.</p>	

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	9. Undertake an assessment of the potential impact on the Narawang Wetland habitats, and Newington Nature Reserve and Millennium Parklands .	
<p>4. Noise and Vibration</p> <p>Construction noise and vibration (including airborne noise, ground-borne noise and blasting (if proposed)) are effectively managed to minimise adverse impacts on acoustic amenity, and adverse impacts on the structural integrity of buildings and items including Aboriginal places and environmental heritage.</p> <p>Increases in noise emissions and vibration affecting nearby properties and other sensitive receivers during operation of the proposal are effectively managed to protect the amenity and well-being of the community.</p> <p>Increases in noise emissions and vibration affecting environmental heritage as defined in the <i>Heritage Act 1977</i> during operation of the proposal are effectively managed.</p>	<p>1. Construction and operational noise and vibration impacts in accordance with relevant NSW noise and vibration guidelines, including how measures developed to satisfy the guidelines will be implemented and their effect on reducing the level and impact of noise and vibration; and how noise and vibration management strategies will be used and be integrated into the proposal.</p> <p>2. The assessment of construction noise and vibration must address:</p> <ul style="list-style-type: none"> (a) the nature of construction activities and related noise and vibration characteristics using typical and worst-case scenarios and highlight high-noise generating activities; (b) the intensity and duration of noise (both air and ground borne) and vibration impacts. This must include consideration of construction impacts over an extended period associated with ancillary facilities (and the like) and construction fatigue; (c) the identification of receivers (including sensitive infrastructure in respect of vibration and major events), during construction; (d) the structural integrity and significance of known or potential heritage items (including Aboriginal places and items of environmental heritage) that could be affected by vibration; (e) the nature of the impact and the sensitivity of receivers and level of impact including for out-of-hours works; (f) the need to balance timely conclusion of noise and vibration-generating works with periods of respite, and other factors that may influence the timing and duration of construction activities (such as traffic management); (g) noise impacts of out-of-hours works (including utility works and 	<p><i>Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration</i> (ANZECC, 1990)</p> <p><i>Assessing Vibration: a technical guideline</i> (DEC, 2006)</p> <p><i>Interim Construction Noise Guideline</i> (DECCW, 2009)</p> <p>Noise Policy for Industry (EPA, 2017)</p> <p>Rail Infrastructure Noise Guideline (EPA, 2013)</p> <p>NSW Road Noise Policy (DECCW, 2011)</p> <p><i>Development Near Rail Corridors and Busy Roads – Interim guideline</i> (DoP, 2008)</p> <p>German Standard DIN 4150-3: Structural Vibration - effects of vibration on structures</p>

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	<p>works associated with the SSI including those undertaken under another assessment pathway), possible locations where out-of-hours works would be undertaken, the activities that would be undertaken, the estimated duration of those activities and justification for these activities in terms of the <i>Interim Construction Noise Guideline</i>;</p> <p>(h) sleep disturbance (including the number of noise-awakening events) in accordance with <i>Interim Construction Noise Guideline</i>;</p> <p>(i) a cumulative noise and vibration assessment inclusive of impacts from the proposal, including concurrent construction activities within the proposal and the construction of other relevant development in the vicinity of the proposal;</p> <p>(j) qualitative assessment of the predicted effectiveness of mitigation measures (including, where relevant, case studies from other light rail projects) to adequately manage identified impacts, including impacts as identified in (i); and</p> <p>(k) any potential residual noise and vibration impacts following application of mitigation measures.</p> <p>3. Construction traffic noise assessment must include:</p> <p>(a) justification for the model used in accordance with <i>NSW Road Noise Policy</i> Appendix B4 and Appendix B5;</p> <p>(b) a sleep disturbance assessment (indicative maximum noise levels and number of events) and efficacy of potential mitigation.</p> <p>4. The assessment of operational noise and vibration must address:</p> <p>(a) all noise producing aspects of the proposal including rail vehicles; stations / stops; the redistribution of traffic from the proposal, and ancillary plant and equipment, taking into account</p>	

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	<p>the characteristics of noise and vibration (for example, tonality and low frequency noise);</p> <p>(b) the identification of receivers, their sensitivity, and level of impact;</p> <p>(c) sleep disturbance (in terms of noise levels and number of noise-awakening events) in accordance with <i>Rail Infrastructure Noise Guideline</i>;</p> <p>(d) traffic crossing over light rail tracks;</p> <p>(e) quantitative assessment of the predicted effectiveness of mitigation measures (including, where relevant, case studies from other light rail projects) to adequately manage identified impacts; and</p> <p>(f) any potential residual noise and vibration impacts following application of mitigation measures.</p> <p>5. Description of how receiver feedback received during the preparation of the EIS has been taken into account (and would be taken into account post exhibition of the EIS) in the design of mitigation measures, including any tailored mitigation, management and communication strategies for sensitive receivers.</p> <p>6. The process for community engagement should be included or referenced in the noise and vibration assessment as part of the mitigation strategy and assessment.</p>	

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<p>5. Flooding</p> <p>The project minimises adverse impacts on existing flooding characteristics.</p> <p>Construction and operation of the project avoids or minimises the risk of, and adverse impacts from, infrastructure flooding, flooding hazards, or dam failure.</p>	<p>1. Changes to flood behaviour during construction and operation for a full range of flood events up to the probable maximum flood (taking into account sea level rise and storm intensity due to climate change) including:</p> <ul style="list-style-type: none"> (a) any detrimental increases in the potential flood affectation of other properties, assets and infrastructure; (b) consistency (or inconsistency) with applicable Council floodplain risk management plans; (c) compatibility with the flood hazard of the land; (d) compatibility with the hydraulic functions of flow conveyance in flood ways and storage areas of the land; (e) downstream velocity and scour potential; (f) impacts the development may have upon existing community emergency management arrangements for flooding. These matters must be discussed with the State Emergency Services and Council; and (g) any impacts the development may have on the social and economic costs to the community as consequence of flooding. <p>2. Flood management objectives and outcomes must be clearly identified and substantiated to address the characteristics of the environment and relevant legislative, management and guidance requirements.</p>	<p><i>NSW Government's Floodplain Development Manual</i> (Department of Natural Resources, 2005)</p> <p>PS 07-003 New guideline and changes to section 117 direction and EP&A Regulation on flood prone land</p> <p>Practical Consideration of Climate Change - Flood risk management guideline (DECC, 2007)</p> <p><i>Local Catchment Flood Studies</i> (City of Parramatta Council)</p> <p><i>Floodplain Risk Management Policy</i> (City of Parramatta Council)</p> <p><i>Urban Design Guidelines for Flood Prone Areas</i> (City of Parramatta Council)</p> <p>Australian Rainfall and Runoff Urban Drainage analysis and design (and any latest updates to rainfall)</p>
<p>6. Heritage – Aboriginal</p> <p>The design, construction and operation of the proposal facilitates, to the greatest extent possible, the long-term protection, conservation and management of the heritage significance of Aboriginal objects and places.</p>	<p>1. Direct and/or indirect impacts (including cumulative impacts) to the heritage significance of:</p> <ul style="list-style-type: none"> (a) Aboriginal places, objects and cultural heritage values, as defined under the <i>National Parks and Wildlife Act 1974</i> and in accordance with the principles and methods of assessment identified in the current guidelines; and (b) Aboriginal places of heritage significance, as defined in the Standard Instrument – Principal Local Environmental Plan. 	<p>Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011)</p> <p>Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW)</p> <p>Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW 2010)</p>

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<p>The design, construction and operation of the proposal avoids or minimises impacts, to the greatest extent possible, on the heritage significance of Aboriginal objects and places.</p>	<ol style="list-style-type: none"> 2. Identify and describe the Aboriginal cultural values that exist across the whole area that will be affected by the proposal and document these in an Aboriginal Cultural Heritage Assessment Report (ACHAR). This may include the need for surface survey and test excavation. 3. The identification of cultural heritage values must be conducted in accordance with the <i>Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales</i> (DECCW 2010) (the Code), and be guided by the <i>Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW</i> (OEH 2011). 4. Consultation with Aboriginal people must be undertaken and documented in accordance with <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> (DECCW). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented in the ACHAR. 5. Impacts on Aboriginal cultural heritage values must be assessed and documented in the ACHAR. The ACHAR must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the ACHAR must outline measures proposed to mitigate impacts. 6. In situations where the test excavation methodology stipulated in Requirement 16 of the Code is not appropriate (e.g. in areas detailed in Requirement 14 of the Code; in areas of deep sand deposits; or in areas where historical archaeological excavations area also taking place), a site-specific test excavation methodology should be developed. 	<p>AHIMS Aboriginal Site Recording Form</p> <p>AHIMS Aboriginal Site Impact Recording Form</p> <p>Care Agreement application form</p> <p><i>Connecting with Country</i> (Government Architect NSW, 2020)</p> <p>The Australia ICOMOS Burra Charter</p>

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	<p>7. Where archaeological investigations of Aboriginal objects are proposed these must be conducted by a suitably qualified archaeologist, in accordance with section 1.6 of the Code .</p> <p>8. Any Aboriginal objects recorded as part of the assessment must be documented and notified to Heritage NSW by recording on the Aboriginal Heritage Information Management System.</p> <p>9. The ACHAR must outline procedures to be followed if unexpected Aboriginal objects, burials or skeletal material are uncovered at any stage during the life of the proposal.</p>	
<p>7. Heritage – Non-Aboriginal</p> <p>The design, construction and operation of the proposal facilitates, to the greatest extent possible, the long-term protection, conservation and management of the heritage significance of items of environmental heritage.</p> <p>The design, construction and operation of the proposal avoids or minimises impacts, to the greatest extent possible, on the heritage significance of environmental heritage.</p>	<p>1. Direct and/or indirect impacts (including cumulative impacts) to the heritage significance of:</p> <ul style="list-style-type: none"> (a) environmental heritage, as defined under the <i>Heritage Act 1977</i>; and (b) items listed on the State, National and World Heritage lists; (c) heritage items and conservation areas identified in environmental planning instruments applicable to the project area. <p>2. Where impacts (including cumulative impacts) to State, locally or potentially significant heritage items are identified, the assessment must:</p> <ul style="list-style-type: none"> (a) identify the heritage significance of and provide statements of heritage impact for all heritage and potential heritage items; (b) include historical and maritime archaeological assessments (where relevant); (c) consider the conservation policies of any relevant conservation management plan; (d) consider impacts to the item of significance caused by, but not limited to, vibration, demolition, archaeological disturbance, 	<p><i>Criteria for the assessment of excavation directors</i> (NSW Heritage Council, 2011)</p> <p><i>NSW Heritage Manual</i> (Heritage Office and Department of Urban Affairs and Planning, 1994)</p> <p><i>Assessing Heritage Significance</i> (NSW Heritage Office, 2001)</p> <p>The Australia ICOMOS Burra Charter</p> <p><i>Assessing Significance for Historical Archaeological Sites and 'Relics'</i> (Heritage Branch, Department of Planning, 2009)</p> <p><i>Archaeological Assessment</i> (Heritage Office and Department of Urban Affairs and Planning, 1996)</p>

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	<p>altered historical arrangements and access, visual amenity, landscape and vistas, curtilage, subsidence and architectural noise treatment, drainage infrastructure, contamination remediation and site compounds (as relevant);</p> <p>(e) outline measures to avoid and minimise those impacts during construction and operation;</p> <p>(f) be undertaken by a suitably qualified heritage consultant(s) and/or historical archaeologist.</p> <p><i>Note: Where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria.</i></p> <p>3. An historical archaeological assessment must:</p> <p>(a) identify relics likely to be present;</p> <p>(b) assess their significance;</p> <p>(c) consider the impacts from the proposal on this resource; and</p> <p>(d) include an appropriate mitigation strategy and Research Design and Excavation Methodology where harm cannot be avoided.</p> <p>Test excavation may be required to clarify significance, extent and integrity of deposits, particularly where sites of State significance are anticipated.</p> <p><i>Note: An historical archaeological assessment must be prepared by a suitably qualified and experienced historical archaeologist.</i></p> <p>4. A maritime archaeological assessment must be prepared to identify and assess significant archaeological relics, shipwrecks and maritime heritage sites. The assessment must:</p> <p>(a) include a search of the maritime heritage online;</p> <p>(b) identify the extent, nature and significance of any features or relics;</p> <p>(c) consider the potential impacts of the proposal both above and below the water;</p>	

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	<p>(d) consider the effects of the proposal on the riverbed and riverbank and geomorphological effects to heritage items; and</p> <p>(e) include an appropriate mitigation strategy and Research Design and Excavation Methodology where harm cannot be avoided.</p> <p><i>Note: A maritime archaeological assessment must be prepared by a suitably qualified and experienced maritime archaeologist.</i></p>	
<p>8. Social</p> <p>The proposal provides socially sustainable outcomes.</p> <p>The proposal maximises the social and economic welfare of the community.</p> <p>The proposal delivers good development outcomes by minimising negative social impacts and enhancing positive social impacts on affected communities.</p>	<p>1. Potential social impacts, in accordance with the DPIE Social Impact Assessment Guideline (the Guideline), including but not limited to:</p> <ul style="list-style-type: none"> (a) consideration of the principles of section 1.2 of the Guideline; (b) consideration of Satisfying the Review Questions in Appendix C of the Guideline; (c) considering the social impacts that the proposal may have on people's: <ul style="list-style-type: none"> – way of life, – community, – access to and use of infrastructure, services, and facilities; – culture, – health and wellbeing, – surroundings, – livelihoods, and – decision-making systems; (d) the distributive equity of impacts and benefits (i.e., the ways in which different social groups may experience the proposal, paying particular attention to vulnerable groups); and (e) assessing positive, negative, and cumulative social impacts. <p>2. Management measures must be informed by learnings and successful actions from other projects including Parramatta Light Rail Stage 1.</p>	<p><i>Social Impact Assessment Guideline for State Significant Projects</i> (DPIE, 2021)</p> <p><i>Community Infrastructure Strategy</i> (City of Parramatta Council, 2020)</p>

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<p>9. Business and Property</p> <p>The proposal minimises impacts to property and business and achieves appropriate integration with adjoining land uses, including maintenance of appropriate access to properties and community facilities, and minimisation of displacement of existing land use activities, dwellings and infrastructure.</p>	<ol style="list-style-type: none"> 1. Potential impacts on affected properties, businesses, utility services and infrastructure, recreational users, and land and water users (for example, recreational and commercial fishers, oyster farmers), including property acquisitions/adjustments, access, amenity and relevant statutory rights. Identify management measures to minimise impacts to business, utilities and property as a result of the proposal. 2. Management measures must be informed by learnings and successful actions from other projects including Parramatta Light Rail Stage 1. 	
<p>10. Water - Hydrology</p> <p>Long term impacts on surface water and groundwater hydrology (including drawdown, flow rates and volumes) are minimised.</p> <p>The environmental values of nearby, connected and affected water sources, groundwater and dependent ecological systems including estuarine and marine water (if applicable) are maintained (where values are achieved) or improved and maintained (where values are not achieved).</p> <p>Sustainable use of water resources.</p>	<ol style="list-style-type: none"> 1. Describe (and map) the existing hydrological regime for any surface and ground water resource (including reliance by users and for ecological purposes) likely to be impacted by the proposal, including stream orders. 2. Impacts of the construction and operation of the proposal and any ancillary facilities (both built elements and discharges) on surface and ground water hydrology in accordance with the current guidelines, including: <ol style="list-style-type: none"> (a) natural processes within watercourses, rivers, wetlands, estuaries, marine waters and floodplains that affect the health of the fluvial, riparian, estuarine or marine system and landscape health (such as modified discharge volumes, durations and velocities), nutrient flow, aquatic connectivity and access to habitat for spawning and refuge; (b) impacts from any permanent and temporary interruption of groundwater flow; (c) direct or indirect increases in erosion, siltation and sedimentation, impact on riparian land including destruction of riparian vegetation or a reduction in the stability of river banks or watercourses; 	<p><i>Managing Urban Stormwater: Soils and Construction</i> Volume 1 (Landcom 2004) and Volume 2 (A. Installation of Services; B. Waste Landfills; C. Unsealed Roads; D. Main Roads; E. Mines and Quarries) (DECC, 2008)</p> <p><i>NSW Aquifer Interference Policy</i> (DPI, 2012)</p> <p><i>Risk assessment Guidelines for Groundwater Dependent Ecosystems</i> (Office of Water, 2012)</p> <p><i>Guidelines for Controlled Activities on Waterfront Land</i> (NRAR, 2018)</p> <p>Parramatta River Catchment Group Masterplan "10 Steps to a Living River"</p> <p>Upper Parramatta Catchment Trust "On-site stormwater detention handbook" Fourth Edition</p>

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	<p>(d) changes to environmental water availability, both regulated / licensed and unrelated / rules-based sources of such water; and</p> <p>(e) minimising the effects of proposed stormwater and wastewater management during construction and operation on natural hydrological attributes (such as volumes, flow rates, management methods and re-use options) and on the conveyance capacity of existing stormwater systems where discharges are proposed through such systems.</p> <p>3. Identify any requirements for baseline monitoring of hydrological attributes.</p>	
<p>11. Water - Quality</p> <p>The proposal is designed, constructed and operated to protect the NSW Water Quality Objectives (NSW WQO) where they are currently being achieved, and contribute towards achievement of the NSW WQO over time where they are currently not being achieved, including downstream of the proposal to the extent of the proposal impact including estuarine and marine waters (if applicable).</p>	<p>1. Water quality impacts, including:</p> <ul style="list-style-type: none"> (a) stating the ambient NSW WQO and environmental values for the receiving waters relevant to the proposal, including the indicators and associated trigger values or criteria for the identified environmental values; (b) identify and estimate the quality and quantity of all pollutants that may be introduced into the water cycle by source and discharge point and describe the nature and degree of impact that any discharge(s) may have on the receiving environment, including consideration of all pollutants that pose a risk of non-trivial harm to human health and the environment; (c) identify the rainfall event that the water quality protection measures will be designed to cope with; (d) assess the significance of any identified impacts including consideration of the relevant environmental values and ambient water quality outcomes; (e) demonstrate how construction and operation of the proposal will, to the extent that the proposal can influence, ensure that: <ul style="list-style-type: none"> – where the NSW WQOs for receiving waters are currently being met, they will continue to be protected, and 	<p><i>NSW Water Quality and River Flow Objectives at http://www.environment.nsw.gov.au/ieo/</i></p> <p><i>Using the ANZECC Guidelines and Water Quality Objectives in NSW (DEC, 2006)</i></p> <p><i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC/ ARMCANZ, 2000)</i></p> <p><i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, 2018)</i></p> <p><i>Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DECC, 2008)</i></p> <p><i>Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom 2004) and Volume 2 (A. Installation of Services; B. Waste Landfills; C. Unsealed Roads; D. Main Roads; E. Mines and Quarries) (DECC, 2008)</i></p> <p><i>Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions</i></p>

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	<ul style="list-style-type: none"> – where the NSW WQOs are not currently being met, activities will work toward their achievement over time; (f) justify, if required, why the WQOs cannot be maintained or achieved over time; (g) demonstrate that all practical measures to avoid or minimise water pollution and protect human health and the environment from harm are investigated and implemented; (h) identify sensitive receiving environments (which may include estuarine and marine waters downstream) and develop a strategy to avoid or minimise impacts on these environments; and (i) identify proposed monitoring locations, monitoring frequency and indicators of surface and groundwater quality. 	<p><i>Environmental Guidelines: Use of effluent by irrigation</i> (DEC, 2003)</p> <p><i>Storing and Handling Liquids: Environmental Protection</i> (EPA, 2007)</p>
<p>12. Protected and Sensitive Lands</p> <p>The proposal is designed, constructed and operated to avoid or minimise impacts on protected and sensitive lands.</p> <p>The proposal is designed, constructed and operated to avoid or minimise future exposure to coastal hazards and processes.</p>	<p>1. Impacts of the proposal on environmentally sensitive land and processes (and the impact of processes on the proposal) including, as relevant, but not limited to:</p> <ul style="list-style-type: none"> (a) land identified as “Coastal wetlands and littoral rainforests area” under the State Environmental Planning Policy (Coastal Management) 2018; (b) high biodiversity value land identified on the Biodiversity Values Map under the BC Act; (c) coastal hazards identified in studies completed by local councils or state agencies (including risk mitigation strategies that reduce coastal hazards exposure and funding of such strategies); (d) coastal processes (including disruptions to wave direction, dune stability, sediment movement etc.) associated with adopted risk mitigation actions; (e) safe public access to coastal areas, beaches, headlands and foreshores; (f) protected areas (including land and water) managed by the Department under the <i>National Parks and Wildlife Act 1974</i> and the <i>Marine Estate Management Act 2014</i>; 	<p>Planning Circular PS14-003: Coastal hazard notations on section 149 planning certificates (DPE, 2014)</p> <p><i>Developments adjacent to National Parks and Wildlife Service lands: Guidelines for consent and planning authorities</i> (DPIE, 2020)</p> <p><i>NPWS Revocation, Re-categorisation and Road Adjustment Policy</i> (NPWS, 2017)</p> <p><i>Guidelines for Controlled activities on Waterfront Land</i> (NRAR, 2018)</p> <p><i>NSW Environmentally Friendly Seawalls Guide</i> (OEH, 2012 reprint)</p>

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	<ul style="list-style-type: none"> (g) Key Fish Habitat as mapped and defined in accordance with the <i>Fisheries Management Act 1994</i> (FM Act); (h) waterfront land as defined in the <i>Water Management Act 2000</i>; (i) land or waters identified as Critical Habitat under the FM Act or EPBC Act or areas of outstanding biodiversity value under the BC Act; and (j) biodiversity stewardship sites, private conservation lands and other lands identified as offsets. 	
<p>13. Hazard and Risks</p> <p>The proposal is designed, constructed and operated to avoid or minimise impacts on high pressure dangerous goods or gas pipelines near the proposal.</p>	<ol style="list-style-type: none"> 1. Report on the consultation outcomes with all operators of high pressure dangerous goods or gas pipelines within or in the vicinity of the proposal with regards to Australian Standard AS 2885 Pipelines – Gas and liquid petroleum. 2. Demonstrate that during the construction and operation phases, the proposal would not lead to non-compliance of the existing high pressure dangerous goods or gas pipelines with the current edition of Australian Standard AS 2885 Pipelines – Gas and liquid petroleum. 3. Prepare a Preliminary Hazard Analysis (PHA) in accordance with <i>Hazardous Industry Planning Advisory Paper No. 6, 'Hazard Analysis'</i> (Department of Planning, 2011) and <i>Multi-level Risk Assessment</i> (Department of Planning, 2011). The PHA must: <ul style="list-style-type: none"> (a) clearly identify the class, quantity and location of all dangerous goods and hazardous materials associated with the proposal during the construction and operation phases; and (b) demonstrate that during the construction and operation phases, the proposal would comply with the risk criteria for development in the vicinity of potentially hazardous facilities described in the Department's <i>Hazardous Industry Planning Advisory Paper No. 10, 'Land Use Safety Planning'</i>. 	<p>Australian Standard AS 2885 Pipelines – Gas and liquid petroleum</p> <p><i>Hazardous Industry Planning Advisory Paper No. 6, 'Hazard Analysis'</i> (Department of Planning, 2011)</p> <p><i>Multi-level Risk Assessment</i> (Department of Planning, 2011)</p>

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	4. Include sufficient details on how the outcomes, findings or recommendations arising from the above will be delivered or implemented.	
14. Other	1. An assessment of the following issues must be undertaken in accordance with the commitments in Section 7 of <i>Parramatta Light Rail (Stage 2) Scoping Report</i> (Transport for NSW, June 2019): (a) Air quality; (b) Greenhouse gas, energy and climate change; (c) Soils, geology and contamination; and (d) Waste and resource use.	