

Albion Park Rail bypass

Environmental impact statement

Appendix A - Secretary's environmental assessment requirements and checklist

October 2015



Secretary's Environmental Assessment Requirements

Section 115Y of the *Environmental Planning and Assessment Act 1979*

Application Number	SSI 6878
Proposal	Albion Park Rail bypass (including relocation of Croom Regional Sporting Complex facilities)
Location	Land in the suburbs of Dapto, Yallah, Albion Park Rail, Albion Park and Croom, within the Wollongong and Shellharbour local government areas.
Proponent	Roads and Maritime Services
Date of Issue	18 March 2015
General Requirements	The Environmental Impact Statement (EIS) must be prepared in accordance with, and meet the minimum requirements of, Part 3 of Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2000</i> (the Regulation), including: - the information required under clause 6 of Schedule 2 of the Regulation. - the content listed in clause 7 of Schedule 2 of the Regulation, including but not limited to: - a statement of the objectives of the proposal, including a description of the strategic need, justification, objectives and outcomes for the proposal, taking into account existing and proposed transport infrastructure and services within the adjoining subregions, and as relevant the outcomes and objectives of relevant strategic planning and transport policies, including, but not limited to, <i>NSW 2021</i>, <i>NSW Government State Infrastructure Strategy</i>, <i>NSW Long Term Transport Master Plan</i> (December 2012), <i>Your Future Illawarra: Draft Regional Growth and Infrastructure Plan</i> (October 2014) and any other relevant plans; - an analysis of feasible alternatives to the carrying out of the proposal and proposal justification, including: - an analysis of alternatives/options considered having regard to the proposal objectives (including an assessment of the environmental costs and benefits of the proposal relative to alternatives and the consequences of not carrying out the proposal), and the provision of a clear discussion of the route development and selection process, the suitability of the chosen alignment taking into account environmental impacts, and consideration of whether or not the proposal is in the public interest, and - justification for the preferred proposal taking into consideration the objects of the <i>Environmental Planning and Assessment Act 1979</i>; - a detailed description of the proposal, including: - the proposed route, - design of the alignment (vertical and horizontal), associated structures, interchanges, and road user, pedestrian and cyclist facilities (including street furniture and lighting), - land use changes, including resumption of residential, commercial, industrial and recreational lands, and impacts to Crown land, - Croom Regional Sporting Complex works and ancillary development; - interactions with key utilities and services;

	- o location and operational requirements of construction ancillary facilities and access tracks, and - o relationship and/or interaction with existing public and freight transport services (including air, rail, and bus services); • an analysis of the proposal including an assessment, with a particular focus on the requirements of the listed key issues, in accordance with clause 7(1)(d) of Schedule 2 of the Regulation (where relevant), including an identification of how relevant planning, land use and development matters (including relevant strategic and statutory matters) have been considered in the impact assessment (direct, indirect and cumulative impacts) and/or in developing management/mitigation measures; • detail how the principles of ecologically sustainable development will be incorporated in the design, construction and ongoing operation phases of the proposal; and • provide an assessment of the cumulative impacts of the proposal, taking into consideration other projects on the Princes Highway and M1 Princes Motorway. Notwithstanding the key issues specified below, the EIS must include an environmental risk analysis to identify the potential environmental impacts associated with the proposal. Where relevant, the assessment of the key issues below, and any other significant issues identified in the risk assessment, must include: • adequate baseline data; • consideration of potential cumulative impacts due to other development in the vicinity; and • measures to avoid, minimise and if necessary, offset the predicted impacts, including detailed contingency plans for managing any significant risks to the environment.
Key Issues	Traffic and Transport — including but not limited to: • details of how: - o the preferred alignment, design and staging, - o the proposed interchanges and connections to the surrounding road network, and - o associated road infrastructure facilities, meet the traffic and transport objectives of the proposal, taking into account the following local and regional issues: - o adjacent sensitive land uses, - o transport connectivity to and from existing communities and centres (such as East Dapto), - o future growth areas (including but not limited to Calderwood, Tallawarra, West Dapto and Tullimbar), - o approved and proposed infrastructure projects (including the proposed Albion Park (Tripoli Way) bypass and Yallah Road realignment), and - o traffic (vehicular, cyclist and pedestrian) needs; • an assessment and modelling of operational traffic and transport impacts on the local and regional road network, and the M1 Princes Motorway, including an assessment of road user safety and bus impacts; • impacts on cyclist and pedestrian access and safety, and consideration of opportunities to integrate cycleway and pedestrian elements with surrounding networks; • an assessment of aviation issues associated with the Illawarra Regional Airport (during construction and operation, including proposed future operations), including impact on: - o communications/navigation/surveillance infrastructure, - o the Obstacle Limitation Surface (OLS),

	- o Precision Approach Path Indicator (PAPI) Obstacle Assessment Surfaces (OAS), - o the Procedures for Air Navigational Services — Aircraft Operations Surface (PANS-OPS); - o road structure generated windshear and turbulence, and - o lighting distractions and glare to pilots; and • construction traffic and transport impacts of the proposal (including ancillary facilities) and associated management measures, in particular: - o impacts to the road network (including safety and level of service, pedestrian and cyclist access, and disruption to public transport services and access to properties), - o access and route identification and scheduling of transport movements, - o the number, frequency and size of construction related vehicles (both passenger, commercial and heavy vehicles), - o the nature of existing traffic on construction access routes (including consideration of peak traffic times), and - o the need to close, divert or otherwise reconfigure elements of the road network associated with construction of the proposal, having reference to the cumulative construction impacts of other major projects preparing for or commencing construction. Biodiversity – including, but not limited to: • an assessment of the potential ecological impacts of the proposal, with specific reference to vegetation and habitat clearing, connectivity, edge effects, weed dispersal, riparian and aquatic habitat impacts, soil and water quality impacts and operational impacts. The assessment must: - o make specific reference to impacts on landscape values, biodiversity values of native vegetation and threatened species or populations, including worst case estimates of vegetation clearing and operational impacts; - o demonstrate a design philosophy of impact avoidance on ecological values, and in particular, ecological values of high significance, and be consistent with the ‘avoid, minimise or offset’ principle; - o be undertaken in accordance with the <i>Framework for Biodiversity Assessment</i> (Office of Environment and Heritage (OEH) 2014) and the <i>NSW Biodiversity Offsets Policy for Major Projects</i> (OEH 2014), and by a person accredited in accordance with section 142B(1)(c) of the <i>Threatened Species Conservation Act 1995</i>. Impacts on species, populations and ecological communities that will require further consideration and provision of information specified in section 9.2 of the <i>Framework for Biodiversity Assessment</i> include those identified by the OEH. Species specific surveys shall be undertaken for those species and in accordance with the survey requirements specified by the OEH (including during further consultation with the OEH); - o in relation to aquatic biodiversity be consistent with the draft <i>Policy and Guidelines for Fish Habitat Conservation and Management – Update 2013</i> (DPI 2013); - o consider impacts to the Croom Voluntary Conservation Agreement; and - o where there are potential impacts to the OEH estate reserved under the <i>National Parks and Wildlife Act 1974</i> or where the proposal is located upstream of OEH estate, an assessment of the matters to be considered outlined in the <i>Guidelines for developments adjoining land and water managed by DECCW</i> (DECCW 2010). Hydrology, Soils and Water - including but not limited to: • impacts on watercourses and surface water flows, quality, quantity, availability and users (commercial and recreational), with particular
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	reference to any likely impacts on surrounding water bodies and their catchments (including Macquarie Rivulet, Duck Creek, Horsley Inlet, Frazers Creek and Lake Illawarra), wetlands and their habitats, including how these are to be monitored; • identification of water supply, use and disposal; • an assessment of construction and operational water quality impacts, taking into account impacts from both accidents and runoff (i.e. acute and chronic impacts), having consideration to impacts to surface water runoff, soil erosion and sediment transport, mass movement, and spoil and waste management. The assessment of water quality impacts is to have reference to relevant public health and environmental water quality criteria, including those specified in the <i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality</i> (ANZECC/ARMCANZ 2000), any applicable regional, local or site-specific guidelines, water quality objectives, and any licensing requirements; • assessment of waterways to be modified as a result of the proposal, including ecological, hydrological and geomorphic impacts (as relevant), including temporary crossings, and measures to rehabilitate the waterways to preconstruction conditions or better, including fish passage requirements consistent with <i>Policy and Guidelines for Fish Friendly Waterway Crossings</i> (DPI 2004); • identification of potential impacts and benefits of the proposal on existing flood regimes, consistent with the <i>Floodplain Development Manual</i> (Department of Natural Resources 2005), with an assessment of the potential changes to flooding behaviour (levels, velocities and direction) and impacts on bed and bank stability, through flood modelling, including: - o detailed description, justification and assessment of the flood management objectives, and other design objectives (including bridge, culvert and embankment design), - o flood assessment and modelling undertaken in determining the design flood levels and velocities for events, including (as a minimum) the 10%, 2%, 1%, 0.5%, and 0.2% AEP design flood events and the probable maximum flood, or an equivalent extreme event. The assessment is to demonstrate how the assessment, including the use of the modelled events listed above, provides consideration of blockage, climate change and impacts of land use change on flood hydrology, noting below, - o modelling of the effect of the proposal (including fill) on current and future flood behaviour for the range of design events identified above, with use of the 0.5% and 0.2% AEP design flood events as proxies for assessing sensitivity to an increase in rainfall intensity due to climate change and, where applicable, identified land use change, - o an assessment of afflux and flood duration (inundation period) on land, infrastructure, property and business operations (including agricultural land and stock movement to flood refuges and evacuation routes), hazard, evacuation and emergency service provision within the affected area, and future development potential of upstream and access affected land, and - o an assessment of emergency management, evacuation and access, and contingency measures for the development considering the full range of flood risk (based upon the probable maximum flood or an equivalent extreme flood event); • groundwater impacts, taking into consideration impacts associated with geotechnical ground treatments, deep cuttings and fill locations, and cumulative impacts on regional hydrology. The assessment shall consider: the extent of drawdown, impacts to groundwater characteristics, quality, quantity, and connectivity, discharge and recharge rates, and implications for water courses, groundwater users, groundwater dependent ecosystems, riparian areas and wetlands;
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	• identifying potential impacts of the development on acid sulfate soils in accordance with the relevant guidelines and a description of the mitigation measures proposed to minimise potential impacts; and • a contaminated lands assessment in accordance with relevant guidelines. Noise and Vibration – including, but not limited to: • an assessment of the noise impacts of the proposal during operation, consistent with the <i>Road Noise Policy</i> (EPA 2011) and <i>NSW Industrial Noise Policy</i> (EPA 2000). The assessment must include specific consideration of impacts to receivers (dwellings, child care centres, educational establishments, hospitals, motels, nursing homes, or places of worship), including specific consideration of sleep disturbance and, as relevant, the characteristics of noise (eg. low frequency noise), and identify reasonable and feasible mitigation measures; • an assessment of construction noise and vibration impacts, consistent with the <i>Interim Construction Noise Guideline</i> (DECCW 2009) and <i>Assessing Vibration: a technical guideline</i> (DEC 2006). The assessment must have regard to the nature of construction activities (including transport, tonal or impulsive noise-generating works and the removal of operational noise barriers, as relevant), the intensity and duration of noise and vibration impacts, the nature, sensitivity and impact to potentially affected receivers, the need to balance timely conclusion of noise and vibration-generating works with periods of receiver respite, and other factors that may influence the timing and duration of construction activities (such as traffic management), and mitigation and management measures; • if blasting is required, addressing the relevant requirements of <i>Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration</i> (ANZEC 1990); and • if relevant, an indication of potential for works outside standard working hours, including predicted levels and exceedences, justification for the activity and discussion of available mitigation and management measures.
Other Issues	Social and Economic — including, but not limited to: • impacts on directly affected properties and land uses, including impacts related to access and severance, land use, property acquisition and amenity related changes; • social and economic impacts to the community and businesses in the vicinity of the proposal (including agricultural businesses), associated with traffic, access, property, public domain and amenity related changes; • social impact assessment for the Croom Regional Sporting Complex, including details of existing uses, nature and duration of impacts to those uses, consideration of relocation options, staging and offsets for affected clubs, and consideration of alternative sites; and • a draft Community Involvement Framework identifying relevant stakeholders, procedures for distributing information and receiving/responding to feedback and procedures for resolving community complaints. Key issues that should be addressed in the draft framework should include: - o traffic management (including property access, pedestrian access), - o social impacts, - o landscaping/urban design matters, - o construction activities, including out of hours work, and - o noise and vibration mitigation and management. Urban Design and Visual Amenity – including, but not limited to: • consideration of the urban design and visual amenity implications of the proposal, including supporting infrastructure, during construction and

	operation. The assessment must identify: - o urban design and landscaping objectives to enhance the design of the alignment and associated structures (including batters, cuttings, bridge and viaduct structures), interchanges, road infrastructure facilities, and Croom Regional Sporting Complex works, - o consider uses for resulting surplus or residual land, and - o demonstrate how the proposed hard and soft urban design elements of the proposal would be consistent with the existing and desired future character of the area; • identification and evaluation of the visual impacts and urban design aspects of the proposal (and its components) on surrounding areas; • a consideration of impacts on views and vistas, streetscapes, key sites and buildings; • measures to manage lighting impacts both during construction and operation; and • artists' impressions and perspective drawings of the proposal from a variety of locations along and adjacent to the route. Heritage – including but not limited to: • impacts to <i>State and local historic heritage</i> (including conservation areas, built heritage, landscapes and archaeology) should be assessed. Where impacts to State or locally significant historic heritage are identified, the assessment shall: - o outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the mitigation measures) generally consistent with the guidelines in the <i>NSW Heritage Manual</i> (Heritage Office and DUAP 1996), - o be undertaken by a suitably qualified heritage consultant(s) with relevant heritage expertise (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria), - o include a statement of heritage impact for all heritage items/conservation areas to be impacted (including significance assessment). This should include detailed mapping of all heritage items and how they are affected by the proposal, - o include details of any proposed mitigation measures (architectural and landscape), - o consider impacts from, including but not limited to, vibration, demolition, archaeological disturbance, altered historical arrangements and access, landscape and vistas, and architectural noise treatment (as relevant), - o where physical archaeological test excavations are proposed, develop an appropriate archaeological assessment methodology, including research design, in consultation with the Department and the Heritage Council of New South Wales, to guide the test excavations, and include the results of these excavations, and - o provision of future mitigation strategies for all identified archaeological impacts that would arise from the proposal; and • impacts to <i>Aboriginal heritage</i> (including cultural and archaeological significance), in particular impacts to Aboriginal objects and potential archaeological deposits (PAD), should be assessed. Where impacts are identified, the assessment shall: - o outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the measures) generally consistent with the <i>Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation</i> (DEC 2005) and other relevant guidelines and requirements,
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	- o be undertaken by a suitably qualified heritage consultant(s), - o demonstrate effective consultation with Aboriginal communities in determining and assessing impacts and developing and selecting options and mitigation measures (including the final proposed measures), - o assess and document the archaeological and cultural significance of cultural heritage values of affected sites, and - o undertake appropriate archaeological investigations generally in accordance with the <i>Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW</i> (DECCW 2010), to establish the full spatial extent and significance of any archaeological evidence across each site/area of PAD, and include the results of these excavations. If an alternative excavation method is proposed, it shall be developed in consultation with Office of Environment and Heritage. Environmental Risk Analysis — notwithstanding the above key assessment requirement, the EIS must include an environmental risk analysis to identify potential environmental impacts associated with the proposal (construction and operation), proposed mitigation measures and potentially significant residual environmental impacts after the application of proposed mitigation measures. Where additional key environmental impacts are identified through this environmental risk analysis, an appropriately detailed impact assessment of this additional key environmental impact must be included in the EIS.
Consultation	During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. In particular you must consult with: • local, State and Commonwealth government authorities, including the: - o Environment Protection Authority, - o Office of Environment and Heritage (including Heritage Division), - o Department of Primary Industries, - o NSW Office of Water, - o NSW Trains, - o TransGrid, - o Civil Aviation Safety Authority, - o Airservices Australia, - o Illawarra Regional Airport, - o Shellharbour City Council, - o Wollongong City Council, and - o emergency services; • specialist interest groups, including local sporting groups, Illawarra Local Aboriginal Land Council, Aboriginal stakeholders, and pedestrian and bicycle user groups; • utilities and service providers; and • the public, including community groups, businesses, and adjoining and affected landowners. The EIS must describe the consultation process and the issues raised, and identify where the design of the proposal has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.
Further consultation after 2 years	If you do not lodge an EIS for the proposal within 2 years of the issue date of these SEARs, you must consult further with the Secretary in relation to the preparation of the EIS.

Where Secretary's Environmental Assessment Requirements have been addressed

Secretary's Environmental Assessment Requirement relevant to this chapter	Where addressed
The Environmental Impact Statement must be prepared in accordance with, and meet the minimum requirements of, Part 3 of Schedule 2 of the Environmental Planning and Assessment Regulation 2000 (the Regulation), including: 1. The information required under clause 6 of Schedule 2 of the Regulation 2. The content listed in clause 7 of Schedule 2 of the Regulation, including but not limited to:	Addressed in Part A of this environmental impact statement
▪ a statement of the objectives of the proposal, including a description of the strategic need, justification, objectives and outcomes for the proposal, taking into account existing and proposed transport infrastructure and services within the adjoining subregions, and as relevant the outcomes and objectives of relevant strategic planning and transport policies, including, but not limited to:	Sections 3.2 - 3.4
▪ NSW 2021	Section 3.1.2
▪ NSW Government State Infrastructure Strategy	Section 3.1.3
▪ NSW Long Term Transport Master Plan (December 2012)	Section 3.1.4
▪ Your Future Illawarra: Draft Regional Growth and Infrastructure Plan (October 2014)	Section 3.1.8
▪ Any other relevant plans.	Section 3.1.1, 3.1.5 – 3.1.7 and 3.1.9 – 3.1.10
▪ An analysis of feasible alternatives to the carrying out of the proposal and proposal justification, including: - o an analysis of alternatives/options considered having regard to the proposal objectives (including an assessment of the environmental costs and benefits of the proposal relative to alternatives and the consequences of not carrying out the proposal), and the provision of a clear discussion of the route development and selection process, the suitability of the chosen alignment taking into account environmental impacts, and consideration of whether or not the proposal is in the public interest, and	Section 3.1
o justification for the preferred proposal taking into consideration the objects of the <i>Environmental Planning and Assessment Act 1979</i>	Chapter 25
▪ A detailed description of the proposal, including:	Chapter 5
o The proposed route	Section 5.3
o Design of the alignment (vertical and horizontal), associated structures, interchanges, and road user, pedestrian and cyclist facilities (including street furniture and lighting)	Section 5.2, 5.4 - 5.6, 5.9 – 5.11
o Land use changes, including resumption of residential, commercial, industrial and recreational lands, and impacts to Crown land,	Section 15.3
o Croom Regional Sporting Complex works and ancillary development	Section 5.18
o Interactions with key utilities and services;	Section 15.2.1
o location and operational requirements of construction ancillary facilities and access tracks, and	Section 5.20.4

Secretary's Environmental Assessment Requirement relevant to this chapter	Where addressed
o relationship and/or interaction with existing public and freight transport services (including air, rail, and bus services);	Section 7.2.1
▪ an analysis of the proposal including an assessment, with a particular focus on the requirements of the listed key issues, in accordance with clause 7(1)(d) of Schedule 2 of the Regulation (where relevant), including an identification of how relevant planning, land use and development matters (including relevant strategic and statutory matters) have been considered in the impact assessment (direct, indirect and cumulative impacts) and/or in developing management/ mitigation measures;	Section 3.1 Section 15.2.3 and 15.3.5
▪ detail how the principles of ecologically sustainable development will be incorporated in the design, construction and ongoing operation phases of the proposal; and	Section 22.3
▪ provide an assessment of the cumulative impacts of the proposal, taking into consideration other projects on the Princes Highway and M1 Princes Motorway.	Section 21.3
Notwithstanding the key issues specified below, the EIS must include an environmental risk analysis to identify the potential environmental impacts associated with the proposal.	Chapter 24
Where relevant, the assessment of the key issues below, and any other significant issues identified in the risk assessment, must include: ▪ adequate baseline data	Chapters 7 - 20
▪ consideration of potential cumulative impacts due to other development in the vicinity; and	Chapter 21
▪ measures to avoid, minimise and if necessary, offset the predicted impacts, including detailed contingency plans for managing any significant risks to the environment	Chapter 23
Traffic and transport	
▪ Details of how: - o The preferred alignment, design and staging	Chapter 5
o The proposed interchanges and connections to the surrounding road network	Chapter 5 and Section 7.3.3
o Associated road infrastructure facilities	Chapter 5 and Section 7.3.3
▪ Meet the traffic and transport objectives of the proposal, taking into account the following local and regional issues: - o Adjacent sensitive land uses	Section 7.1.1 Chapters 12, 13 15 and 18
o Transport connectivity to and from existing communities and centres (such as East Dapto)	Section 7.3.3 and 13.3.2
o Future growth areas (including but not limited to Calderwood, Tallawarra, West Dapto and Tullimbar)	Sections 7.2.1 and 7.3.3

Secretary's Environmental Assessment Requirement relevant to this chapter	Where addressed
o Approved and proposed infrastructure projects (including the proposed Albion Park (Tripoli Way) bypass and Yallah Road realignment)	Section 7.3.3
o Traffic (vehicular, cyclist and pedestrian) needs	Sections 7.2.1 and 7.3.2
▪ An assessment and modelling of operational traffic and transport impacts on the local and regional road network, and the M1 Princes Motorway, including an assessment of road user safety and bus impacts.	Sections 7.2.1 and 7.3.2
▪ Impacts on cyclist and pedestrian access and safety, and consideration of opportunities to integrate cycleway and pedestrian elements with surrounding networks.	Section 7.3.3
▪ An assessment of aviation issues associated with the Illawarra Regional Airport (during construction and operation, including proposed future operations), including impact on: o Communications / navigation / surveillance infrastructure	Sections 7.3.2 and 7.3.4
o The Obstacle Limitation Surface	Section 7.3.2
o Precision Approach Path Indicator Obstacle Assessment Surfaces	Section 7.3.2
o The Procedures for Air Navigational Services — Aircraft Operations Surface	Sections 7.3.2 and 7.3.4
o Road structure generated windshear and turbulence	Sections 7.3.2 and 7.3.4
o Lighting distractions and glare to pilots	Section 7.3.2
▪ Construction traffic and transport impacts of the proposal (including ancillary facilities) and associated management measures, in particular: o Impacts to the road network (including safety and level of service, pedestrian and cyclist access, and disruption to public transport services and access to properties)	Section 7.3.1
o Access and route identification and scheduling of transport movements	Section 7.3.1
o The number, frequency and size of construction related vehicles (both passenger, commercial and heavy vehicles)	Section 7.3.1
o The nature of existing traffic on construction access routes (including consideration of peak traffic times)	Section 7.3.1
o The need to close, divert or otherwise reconfigure elements of the road network associated with construction of the proposal	Section 7.3.1
▪ Having reference to the cumulative construction impacts of other major projects preparing for or commencing construction.	Chapter 21
Biodiversity	
▪ An assessment of the potential ecological impacts of the proposal, with specific reference to vegetation and habitat clearing, connectivity, edge effects, weed dispersal, riparian and aquatic habitat impacts, soil and water quality impacts and operational impacts. The assessment must:	Section 9.3

Secretary's Environmental Assessment Requirement relevant to this chapter	Where addressed
o Make specific reference to impacts on landscape values, biodiversity values of native vegetation and threatened species or populations, including worst case estimates of vegetation clearing and operational impacts	Sections 9.3.2 and 9.3.3
o Demonstrate a design philosophy of impact avoidance on ecological values, and in particular, ecological values of high significance, and be consistent with the 'avoid, minimise or offset' principle	Section 9.3.3
o Be undertaken in accordance with the <i>Framework for Biodiversity Assessment (Office of Environment and Heritage (Office of Environment and Heritage, 2014a) and the NSW Biodiversity Offsets Policy for Major Projects (Office of Environment and Heritage, 2014b)</i> , and by a person accredited in accordance with section 142B(1)(c) of the <i>Threatened Species Conservation Act 1995</i> . Impacts on species, populations and ecological communities that will require further consideration and provision of information specified in section 9.2 of the Framework for Biodiversity Assessment include those identified by the Office of Environment and Heritage. Species specific surveys shall be undertaken for those species and in accordance with the survey requirements specified by the Office of Environment and Heritage (including during further consultation with the Office of Environment and Heritage)	Section 9.3.1
o In relation to aquatic biodiversity be consistent with the draft Policy and <i>Guidelines for Fish Habitat Conservation and Management – Update 2013</i> (Department of Primary Industries, 2013)	Sections 9.3.1 – 9.3.3
o Consider impacts to the Croom Voluntary Conservation Agreement	Section 9.3.3
o Where there are potential impacts to the Office of Environment and Heritage estate reserved under the National Parks and Wildlife Act 1974 or where the proposal is located upstream of Office of Environment and Heritage estate, an assessment of the matters to be considered outlined in the <i>Guidelines for developments adjoining land and water managed by Department of Environment, Climate Change and Water</i> (Department of Environment, Climate Change and Water, 2010b).	Section 9.1.1
Hydrology, soils and water	
▪ Impacts on watercourses and surface water flows, quality, quantity, availability and users (commercial and recreational), with particular reference to any likely impacts on surrounding water bodies and their catchments (including Macquarie Rivulet, Duck Creek, Horsley Creek, Frazers Creek and Lake Illawarra), wetlands and their habitats, including how these are to be monitored Section 8.	Chapter 16
▪ Identification of water supply, use and disposal	Sections 5.20.6 and 16.3

Secretary's Environmental Assessment Requirement relevant to this chapter	Where addressed
An assessment of construction and operational water quality impacts, taking into account impacts from both accidents and runoff (ie acute and chronic impacts), having consideration to impacts to surface water runoff, soil erosion and sediment transport, mass movement, and spoil and waste management. The assessment of water quality impacts is to have reference to relevant public health and environmental water quality criteria, including those specified in the <i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality</i> (Australian and New Zealand Environment Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, 2000), any applicable regional, local or site-specific guidelines, water quality objectives, and any licensing requirements	Chapter 16
Assessment of waterways to be modified as a result of the project, including ecological, hydrological and geomorphic impacts (as relevant), including temporary crossings, and measures to rehabilitate the waterways to preconstruction conditions or better, including fish passage requirements consistent with <i>Policy and Guidelines for Fish Friendly Waterway Crossings</i> (Department of Primary Industries 2004)	Sections 8.2 and 8.3 Chapter 9
- Identification of potential impacts and benefits of the project on existing flood regimes, consistent with the Floodplain Development Manual (Department of Natural Resources 2005), with an assessment of the potential changes to flooding behaviour (levels, velocities and direction) and impacts on bed and bank stability, through flood modelling, including: - Detailed description, justification and assessment of the flood management objectives, and other design objectives (including bridge, culvert and embankment design), - Flood assessment and modelling undertaken in determining the design flood levels and velocities for events, including (as a minimum) the 10%, 2%, 1%, 0.5%, and 0.2% AEP design flood events and the probable maximum flood, or an equivalent extreme event. The assessment is to demonstrate how the assessment, including the use of the modelled events listed above, provides consideration of blockage, climate change and impacts of land use change on flood hydrology, noting below - Modelling of the effect of the project (including fill) on current and future flood behaviour for the range of design events identified above, with use of the 0.5% and 0.2% AEP design flood events as proxies for assessing sensitivity to an increase in rainfall intensity due to climate change and, where applicable, identified land use change - An assessment of afflux and flood duration (inundation period) on land, infrastructure, property and business operations (including agricultural land and stock movement to flood refuges and evacuation routes), hazard, evacuation and emergency service provision within the affected area, and future development potential of upstream and access affected land, and - An assessment of emergency management, evacuation and access, and contingency measures for the development considering the full range of flood risk (based upon the probable maximum flood or an equivalent extreme flood event)	Sections 8.1 and 8.2
	Sections 8.1.1 and 8.3.1
	Sections 8.1.1 and 8.3.1
	Sections 8.1.1 and 8.3.1
	Sections 8.3.1
	Sections 8.3.1

Secretary's Environmental Assessment Requirement relevant to this chapter	Where addressed
Groundwater impacts, taking into consideration impacts associated with geotechnical ground treatments, deep cuttings and fill locations, and cumulative impacts on regional hydrology. The assessment shall consider: the extent of drawdown, impacts to groundwater characteristics, quality, quantity, and connectivity, discharge and recharge rates, and implications for watercourses, groundwater users, groundwater dependent ecosystems, riparian areas and wetlands	Chapter 17
Identifying potential impacts of the development on acid sulfate soils in accordance with the relevant guidelines and a description of the mitigation measures proposed to minimise potential impacts	Chapter 16
A contaminated lands assessment in accordance with relevant guidelines.	Chapter 16
Noise and vibration	
An assessment of the noise impacts of the proposal during operation, consistent with the <i>Road Noise Policy</i> (Environment Protection Authority, 2011) and <i>NSW Industrial Noise Policy</i> (Environment Protection Authority, 2000). The assessment must include specific consideration of impacts to receivers (dwellings, child care centres, educational establishments, hospitals, motels, nursing homes, or places of worship), including specific consideration of sleep disturbance and, as relevant, the characteristics of noise (eg low frequency noise), and identify reasonable and feasible mitigation measures	Sections 12.3, 12.4.2 and 12.6
An assessment of construction noise and vibration impacts, consistent with the <i>Interim Construction Noise Guideline</i> (Department of Environment Climate Change and Water, 2009) and <i>Assessing Vibration: a technical guideline</i> (Department of Environment and Conservation, 2006). The assessment must have regard to the nature of construction activities (including transport, tonal or impulsive noise-generating works and the removal of operational noise barriers, as relevant), the intensity and duration of noise and vibration impacts, the nature, sensitivity and impact to potentially affected receivers, the need to balance timely conclusion of noise and vibration-generating works with periods of receiver respite, and other factors that may influence the timing and duration of construction activities (such as traffic management), and mitigation and management measures	Section 12.4.1, 12.3.2 and 12.6
If blasting is required, addressing the relevant requirements of <i>Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration</i>	Section 12.4.1 and 12.6
If relevant, an indication of potential for works outside standard working hours, including predicted levels and exceedances, justification for the activity and discussion of available mitigation and management measures.	Section 5.20.12 Sections 12.3.2, 12.4.1 and 12.6
Social and economic	
Impacts on directly affected properties and land uses, including impacts related to access and severance, land use, property acquisition and amenity related changes	Section 13.3.2 Chapter 15
Social and economic impacts to the community and businesses in the vicinity of the proposal (including agricultural businesses), associated with traffic, access, property, public domain and amenity related changes	Section 13.3.2

Secretary's Environmental Assessment Requirement relevant to this chapter	Where addressed
Social impact assessment for the Croom Regional Sporting Complex, including details of existing uses, nature and duration of impacts to those uses, consideration of relocation options, staging and offsets for affected clubs, and consideration of alternative sites	Section 13.3.2
- A draft Community Involvement Framework identifying relevant stakeholders, procedures for distributing information and receiving/responding to feedback and procedures for resolving community complaints. Key issues that should be addressed in the draft framework should include: - Traffic management (including property access, pedestrian access) - Social impacts - Landscaping / urban design matters - Construction activities, including out of hours work - Noise and vibration mitigation and management.	Section 13.5 Appendix C
Urban design and visual amenity	
Consideration of the urban design and visual amenity implications of the proposal, including supporting infrastructure, during construction and operation. The assessment must identify:	Section 14.3
Urban design and landscaping objectives to enhance the design of the alignment and associated structures (including batters, cuttings, bridge and viaduct structures), interchanges, road infrastructure facilities, and Croom Regional Sporting Complex works	Section 5.19
Consider uses for resulting surplus land	Section 15.3.2
- Demonstrate how the proposed hard and soft urban design elements of the proposal would be consistent with the existing and desired future character of the area - Identification and evaluation of the visual impacts and urban design aspects of the proposal (and its components) on surrounding areas - A consideration of impacts on views and vistas, streetscapes, key sites and buildings - Measures to manage lighting impacts both during construction and operation - Artist's impressions and perspective drawings of the proposal from a variety of locations along and adjacent to the route.	Section 14.3 and Section 5.19
	Section 14.3.2
	Section 14.3.2
	Section 14.5
	Section 14.3.2
Heritage	
- Impacts to State and local historic heritage (including conservation areas, built heritage, landscapes and archaeology) should be assessed. Where impacts to State or locally significant historic heritage are identified, the assessment shall: - Outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the mitigation measures) generally consistent with the guidelines in the NSW Heritage Manual (Heritage Office and Department of Urban Affairs and Planning 1996)	Section 11.3
	Section 11.4

Secretary's Environmental Assessment Requirement relevant to this chapter	Where addressed
o Be undertaken by a suitably qualified heritage consultant(s) with relevant heritage expertise (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria)	Section 1.5 of Technical Paper 7
o Include a statement of heritage impact for all heritage items/conservation areas to be impacted (including significance assessment). This should include detailed mapping of all heritage items and how they are affected by the proposal	Section 11.3 (and Section 4.3 of Technical Paper 7)
o Include details of any proposed mitigation measures (architectural and landscape)	Section 11.4
o Consider impacts from, including but not limited to, vibration, demolition, archaeological disturbance, altered historical arrangements and access, landscape and vistas, and architectural noise treatment (as relevant)	Section 11.3 (and Section 4.3 of Technical Paper 8) (Also addressed in other chapters)
o Where physical archaeological test excavations are proposed, develop an appropriate archaeological assessment methodology, including research design, in consultation with the Department and the Heritage Council of New South Wales, to guide the test excavations, and include the results of these excavations, and	Section 11.4 (and Section 4.3 of Technical Paper 7)
o Provision of future mitigation strategies for all identified archaeological impacts that would arise from the proposal	Section 11.4
▪ Impacts to <i>Aboriginal heritage</i> (including cultural and archaeological significance), in particular, impacts to Aboriginal objects and potential archaeological deposits (PAD) should be assessed. Where impacts are identified, the assessment shall:	Section 10.3
o Outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the measures) generally consistent with the <i>Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation</i> (Department of Environment and Conservation 2005) and other relevant guidelines and requirements	Section 10.4 (and Chapter 5 of Technical Paper 6)
o Be undertaken by a suitably qualified heritage consultant(s)	Section 10.1 (and Section 1.4 of Technical Paper 6)
o Demonstrate effective consultation with Aboriginal communities in determining and assessing impacts and developing and selecting options and mitigation measures (including the final proposed measures)	Section 10.1.4 (and Appendix A of Technical Paper 6)
o Assess and document the archaeological and cultural significance of cultural heritage values of affected sites	Section 4 of Technical Paper 6

Secretary's Environmental Assessment Requirement relevant to this chapter	Where addressed
o Undertake appropriate archaeological investigations generally in accordance with the <i>Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW</i> (Department of Environment Climate Change and Water 2010d), to establish the full spatial extent and significance of any archaeological evidence across each site/area of PAD, and include the results of these excavations. If an alternative excavation method is proposed, it shall be developed in consultation with Office of Environment and Heritage.	Section 3 and Appendix E of Technical Paper 6
Environmental risk analysis	
The environmental impact statement must include an environmental risk analysis to identify potential environmental impacts associated with the proposal (construction and operation), proposed mitigation measures and potentially significant residual environmental impacts after the application of proposed mitigation measures. Where additional key environmental impacts are identified through this environmental risk analysis, an appropriately detailed impact assessment of this additional key environmental impact must be included in the environmental impact statement.	Chapter 24
Consultation	
During the preparation of the environmental impact statement, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. In particular you must consult with: ▪ local, State and Commonwealth government authorities, including the: - o Environment Protection Authority - o Office of Environment and Heritage (including Heritage Division) - o Department of Primary Industries - o NSW Office of Water - o NSW Trains - o TransGrid - o Civil Aviation Safety Authority - o Airservices Australia - o Illawarra Regional Airport - o Shellharbour City Council - o Wollongong City Council - o Emergency services.	Section 6.3.2
▪ Specialist interest groups, including local sporting groups, Illawarra Local Aboriginal Land Council, Aboriginal stakeholders, and pedestrian and bicycle user groups	Section 6.2.2 – 6.3
▪ Utilities and service providers	Section 6.3
The public, including community groups, businesses, and adjoining and affected landowners.	Section 6.2.2, Section 6.4.3

Secretary's Environmental Assessment Requirement relevant to this chapter	Where addressed
The environmental impact statement must describe the consultation process and the issues raised, and identify where the design of the proposal has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.	Section 6.2.2