Appendix A – Secretary's environmental assessment requirements and checklist

Secretary's environmental assessment requirements checklist

General requirements

Desired performance outcome	Requirement	Where addressed in the EIS
1. Environmental Impact Assessment Process The process for assessment of the proposal is transparent, balanced, well focussed and legal.	1. The Environmental Impact Statement (EIS) must be prepared in accordance with Part 3 of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (the Regulation).	The approvals framework, discussion of the EP&A Act and the EP&A Regulation are provided in **Section 2.1** and **Section 26.2**.
	2. The project will impact matters of national environmental significance (MNES) protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and will be assessed in accordance with the NSW Bilateral Agreement (2015). 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.	Commonwealth legislative requirements are discussed in **Section 2.2.2**. MNES of relevance to the project are listed threatened species and communities (Section 18 and 18A of the EPBC Act). Impacts are discussed in **Section 9.4.2** and **Section 9.4.3**.
	3. The onus is on the Proponent to ensure legislative requirements relevant to the project are met.	Relevant NSW legislative requirements and how they are addressed are discussed in **Section 2.1.1** and **Section 2.2.1**. Commonwealth legislative requirements are discussed in **Section 2.2.2**.
2. Environmental Impact Statement The project is described in sufficient detail to enable clear understanding that the project has been developed through an iterative process of impact identification and assessment and project refinement to avoid, minimise or offset impacts so that the project, on balance, has the least adverse biophysical, social and economic impact,	1. The EIS must include, but not necessarily be limited to, the following: (a) an executive summary;	An executive summary is provided in **Executive Summary**.
	b) a description of the project and all components and activities (including ancillary components and activities) required to construct and operate it, including: – the proposed route; – design of the road and its components, including interchanges; bridges and viaducts; structures over roads, rail lines and pipelines; road user, pedestrian and cyclist facilities; and lighting; – road upgrade works, including road widening, intersection treatment and grade separation works, property access, parking, pedestrian and cyclist and public transport facilities; – location and operational requirements of construction ancillary facilities and access; and	The project scope and key design elements are described in **Section 5.1**, **Section 5.2** and **Section 5.3**. The construction of the project is described in **Section 5.4**. The proposed route is described in **Section 5.3.2** and shown in **Figure 5-1**. The project design and key elements are described in **Section 5.2** and **Section 5.3**. Road upgrade and road widening in **Section 5.3.1** to **Section 5.3.4**. Intersection treatments and grade separation works in **Section 5.3.3**. Property access in **Section 5.3.20**. Construction parking is discussed in **Section 5.4.3**.

Desired performance outcome	Requirement	Where addressed in the EIS
including its cumulative impacts.	− the relationship and/or integration of the project with existing and proposed public and freight transport services;	Pedestrian and cyclist and public transport facilities in **Section 5.3.16** and **Section 5.3.17**. The location and operational requirements of construction ancillary facilities (including access arrangements) are detailed in **Section 5.4.3**. Integration of the project with existing public and freight transport services is described in **Section 5.3.17** and **Section 5.3.18**. Integration of the project with existing road and rail is described in **Section 5.3** and **Section 5.4**.
	(c) a statement of the objective(s) of the project;	The primary objectives of the project are identified in **Section 3.3**.
	(d) a summary of the strategic need for the project with regard to its State significance and relevant State Government policy;	The strategic need for the project with relevance to NSW and Australian strategic planning and policy framework is discussed throughout **Chapter 3**. An overall statement of strategic need is provided in **Section 3.4**.
	(e) an analysis of any feasible alternatives to the project;	An analysis of project alternatives is provided in **Section 4.1**.
	(f) a description of feasible options within the project;	The feasible options within the project are identified and described in **Section 4.2** to **Section 4.5**. An evaluation of the options is provided in **Section 4.3.5**.
	(g) a description of how alternatives to and options within the project were analysed to inform the selection of the preferred alternative / option. The description must contain sufficient detail to enable an understanding of why the preferred alternative to, and options(s) within, the project were selected, including: − details of the highway corridors and route options considered, and the criteria that was considered in the selection of the preferred route; and − a justification for the preferred proposal taking into consideration the objects of the *Environmental Planning and Assessment Act 1979* (EP&A Act);	Alternatives to the project are discussed in **Section 4.1**. Route options considered for the project are discussed in **Section 4.2** to **Section 4.5**, with further discussion about alignment options provided in **Section 4.3**. A justification for the project against the objects of the EP&A Act is provided in **Section 26.1.2**.

Desired performance outcome	Requirement	Where addressed in the EIS
	(h) a concise description of the general biophysical and socio-economic environment that is likely to be impacted by the project (including offsite impacts). Elements of the environment that are not likely to be affected by the project do not need to be described;	The biophysical and socio-economic environment as relevant to the project are described in **Chapter 7** (traffic and transport) to **Chapter 23** (cumulative impacts).
	(i) a demonstration of how the project design has been developed to avoid or minimise likely adverse impacts;	A demonstration of how the project design has been developed to avoid or minimise potential impacts is provided in **Section 4.5.1**.
	(j) the identification and assessment of key issues as provided in the 'Assessment of Key Issues' performance outcome;	Key issues applicable to the project are identified and assessed in **Chapter 7** (traffic and transport) to **Chapter 23** (cumulative impacts).
	(k) a statement of the outcome(s) the Proponent will achieve for each key issue;	Outcomes achieved for each key issue are presented in **Chapter 7** (traffic and transport) to **Chapter 22** (safety and risk).
	(l) measures to avoid, minimise or offset impacts must be linked to the impact(s) they treat, so it is clear which measures will be applied to each impact;	**Section 24.2.3** provides a summary of environmental management measures identified in **Chapter 7** (traffic and transport) to **Chapter 23** (cumulative impacts).
	(m) consideration of the interactions between mitigation measures, between impacts and between measures and impacts;	Interactions between mitigation measures, between impacts, and between measures and impacts are considered in **Chapter 7** (traffic and transport) to **Chapter 23** (cumulative impacts) and in **Chapter 24** (summary of environmental management measures).
	(n) identification of other environmental impacts (such as protected and sensitive lands, sedimentation and erosion) and proposed measures for managing and/or mitigating the level of impact;	Environmental impacts and proposed environmental management measures are identified in **Chapter 7** (traffic and transport) to **Chapter 23** (cumulative impacts) and in **Chapter 24** (summary of environmental management measures).
	(o) an assessment of the cumulative impacts of the project taking into account other projects that have been approved but where construction has not commenced, projects that have commenced construction, and projects that have recently been completed;	Projects identified for the cumulative impact assessment, including their approval status, are described in **Section 23.2**. Assessments of the potential cumulative impacts of the project on key environmental issues (as identified in the SEARs) is provided in **Section 23.3**.
	(p) statutory context of the project as a whole, including: − how the project meets the provisions of the EP&A Act and EP&A Regulation; − a list of any approvals that must be obtained under any other Act or law before the project may lawfully be carried out;	The approvals framework and statutory context is discussed in **Section 2.1**. The statutory context is further discussed in **Section 2.2**. The provisions of the EP&A Act and EP&A Regulation are discussed in **Section 2.1.1** and **Appendix B**.

Desired performance outcome	Requirement	Where addressed in the EIS
		NSW planning approvals are discussed in **Section 2.1.1** and **Section 2.2.1**. The relevance of Commonwealth approvals is discussed in **Section 2.2.2** and **Appendix C**.
	(q) a chapter that synthesises the environmental impact assessment and provides: − a succinct but full description of the project for which approval is sought; − a description of any uncertainties that still exist around design, construction methodologies and/or operational methodologies and how these will be resolved in the next stages of the project; − a compilation of the impacts of the project that have not been avoided; − a compilation of the proposed measures associated with each impact to avoid or minimise (through design refinements or ongoing management during construction and operation) or offset these impacts; − a compilation of the outcome(s) the Proponent will achieve; and − the reasons justifying carrying out the project as proposed, having regard to the biophysical, economic and social considerations, including ecologically sustainable development and cumulative impacts; and	A full, succinct description of the project is provided in **Section 27.1** and **Section 27.2**. A description of project uncertainties and proposed resolutions is provided in **Section 27.3**. Impacts of the project which could not be avoided are described in **Section 27.4.2**. A compilation of the proposed measures associated with each impact to avoid, minimise, or offset these impacts is provided in **Section 27.4.1 Section 27.4.2** and **Section 27.4.3**. Outcomes the proponent will achieve are outlined in **Section 27.5**. A justification for the project is proved in **Section 26.1** and **Section 27.6**.
	(r) relevant project plans, drawings, diagrams in an electronic format that enables integration with mapping and other technical software.	Relevant plans, drawings and diagrams are provided throughout this EIS and attached in the appendices.
	2. The EIS must only include data and analysis that is reasonably needed to make a decision on the proposal. Relevant information must be succinctly summarised in the EIS and included in full in appendices. Irrelevant, conflicting or duplicated information must be avoided.	Relevant information is included and summarised throughout this EIS and its appendices.

Desired performance outcome	Requirement	Where addressed in the EIS
3. Assessment of Key Issues Key issue impacts are assessed objectively and thoroughly to provide confidence that the project will be constructed and operated within acceptable levels of impact.	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.	Assessment of impacts, proportionate to the significance of the likely impacts, is presented in **Chapter 7** (traffic and transport) to **Chapter 23** (cumulative impacts).
	2. For each key issue the Proponent must: (a) describe the biophysical and socio-economic environment, as far as it is relevant to that issue, including adequate baseline data, in terms of temporal, spatial and parameters monitored;	The biophysical and socio-economic environment as relevant to key issues are described in **Chapter 7** (traffic and transport) to **Chapter 23** (cumulative impacts).
	(b) describe the legislative and policy context, as far as it is relevant to the issue;	The policy and planning setting of the project, as it relates to each key issue, is described in **Chapter 7** (traffic and transport) to **Chapter 23** (cumulative impacts).
	(c) identify, describe and quantify (if possible) the impacts associated with the issue, including the likelihood and consequence (including worst case scenario) of the impact (comprehensive risk assessment), and the cumulative impacts;	Impacts associated with each key issue relevant to the project (including cumulative impacts) are identified, described, and quantified (where possible) in **Chapter 7** (traffic and transport) to **Chapter 23** (cumulative impacts).
	(d) demonstrate how potential impacts have been avoided (through design, or construction or operation methodologies);	Design development (including design changes implemented to avoid potential impacts of the project) is discussed in **Chapter 4**. Avoidance of impacts through design changes and construction and operational methodologies is further outlined in **Chapter 7** (traffic and transport) to **Chapter 23** (cumulative impacts).
	(e) detail how likely impacts that have not been avoided through design will be minimised, and the predicted effectiveness of these measures (against performance criteria where relevant); and	Minimisation of impacts through the implementation of environmental management measures is outlined in **Chapter 7** (traffic and transport) to **Chapter 23** (cumulative impacts), and **Chapter 24** (summary of environmental management measures).
	(f) detail how any residual impacts will be managed or offset, and the approach and the predicted effectiveness of these measures.	Minimisation of impacts through the implementation of environmental management measures is outlined in **Chapter 7** (traffic and transport) to **Chapter 23** (cumulative impacts), and **Chapter 24** (summary of environmental management measures).

Desired performance outcome	Requirement	Where addressed in the EIS
	3. Where multiple reasonable and feasible options to avoid or minimise impacts of the preferred route/project are available, they must be identified and considered and the proposed measure justified taking into account the public interest.	Options to avoid or minimise impacts are identified and considered in **Chapter 7** (traffic and transport) to **Chapter 23** (cumulative impacts).
4. Consultation The project is developed with meaningful and effective engagement during project design and preparation of the EIS.	1. The project must be informed by consultation, including with relevant local, State and Commonwealth government agencies, infrastructure and service providers, special interest groups (including Local Aboriginal Land Councils, Aboriginal stakeholders, and pedestrian and bicycle user groups), affected landowners, businesses and the community. The consultation process must be undertaken in accordance with the current guidelines.	Consultation has been, and will continue to be, carried out with local, State and Commonwealth Government agencies, infrastructure and service providers, special interest groups (where they exist), affected landowners, businesses and the community. Consultation was carried out in accordance with the guidelines outlined in **Section 6.2.3**. Consultation carried out during route selection, and concept design development and the environmental assessment is outlined in **Section 6.2.5** and **Section 6.2.6**. Future consultation to be carried out is outlined in **Section 6.4**. A summary of consultation with Aboriginal stakeholders is provided in **Section 6.2.4**, **Section 6.3.4**, and **Section 12.3**. Consultation with Aboriginal stakeholders was carried out in accordance with the guidelines outlined in **Section 12.2.2**. Consultation activities carried out with Aboriginal stakeholders for the project are captured in full in the Aboriginal Cultural heritage Assessment Report (**Appendix L**). No major pedestrian groups exist in the vicinity of the project and, as such, no consultation has been carried out with these groups. Consultation with Newcastle Cycleways Movement, a bicycle user group, is outlined in **Table 6-4**.
	2. The Proponent must document the consultation process, and demonstrate how the project has responded to the inputs received.	The consultation process for the project is outlined in **Section 6.2** and shown in **Figure 6-1**. Feedback received to date and how it has been responded to, including where it is discussed in the EIS, is outlined in **Section 6.3**. The process for consultation with Aboriginal stakeholders is further described in **Section 12.3**.
	3. The Proponent must describe the timing and type of community consultation proposed during the design and delivery of the project, the mechanisms for community feedback, the mechanisms for	Community consultation carried out during design and EIS development is outlined in **Section 6.2**.

Desired performance outcome	Requirement	Where addressed in the EIS
	keeping the community informed, and procedures for complaints handling and resolution.	Community consultation to be carried out during delivery of the project (including detailed design) is outlined in **Section 6.4**. The mechanisms for community feedback, keeping the community informed, and complaints handling and resolution are described in **Section 6.4**.

Key issues

Key issue and desired performance outcome	Requirement	Where addressed in the EIS
1. Transport and traffic Network connectivity, safety and efficiency of the transport system in the vicinity of the project are managed to minimise impacts. The safety of transport system customers is maintained. Impacts on network capacity and the level of service are effectively managed. Works are compatible with existing and planned infrastructure and future transport corridors.	1. The Proponent must assess construction transport and traffic (vehicle, pedestrian and cyclists) impacts, including, but not necessarily limited to: (a) the identification of transport routes and scheduling of movements, particularly outside standard construction hours;	**Section 5.4.13** presents proposed working hours (including out-of-hours work). Information on the location of construction ancillary facilities and haulage routes is provided in **Section 5.4.3** and **Section 5.4.12** respectively. **Section 7.4.1** provides consideration of construction traffic movements, including activities outside of standard construction hours.
	(b) the indicative number, frequency and size of construction related vehicles (passenger, commercial and heavy vehicles, including spoil management movements);	**Section 7.4.1** provides information of the number, frequency and size of construction related vehicles.
	(c) indicative construction worker parking;	**Section 7.4.1** describes construction worker parking.
	(d) the nature of existing traffic (types and number of movements) on construction access routes (including consideration of peak traffic times, land uses, in particular sensitive receivers, and parking arrangements);	**Section 7.3** presents the existing traffic and land uses surrounding the project. **Section 7.4** discusses the impacts of construction traffic on impacted land uses, existing parking arrangements and sensitive receivers, including residences, pedestrians and cyclists.
	(e) access constraints and impacts on public transport, pedestrians and cyclists;	**Section 7.4.3** assesses impacts on public transport, pedestrians and cyclists.
	(f) impacts to the operation of rail lines in the Lower Hunter, including the Main Northern Rail Line and rail infrastructure in Hexham;	**Section 7.4.3** assesses impacts on rail infrastructure.

Key issue and desired performance outcome	Requirement	Where addressed in the EIS
	(g) the need to close, divert or otherwise reconfigure elements of the road and cycle network associated with construction of the project; and	**Section 7.4** provides details of the need to close, divert or reconfigure the road network, including the cycle network.
	(h) the cumulative traffic impacts of other major development projects preparing for or commencing construction in the vicinity of the proposal.	**Section 7.3.9** outlines future growth and future land use relevant to the Emerging Black Hill Precinct. **Section 7.6** and **Chapter 23** discuss the cumulative traffic impact of constructing this project with other projects.
	2. The Proponent must assess (and model) the operational transport impacts of the project including, but not necessarily limited to: (a) forecast travel demand and traffic volumes for the project and the surrounding road, cycle and public transport network;	**Section 7.3.3** analyses traffic growth trends in the study area. **Section 7.2.3** describes how future traffic demand was determined.
	(b) travel time analysis;	**Section 7.3.3** and the Traffic and Transport Working Paper (**Appendix G**) present a travel time analysis of the existing road network. **Section 7.5.2** discusses the travel time impacts that occur as a result of the project.
	(c) performance of key interchanges and intersections by undertaking a level of service analysis at key locations;	**Section 7.3.3** presents the existing Level of Service of key intersections in the network. **Section 7.5.4** and **Section 7.5.5** present the performance outcomes of key intersections and interchanges during operation.
	(d) wider transport interactions and modifications (local and regional roads, cycling, public and freight transport);	**Section 7.5** details the project's impact on regional and local roads within the study area. No regional roads are located within the study area. **Section 7.5.9** summarises the project's impact on public transport infrastructure including rail and bus services. **Section 7.5.6** discusses impacts on freight. **Section 7.5.7** discusses the impact on regional connectivity. **Section 7.5.9** discusses the impact on the cycle network.
	(e) access to identified and future development areas, such as the Beresfield and Tomago industrial areas;	**Section 7.5** discusses access to future development areas that have been identified within the study area.

Key issue and desired performance outcome	Requirement	Where addressed in the EIS
	(f) transport connectivity to and from existing communities and centres (such as Newcastle, Raymond Terrace, the Lower Hunter and Port of Newcastle),	**Section 7.5.7** summarises the impact to transport connectivity for existing communities within and surrounding the study area.
	(g) impacts on Newcastle Airport and Williamstown RAAF Base, maritime traffic on the Hunter River, Port of Newcastle and rail infrastructure;	**Section 7.5.9** discusses impacts to the Newcastle Airport, Williamtown RAAF Base, the Hunter River, the Port of Newcastle and rail infrastructure.
	(h) impacts on cyclists and pedestrian access and safety; and	**Section 7.5.8** discusses the improvements to safety as a result of the project. **Section 7.5.9** discusses the impacts on cyclists and the impacts on pedestrians.
	(i) opportunities to integrate cycling and pedestrian elements with surrounding networks (existing and proposed) and within the project.	**Section 7.5.9** and **Chapter 5** discuss the integration of the project's cycling infrastructure with existing and proposed cycling infrastructure including the proposed improvements to the pedestrian network in association with the existing pedestrian network.
2. Noise and Vibration - Amenity Construction noise and vibration (including airborne noise, ground-borne noise and blasting) are effectively managed to minimize adverse impacts on acoustic amenity. Increases in noise emissions affecting nearby properties and other sensitive receivers during operation of the project are effectively managed to	1. The Proponent must assess construction and operational noise and vibration impacts in accordance with relevant NSW noise and vibration guidelines. The assessment must include consideration of impacts to sensitive receivers, and include consideration of sleep disturbance and, as relevant, the characteristics of noise and vibration.	Construction noise and vibration impacts are assessed in **Section 8.4**. Consideration of impacts to sensitive receivers including sleep disturbance during construction is detailed in **Section 8.4.3**. Operational road traffic noise is assessed in **Section 8.5**. The assessments were carried out in accordance with the relevant guidelines, as outlined in **Section 8.1**.
	2. An assessment of construction noise and vibration impacts which must address: (a) the nature of construction activities (including transport, tonal or impulsive noise-generating works and the removal of operational noise barriers, as relevant);	The nature of construction activities, including construction scenarios and construction work hours, is addressed in **Section 8.2.3**. Construction noise and vibration impacts are assessed in **Section 8.4**. For annoying characteristics, such as tonal or impulsive noise, penalties have been included in the source noise levels for plant and equipment, which are detailed in Appendix C of the Noise and Vibration Working Paper (**Appendix H**).

Key issue and desired performance outcome	Requirement	Where addressed in the EIS
protect the amenity and wellbeing of the community.	(b) the intensity and duration of noise and vibration impacts (both air and ground borne);	The intensity and duration of noise and vibration impacts (both air and ground borne) are assessed in **Section 8.4.3**, **Section 8.4.4** and **Section 8.4.6**. The proposed construction hours and program are detailed in **Section 8.2.3**.
	(c) 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);	The proposed construction hours are detailed in **Section 8.2.3**. The environmental management measures presented in **Section 8.6** recommend a Construction Noise Vibration Management Plan to be prepared, which would incorporate standard and additional mitigation measures from the Construction Noise and Vibration Guideline such as respite periods.
	(d) the potential for extended standard construction hours and/or works outside standard construction hours, including predicted levels, exceedances and number of potentially affected receivers and justification for the activity in terms of the Interim Construction Noise Guideline (DECCW, 2009);	The proposed construction hours and program, including extended construction hours and out-of-hours work, is detailed in **Section 8.2.3**. The noise and vibration impacts of the project during standard, extended, and out of hours work are assessed in **Section 8.4**.
	(e) potential noise and vibration mitigation measures, including timing of implementation; and	Noise and vibration management measures, including timing of implementation, are provided in **Section 8.6**.
	(f) a cumulative noise and vibration assessment inclusive of impacts from other major development projects preparing for or commencing construction in the vicinity of the proposal.	A cumulative assessment of road traffic noise has been carried out for the project. **Section 8.2.4** outlines the methodology used and results of the assessment are included in **Section 8.5.1** and **Section 8.5.2**. Further information on cumulative noise and vibration impacts is provided in **Chapter 23** and Chapter 7 of the Noise and Vibration Working Paper (**Appendix H**).
	3. The Proponent must demonstrate that blast impacts are capable of complying with the current guidelines, if blasting is required.	Blast impacts are assessed in **Section 8.4.7**. If required, blasting would be carried out in accordance with the guidelines outlined in **Section 8.1**.

Key issue and desired performance outcome	Requirement	Where addressed in the EIS
3. Noise and Vibration - Structural Construction noise and vibration (including airborne noise, ground-borne noise and blasting) are effectively managed to minimize adverse impacts on the structural integrity of buildings and items including Aboriginal places and environmental heritage. Increases in noise emissions and vibration affecting environmental heritage as defined in the *Heritage Act 1977* during operation of the project are effectively managed.	1. The Proponent must assess construction and operation noise and vibration impacts in accordance with relevant NSW noise and vibration guidelines. The assessment must include consideration of impacts to the structural integrity and heritage significance of items (including Aboriginal places and items of environmental heritage).	The noise and vibration assessment has been carried out in accordance with the relevant guidelines, as outlined in **Section 8.1**. An assessment of vibration impacts from operational traffic is provided in **Section 8.5**. An assessment of construction vibration impacts to nearby buildings and structures is provided in **Section 8.4.6** The assessment included consideration of Aboriginal places and items of environmental heritage. Surface and subsurface artefacts (Aboriginal heritage) are not subject to potential noise or vibration impacts (refer to **Section 12.5.1** and **Section 12.5.2**).
	2. The Proponent must demonstrate that blast impacts are capable of complying with the current guidelines, if blasting is required.	Blast impacts are assessed in **Section 8.4.7**. If required, blasting would be carried out in accordance with the guidelines outlined in **Section 8.1**.
4. Biodiversity The project design considers all feasible measures to avoid and minimise impacts on terrestrial and aquatic biodiversity. The delivery of offsets and/or supplementary measures required for the project is assured and which are equivalent to any remaining impacts from its construction and operation.	1. The Proponent must assess biodiversity impacts in accordance with the Framework for Biodiversity Assessment (FBA) and be carried out by a person accredited in accordance with section 142B(1)(c) of the *Threatened Species Conservation Act, 1995.*	The biodiversity impacts of the project are assessed in **Section 9.4.2** and **Section 9.4.3**. Impacts have been assessed in accordance with the FBA, as outlined in **Section 9.1** and **Section 9.2**.
	2. The Proponent must assess any impacts on biodiversity values not covered by the FBA, as specified in section 2.3, including but not limited to aquatic biodiversity values covered by the *Fisheries Management Act 1994*, relating to aquatic species, riparian and marine vegetation, instream macrophytes and habitat condition.	Other impacts not covered by the FBA, including impacts to aquatic habitat, are discussed in **Section 9.4.2** and **Section 9.4.3**.
	3. The Proponent must survey and assess impacts on EECs, threatened species and/or populations and provide the information specified in section 9.2 of the FBA. Species specific surveys shall be undertaken for those species and in accordance with the survey requirements specified by the OEH.	Information relating to surveys is provided in **Section 9.2.3**. Potential impacts on Endangered Ecological Communities (EECs), threatened species and/or populations are identified in **Section 9.4.2** and **Section 9.4.3**.

Key issue and desired performance outcome	Requirement	Where addressed in the EIS
	4. The Proponent must identify whether the project as a whole, or any component of the project, would be classified as a Key Threatening Process (KTP) in accordance with the listings in the *Threatened Species Conservation Act 1995* (TSC Act), *Fisheries Management Act 1994* (FM Act) and *Environmental Protection and Biodiversity Conservation Act 2000* (EPBC Act).	Key threatening processes listed under legislation are discussed in **Section 9.4.2**.
5. Flooding The project minimises adverse impacts on existing flooding characteristics. Construction and operation of the project avoids or minimises the risk of, and adverse impacts from, infrastructure flooding, flooding hazards, or dam failure.	1. Identification of potential impacts and benefits of the proposal 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, storage and direction) and impacts on bed and bank stability, through flood modelling (using a validated model), including: (a) detailed description, justification and assessment of the flood management objectives, and other design objectives and design (including bridge, culvert and embankment design);	Potential impacts and benefits of the construction of the project on existing flood regimes is discussed in **Section 10.5.3**. Potential impacts and benefits during project operation of the project on existing flood regimes is discussed in **Section 10.6.3**. The flood management objectives are described in **Section 10.2.3**. The other design objectives and design are described in **Section 10.2.4**.
	(b) flood assessment and modelling undertaken for a range of flood events, including (as a minimum) the 1 in 10 year, 1 in 100 year 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;	The modelling methodology is outlined in **Section 10.2**. Results of the assessment of blockage of hydraulic structures and climate change are detailed in **Section 10.6.3**. Results of the assessment with consideration of changes in land use on flood hydrology are detailed in **Section 10.5.3** for construction and **Section 10.6.3** for operation.
	(c) 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 1 in 200 year and 1 in 500 year flood events as proxies for assessing sensitivity to an increase in rainfall intensity due to climate change;	The effect of the project on current and future flood behaviour has been modelled with consideration of the identified design events and increased rainfall sensitivity as described in **Section 10.2**. Construction and operational impacts are assessed in **Section 10.5.3** and **Section 10.6.3**, respectively.
	(d) 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;	Construction impacts to afflux and flood duration are detailed in **Section 10.5.3** and operational impacts are discussed in **Section 10.6.3**.

Key issue and desired performance outcome	Requirement	Where addressed in the EIS
	(e) an assessment of impacts associated with the Hunter Valley Flood Mitigation Scheme;	Construction impacts on the Hunter Valley Flood Mitigation Scheme are detailed in **Section 10.5.3** and operational impacts are discussed in **Section 10.6.3**.
	(f) an assessment of flooding during construction of the proposal;	An assessment of flooding during construction of the project is provided in **Section 10.5.3**.
	(g) a cumulative flood assessment of the impact of other major projects recently completed, approved or preparing for construction; and	A cumulative flooding assessment is provided in Section 10.7 and **Chapter 23**.
	(h) 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).	Flood risks to emergency management and access during construction and operation are detailed in **Section 10.5.3** and **Section 10.6.3** respectively.
6. Soils The environmental values of land, including soils, subsoils and landforms, are protected. Risks arising from the disturbance and excavation of land and disposal of soil are minimised, including disturbance to acid sulfate soils and site contamination.	1. The Proponent must verify the risk of acid sulfate soils (Class 1, 2, 3 or 4 on the Acid Sulfate Soil Risk Map) within, and in the area likely to be impacted by, the project.	The risk of acid sulfate soils on the project is discussed in **Section 16.3.2**.
	2. The Proponent must assess the impact of the project on acid sulfate soils (including impacts of acidic runoff offsite) in accordance with the current guidelines.	Construction and operational impacts on acid sulfate soils are described in **Section 16.4.1** and **Section 16.4.2**.
	3. The Proponent must assess whether the land is likely to be contaminated and identify if remediation of the land is required, having regard to the ecological and human health risks posed by the contamination in the context of past, existing and future land uses. Where assessment and/or remediation is required, the Proponent must describe how the assessment and/or remediation would be undertaken in accordance with current guidelines.	Areas of potential contamination risk are identified in **Section 16.3.6**. The contamination assessment and remediation requirements are discussed in **Section 16.4.1** and **Section 16.4.2**. Further remediation requirements are included as part of the management measures in **Section 16.5**.
	4. The Proponent must assess whether salinity is likely to be an issue and if so, determine the presence, extent and severity of soil salinity within the project area.	Existing soil salinity is described in **Section 16.3.4**. Construction and operational impacts relating to soil salinity are discussed in **Section 16.4.1** and **Section 16.4.2**.
	5. The Proponent must assess the impacts of the project on soil salinity and how it may affect groundwater resources and hydrology.	Soil salinity risks in the vicinity of the project are discussed in **Section 16.3.4**. Construction and operational impacts relating to soil salinity are discussed in **Section 16.4.1** and **Section 16.4.2**.

Key issue and desired performance outcome	Requirement	Where addressed in the EIS
		Soil salinity impacts to surface water and groundwater during construction and operation are discussed in **Section 11.4.2** and **Section 11.4.3**.
	6. The Proponent must assess the impacts on soil and land resources (including erosion risk or hazard). Particular attention must be given to soil erosion and sediment transport consistent with the practices and principles in the current guidelines.	Construction and operational impacts relating to soil erosion and sediment transport are discussed in **Section 16.4.1** and **Section 16.4.2**, respectively.
7. Water - Hydrology Long term impacts on surface water and groundwater hydrology (including drawdown, flow rates and volumes) are minimised. 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). Sustainable use of water resources.	1. The Proponent must describe (and map) the existing hydrological regime for any surface and groundwater resource (including reliance by users and for ecological purposes) likely to be impacted by the project, including stream orders, as per the FBA.	Surface water resources, including the existing hydrological regime as described and mapped by the FBA are discussed in **Section 10.3.2**. Groundwater resources, including the existing hydrological regime as described and mapped by the FBA are discussed in **Section 10.3.4**. Mapping of existing surface water and groundwater resources is found in **Figure 10-5** and **Figure 10-6**. The biodiversity impacts of the project are assessed in accordance with the FBA in **Section 9.4.2** and **Section 9.4.3** and Chapter 8 of the Biodiversity Assessment Report (**Appendix I**).
	2. The Proponent must prepare a detailed water balance for ground and surface water including the proposed intake and discharge locations, volume, frequency and duration.	The construction site water balance is detailed in **Section 10.5.5**. The operational site water balance is detailed in **Section 10.6.5**.
	3. The Proponent must assess (and model if appropriate) the impact of the construction and operation of the project and any ancillary facilities (both built elements and discharges) on surface and groundwater hydrology in accordance with the current guidelines, including: (a) natural processes within 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), aquatic connectivity and access to habitat for spawning and refuge;	Impacts to surface water and groundwater hydrology during construction and operation are detailed in **Section 10.5** and **Section 10.6** respectively. The impact of the project on existing surface water processes and health during construction and operation is discussed in **Section 10.5.1** and **Section 10.6.1** respectively. This includes consideration of modified discharge volumes, durations and velocities. Impacts from the project to riparian vegetation, aquatic connectivity and access to aquatic habitats for spawning and refuge are assessed in **Section 9.4.2** and **Section 9.4.3** and Chapter 8 of the Biodiversity Assessment Report (**Appendix I**).

Key issue and desired performance outcome	Requirement	Where addressed in the EIS
		Impacts from the project to aquatic connectivity and access to aquatic habitats for spawning and refuge are assessed in **Section 9.4.2** and **Section 9.4.3**.
	(b) impacts from any permanent and temporary interruption of groundwater flow, including the extent of drawdown, barriers to flows, implications for groundwater dependent surface flows, ecosystems and species, groundwater users and the potential for settlement;	Impacts to groundwater flow during construction and operation are assessed in **Section 10.5.2** and **Section 10.6.2** respectively.
	(c) impacts on regional hydrology, in particular the Tomago Sandbeds Catchment Area drinking water supply;	Impacts to regional hydrology, including impacts to the Tomago Sandbeds Catchment Area, during construction and operation are detailed in **Section 10.5** and **Section 10.6** respectively.
	(d) changes to environmental water availability and flows, both regulated/licensed and unregulated/rules-based sources;	Changes to environmental water availability and flows have been assessed. Construction and operational impacts are assessed in **Section 10.5** and **Section 10.6** respectively.
	(e) direct or indirect increases in erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses;	Changes to erosion and siltation as a result of construction and operation are detailed in **Section 10.5** and **Section 10.6** respectively. Impacts from the project to riparian vegetation are assessed in **Section 9.4.2** and **Section 9.4.3** and Chapter 8 of the Biodiversity Assessment Report (**Appendix I**).
	(f) 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; and	Impacts of stormwater during construction and operation are detailed in **Section 10.5** and **Section 10.6** respectively. Wastewater management is assessed in **Chapter 19**.
	(g) water take (direct or passive) from all surface and groundwater sources with estimates of annual volumes during construction and operation.	Water take during construction and operation is detailed in **Section 10.5.1** and **Section 10.6.1** respectively.
	4. The Proponent must identify any requirements for baseline monitoring of hydrological attributes.	Requirements for baseline monitoring of hydrological attributes are identified in Appendix K and Appendix L of the Hydrology and Flooding Working Paper (**Appendix J**).

Key issue and desired performance outcome	Requirement	Where addressed in the EIS
	5. The assessment must include details of proposed surface and groundwater monitoring.	Requirements for baseline monitoring of hydrological attributes are identified in Appendix K and Appendix L of the Hydrology and Flooding Working Paper **Appendix J**.
8. Water - Quality The project is designed, constructed and operated to protect the NSW Water Quality Objectives where they are currently being achieved, and contribute towards achievement of the Water Quality Objectives over time where they are currently not being achieved, including downstream of the project to the extent of the project impact including estuarine and marine waters (if applicable).	1. The Proponent must: (a) state the ambient NSW Water Quality Objectives (NSW WQO) and environmental values for the receiving waters relevant to the project, including the indicators and associated trigger values or criteria for the identified environmental values;	The NSW WQOs, associated trigger values and nominated environmental values for receiving waterways and wetlands relevant to the project are presented in **Section 11.2.4**.
	(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;	Pollutants that may be introduced into the water cycle by source and discharge point during construction, and their impacts to human health and the environment are discussed in **Section 11.4.2**. Estimated loads during operation and how they relate to WQOs are discussed in **Section 11.4.3**. Pollutants that may be introduced into the water cycle by source and discharge point during operation, and their impacts to human health and the environment are discussed in **Section 11.4.3**.
	(c) identify the rainfall event that the water quality protection measures will be designed to cope with;	**Section 11.4.2** identifies the rainfall event for which the water quality protection measures have been designed. Construction sediment basin and operational water quality basin sizing is provided in the Surface Water and Groundwater Quality Working Paper (**Appendix K**).
	(d) assess the significance of any identified impacts including consideration of the relevant ambient water quality outcomes;	Existing surface water quality of receiving waterways is described in **Section 11.3.1**. Identified impacts to surface water quality from construction, including impacts to water quality outcomes, are discussed in **Section 11.4.2**. Identified impacts to surface water quality from operation, including impacts to water quality outcomes, are discussed in **Section 11.4.3**.
	(e) demonstrate how construction and operation of the project will, to the extent that the project can influence, ensure that:	The NSW WQOs refer to the ANZG (2018) and other guidelines to assess compliance, as further detailed in **Section 11.2**.

Key issue and desired performance outcome	Requirement	Where addressed in the EIS
	− where the NSW WQOs for receiving waters are currently being met they will continue to be protected; and − where the NSW WQOs are not currently being met, activities will work toward their achievement over time;	Existing surface water quality and compliance with ANZG (2018) values is discussed in **Section 11.3.1**. Water quality controls and management measures to protect water quality objectives are described in **Section 11.4.2**, **Section 11.4.3** and **Section 11.5**. The project's influence on meeting the WQOs during construction and operation is discussed in **Section 11.4.2** and **Section 11.4.3**.
	(f) justify, if required, why the WQOs cannot be maintained or achieved over time;	Discussion about maintaining or achieving WQOs over time is provided in **Section 11.4.2** and **Section 11.4.3**.
	(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;	Construction and operational impacts on surface water and groundwater quality are discussed in **Section 11.4.2** and **Section 11.4.3** respectively. Avoidance of impacts to surface water and groundwater quality is discussed in **Section 11.4.1**. Water quality controls and management measures to protect human health and the environment are described in **Section 11.4.2**, **Section 11.4.3** and **Section 11.6**.
	(h) identify sensitive receiving environments (including estuarine and marine waters downstream and the Tomago Sandbeds Catchment Area) and develop a strategy to avoid or minimise impacts on these environments; and	The method for identifying sensitive receiving environments (SREs) is provided in **Section 11.2.2**. SREs (including the Tomago Sandbeds Catchment Area) are discussed in **Section 11.3.3**. Water quality controls and management measures for protecting SREs are discussed in **Section 11.4.2**, **Section 11.4.3** and **Section 11.5**.
	(i) identify proposed monitoring locations, monitoring frequency and indicators of surface and groundwater quality.	Proposed water monitoring locations are shown in **Figure 11-1** and discussed in **Section 11.5.1**. Water quality monitoring frequency and indicators details are provided in **Section 11.5.1**.
	2. The assessment should consider the results of any current water quality studies, as available, in the project catchment.	Existing surface water quality in the surface water and groundwater study area is discussed in **Section 11.3.1** and **Section 11.3.2** respectively.

Key issue and desired performance outcome	Requirement	Where addressed in the EIS
		Existing surface water and groundwater quality is further discussed in the Surface Water and Groundwater Quality Working Paper (**Appendix K**).
9. Climate Change Risk The project is designed, constructed and operated to be resilient to the future impacts of climate change.	1. The Proponent must assess the risk and vulnerability of the project to climate change in accordance with the current guidelines.	**Section 21.1** outlines the relevant legislation, policy and guidelines that were used to assess potential impacts. **Section 21.4** assesses the risk and vulnerability of the project to climate change. **Section 10.6.3** describes the potential impacts to the project resulting from flooding in future climate change scenarios.
	2. The Proponent must quantify specific climate change risks with reference to the NSW Government's climate projections at 10km resolution (or lesser resolution if 10km projections are not available) and incorporate specific adaptation actions in the design.	**Section 21.4** assesses the specific climate change risks associated with the project and **Section 21.5** outlines specific measures which will be used in future stages of the project. The climate change flooding assessment in **Section 10.6.3** has been conducted in accordance with the NSW Government guidelines for sea level rise and with consideration of Australian Rainfall and Runoff 2019 guidance for increases in rainfall intensity.
10. Urban Design The project design complements the visual amenity, character and	1. The Proponent must: (a) identify the urban design and landscaping aspects of the project and its components, including interchanges, bridge and viaduct structures, embankments, noise barriers (including walls and mounds), ancillary buildings, and road infrastructure facilities and services;	The urban design and landscaping aspects of the project and its components are identified in **Table 15-4**.

Key issue and desired performance outcome	Requirement	Where addressed in the EIS
quality of the surrounding environment. The project contributes to the accessibility and connectivity of communities.	(b) assess the impact of the project on the urban, rural and natural fabric, including residual land treatment, and demonstration of how the proposed hard and soft urban design elements of the project would be consistent with the existing and desired future character of the area traversed or affected by the project;	The impact of the project on landscape character is assessed in **Section 15.5**. Residual land treatment is discussed in **Section 5.3.19**, **Section 14.4.1** and **Table 15-4**. **Section 15.3.3** describes the urban design approach, objectives and principles to maximise integration of the project with the character of the area. Consistency of hard project elements including bridges, retaining walls, noise barriers and roadside furniture, with the existing and desired future character of the area is described in **Table 15-4** and **Section 15.3.4**. Consistency of soft project elements such as earthwork formations, drainage and stormwater and landscape design is described in **Table 15-4** and **Section 15.3.4**.
	(c) explore the use of Crime Prevention Through Environmental Design (CPTED) principles during the design development process, including natural surveillance, lighting, walkways, signage and landscaping;	CPTED is discussed in **Section 15.3.4**.
	(d) identify urban design strategies to enhance healthy, cohesive and inclusive communities directly impacted by the project; and	The urban design strategy plans are detailed in **Section 15.3.3**. Urban design treatments for project elements are described in **Table 15-4**.
	(e) describe urban design and landscape mitigation measures, having regard to the urban design and landscape objectives for the project.	The urban design and landscape concept is shown in **Section 15.3.4** and further described in the Urban Design, Landscape Character and Visual Amenity Working Paper (**Appendix O**). Urban design and landscape management measures are provided in **Section 15.6**.
11. Visual Amenity The project minimises adverse impacts on the visual amenity of the built and natural environment (including public open	1. The Proponent must assess the visual impact of the project and any ancillary infrastructure (including noise barriers) on: (a) views and vistas;	The visual impact of the project on views and vistas is assessed in **Section 15.5**.
	(b) streetscapes, key sites and buildings;	The visual impact of the project on streetscapes, key sites and buildings is assessed in **Section 15.5**.

Key issue and desired performance outcome	Requirement	Where addressed in the EIS
space) and capitalises on opportunities to improve visual amenity.	(c) heritage items including Aboriginal places and environmental heritage; and	The visual impact of the project on heritage items (including Aboriginal places and environmental heritage) is assessed in **Section 15.5** Visual impacts to Aboriginal places are also discussed in **Chapter 12** and environmental heritage in **Chapter 17**.
	(d) the local community (including view loss and overshadowing).	The visual impact of the project on the local community (including view loss and overshadowing) is assessed in **Section 15.5**.
	2. The Proponent must provide artist impressions and perspective drawings of the project from a variety of locations along and adjacent to the route to illustrate how the project has responded to the visual impact through urban design and landscaping.	**Section 15.3.3** provides the strategy plans for the project. Urban design concept plans are shown in **Figure 15-2** to **Figure 15-5**, and further described in the Urban Design, Landscape Character and Visual Amenity Working Paper (**Appendix O**). Indicative photomontages with the project and embedded design mitigation in place have been provided in **Table 15-9**.
12. Socio-economic, Land Use and Property The project minimises adverse social and economic impacts and capitalises on opportunities potentially available to affected communities. The project 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	1. The Proponent must assess social and economic impacts in accordance with the current guidelines (including cumulative ongoing impacts of the project).	Guidelines relevant to the socio-economic assessment are discussed in **Section 13.1**. The assessment methodology is discussed in **Section 13.2**. The social and economic impacts of the project during construction and operation are assessed in **Section 13.4**. Cumulative social and economic impacts are discussed in **Chapter 23**.
	2. The Proponent must assess impacts from construction and operation on potentially affected properties, businesses, Crown Land, Council assets and services, recreational users, and land and water users (including recreational and commercial fishers, and oyster and aquaculture farmers), including property acquisitions/adjustments, access, amenity and relevant statutory rights.	Relevant impacts on businesses (including commercial oyster and aquaculture farmers), Council assets and services, recreational users, and land and water users from construction and operation are discussed in **Section 13.4**. Relevant impacts on potentially affected properties and Crown land, including property acquisition / adjustments, access and relevant statutory rights from construction and operation are discussed in **Section 14.4**.
	3. The Proponent must assess impacts on: (a) any operating mines, extractive industries or known mineral or petroleum resources;	Impacts of the project on operating mines, extractive industries and known resources are assessed in **Section 14.4**.

Key issue and desired performance outcome	Requirement	Where addressed in the EIS
land use activities, dwellings and infrastructure. Effective engagement is undertaken with stakeholders during project design and delivery.	(b) exploration activities in the vicinity of the project; and	Impacts of the project on exploration activities in the vicinity of the project are assessed in **Section 14.4**.
	(c) access for future exploration in the area.	Impacts of the project on future exploration in the area is assessed in **Section 14.4**.
	4. The design, construction and operation of the project should address and minimise (existing and future) land use conflicts and operations (including existing and ongoing agricultural activities). Siting of project elements should be located in such a way that functional, contiguous areas of residual land and land uses are maximised.	Impacts of the project on existing and future land uses is assessed in **Section 14.4**.
	5. The Proponent must undertake an assessment of biosecurity risks and management measures relating to the potential for spread of pests, disease or weeds, in accordance with the 'general biosecurity duty' under the *Biosecurity Act 2015.*	The potential for weeds and pests to impact on rural land uses is described in **Section 14.4.2**. A detailed discussion and assessment of impacts associated with the potential spread of pests, disease or weeds, and the 'general biosecurity duty' is provided in **Section 9.4**.
	6. The Proponent must assess potential impacts on utilities (including communications, electricity, gas, and water and sewerage) and the relocation of these utilities.	Utility relocations, adjustments and protection are described and assessed in **Section 14.4.5**. **Section 5.3.1** also described utilities.
	7. A draft Community Consultation Framework must be prepared identifying relevant stakeholders, procedures for distributing information and receiving/responding to feedback and procedures for resolving stakeholder and community complaints during the design, construction and operation of the project. Key issues that must be addressed in the draft Framework include, but are not limited to: (a) traffic management (including property, cyclist and pedestrian access),	A draft Community Consultation Framework has been prepared and is provided in **Appendix E**. The draft Community Consultation Framework is briefly discussed in **Section 6.4.1**.
	(b) landscaping/urban design matters,	
	(c) hydrology and flooding,	
	(d) staging and timing of construction activities including out of hours work and utility relocation,	
	(e) noise and vibration mitigation and management,	

Key issue and desired performance outcome	Requirement	Where addressed in the EIS
	(f) soil erosion and water quality management, and	
	(g) interaction with existing land uses.	
13. Heritage The design, construction and operation of the project facilitates, to the greatest extent possible, the long term protection, conservation and management of the heritage significance of items of environmental heritage and Aboriginal objects and places. The design, construction and operation of the project avoids or minimises impacts, to the greatest extent possible, on the heritage significance of environmental heritage and Aboriginal objects and places.	1. The Proponent must identify and assess any direct and/or indirect impacts (including cumulative impacts) to the heritage significance of: (a) Aboriginal places and objects, as defined under the *National Parks and Wildlife Act 1974* and in accordance with the principles and methods of assessment identified in the current guidelines;	Impacts on the heritage significance of Aboriginal places and objects are assessed in **Section 12.5** and **Section 12.6**.
	(b) Aboriginal places of heritage significance, as defined in the Standard Instrument – Principal Local Environmental Plan;	There are no Aboriginal places of heritage significance within the construction footprint listed on the Newcastle Local Environmental Plan 2012 or the Port Stephens Local Environmental Plan 2013 (refer to **Section 12.4.3**). There are no project related direct or indirect impacts on Aboriginal Heritage outside of the study area.
	(c) environmental heritage, as defined under the *Heritage Act 1977*; and	No Aboriginal places of heritage significance within the construction footprint are defined as environmental heritage (refer to **Section 12.4.3**). Direct and indirect impacts on environmental (non-Aboriginal) heritage are identified and assessed in **Section 17.4.2**. Cumulative impacts, including cumulative impacts on environmental heritage, are assessed in **Chapter 23**.
	(d) items listed on the National and World Heritage lists.	There are no heritage items within the construction footprint that are listed on the National or World Heritage lists (refer to **Section 12.4.3** and **Section 17.3.2**).
	2. Where impacts to State or locally significant heritage items are identified, the assessment must: (a) include a significance assessment and statement of heritage impact for all heritage items (including any unlisted places that are assessed as having heritage value);	Significance assessments and statements of heritage impacts are summarised in **Section 17.3.4** and **Section 17.4.2**, respectively. The full assessments are detailed in the Non-Aboriginal Heritage Working Paper (**Appendix Q**).

Key issue and desired performance outcome	Requirement	Where addressed in the EIS
	(b) provide a discussion of alternative locations and design options that have been considered to reduce heritage impacts;	**Chapter 4** discusses project alternatives and design options considered for the project, including how impacts have been avoided through the design development process. Discussion on considered alternative location and design options relevant to environmental heritage is provided in **Section 17.4.1**.
	(c) in areas identified as having potential archaeological significance, undertake a comprehensive archaeological assessment in line with Heritage Council guidelines which includes a methodology and research design to assess the impact of the works on the potential archaeological resource and to guide physical archaeological test excavations and include the results of these excavations;	Following discovery of historical artefact deposits during test excavation for Aboriginal heritage, one item (Glenrowan Homestead) was assessed as having potential archaeological significance (refer to **Section 17.3**). A detailed archaeological assessment was carried out for Hexham Shipyards and Tarro Historic Site however neither required test excavation as works are not impacting on the location of archaeology. A summary of the significance assessment for these sites is provided in **Section 17.3.4**. Further information on the detailed archaeological assessment, the test excavation results, archaeological assessment, methodology and research design for the salvage excavation at Glenrowan Homestead (Item 3) is provided in the Non-Aboriginal Heritage Working Paper (**Appendix Q**).
	(d) consider impacts to the item of significance caused by, but not limited to, vibration, demolition, archaeological disturbance, altered historical arrangements and access, increased traffic, visual amenity, landscape and vistas, curtilage, subsidence and architectural noise treatment (as relevant);	Statements of heritage impact, which consider direct and indirect impacts, are summarised in **Section 17.4.2**. The full assessments are detailed in the Non-Aboriginal Heritage Working Paper (**Appendix Q**).
	(e) outline measures to avoid and minimise those impacts in accordance with the current guidelines; and	Proposed environmental management measures to minimise impacts on non-Aboriginal heritage are provided in **Section 17.5**.
	(f) be undertaken by a suitably qualified heritage consultant(s) (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria).	Details of the qualified heritage consultants who carried out the non-Aboriginal heritage assessment are provided in the Non-Aboriginal Heritage Working Paper (**Appendix Q**).

Key issue and desired performance outcome	Requirement	Where addressed in the EIS
	3. 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 of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010). In the event that harm to existing archaeological relics cannot be avoided, a Research Design and Excavation Methodology should be prepared to guide excavation works.	Archaeological investigations previously carried out for the project are described in **Section 12.2.6** and **Section 12.2.7**. A Research Design and Excavation Methodology will be prepared and included in the Aboriginal Cultural Heritage Management Plan for the project (refer tp **Section 12.7**).
	4. Where impacts to Aboriginal objects and/or places are proposed, consultation must be undertaken with Aboriginal people in accordance with the current guidelines. The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be assessed.	**Section 12.3** outlines consultation that must be carried out with Aboriginal people. **Section 12.4.4** identifies areas of cultural significance. Future consultation is discussed in **Section 6.4**.
14. Air Quality The project is designed, constructed and operated in a manner that minimises air quality impacts (including nuisance dust and odour) to minimise risks to human health and the environment to the greatest extent practicable.	1. The Proponent must undertake an air quality impact assessment (AQIA) for construction and operation of the project in accordance with the current guidelines.	The air quality impact assessment for the project is provided in the Air Quality Working Paper (**Appendix R**). A summary of the working paper is provided in **Chapter 8**, with details of current guidelines provided in **Section 18.1**.
	2. The Proponent must ensure the AQIA also includes the following: (a) demonstrated ability to comply with the relevant regulatory framework, specifically the *Protection of the Environment Operations Act 1997* and the *Protection of the Environment Operations (Clean Air) Regulation 2010*;	The regulatory framework as relevant to the air quality assessment (with specific reference to the *Protection of the Environment Operations Act 1997* and the Protection of the Environment Operations (Clean Air) Regulation 2010) is discussed in **Section 18.1**. The compliance of the project with the regulatory framework is discussed in **Section 18.4**.
	(b) an assessment of the impacts of the construction and operation of the project on sensitive receivers and the local community, including risks to human health;	The location of existing sensitive receivers is provided in **Section 18.3.1**. The risks of air quality issues to human health are provided in **Section 18.4.1**, while the assessment of these air quality issues during construction and operational is provided in **Section 18.4**.
	(c) details of the proposed mitigation measures to minimise the generation and emission of dust (particulate matter and TSP) and air pollutants (including odours) during the construction of the project, particularly in relation to the operation of ancillary facilities (such as concrete and asphalt batching, treatment of acid sulfate soils and	Specific environmental management measures to minimise impacts from dust and air pollutants (including odours) during construction and the operation of ancillary facilities and activities are outlined in **Section 18.5**.

Key issue and desired performance outcome	Requirement	Where addressed in the EIS
	stockpiling of mulch), the use of mobile plant and machinery, stockpiles and the processing and movement of spoil, and construction vehicle movement along the alignment; and	
	(d) a cumulative assessment of the local and regional air quality.	Potential cumulative impacts are assessed in **Chapter 23**.
15. Waste All wastes generated during the construction and operation of the project are effectively stored, handled, treated, reused, recycled and/or disposed of lawfully and in a manner that protects environmental values.	1. The Proponent must assess predicted waste generated from the project during construction and operation, including: (a) classification of the waste in accordance with the current guidelines;	**Section 19.1** outlines the relevant legislation, policy and guidelines that were used to assess potential impacts. **Table 19-3** provides preliminary classifications of expected wastes.
	(b) estimates / details of the quantity of each classification of waste to be generated during the construction of the project, including bulk earthworks and spoil balance;	**Section 19.4.2** provides estimates of the quantity of waste to be generated during the construction of the project.
	(c) handling of waste including measures to facilitate segregation and prevent cross contamination;	**Section 19.5** outlines proposed environmental management measures to facilitate segregation and prevent cross contamination of wastes.
	(d) management of waste including estimated location and volume of stockpiles;	**Section 19.4.2** provides estimates of the volume and location of stockpiles.
	(e) waste minimisation (particularly of unsuitable material) and reuse;	**Section 19.5** provides an overview of waste minimisation measures.
	(f) lawful disposal or recycling locations for each type of waste; and	**Table 19-2** identifies waste and recycling facilities near the project.
	(g) contingencies for the above, including managing unexpected waste volumes.	**Section 19.5** describes the proposed contingencies and other proposed environmental management measures for the project, including managing unexpected waste volumes.
	2. The Proponent must assess potential environmental impacts from the excavation, handling, storage on site, and transport and disposal of the waste particularly with relation to sediment/leachate control, noise and dust, and traffic and transport.	**Section 19.4.1** and **Section 19.4.3** assesses the waste that is predicted to be generated during construction and operation of the project. **Section 11.4** assesses the water quality impacts of the project from sediment and leachate. **Section 8.4** and **Section 8.5** assess the noise impacts of the project. **Section 18.4** assesses the dust impacts of the project.

Key issue and desired performance outcome	Requirement	Where addressed in the EIS
		Section 7.4 and **Section 7.5** assess the traffic and transport impacts of the project.
16. Sustainability The project reduces the NSW Government's operating costs and ensures the effective and efficient use of resources. Conservation of natural resources is maximised.	1. The Proponent must assess the project against the current guidelines including targets and strategies to improve Government efficiency in use of water, energy and transport.	**Section 20.1** lists the relevant guidelines, strategies and policies. **Section 20.3** assesses the project against relevant guidance relating to use of water, energy and transport (such as emission reduction). **Section 20.4** describes management measures which focus on improving the resource use efficiency by the government on this project.
17. Safety and Risk The project avoids, to the greatest extent possible, risk to public safety. The project is designed, constructed and operated to be resilient to the future impacts of climate change.	1. The Proponent must assess the likely risks of the project to public safety, paying particular attention to pedestrian safety, subsidence risks, bushfire risks and the storage, handling and use of dangerous goods and contaminated material.	The likely risks of the project are identified and assessed in **Section 22.4**.
	2. The Proponent must assess the biosecurity risk of the project to minimize the inadvertent spread of disease and pathogens affecting agricultural activities, native vegetation and threatened fauna.	The biosecurity risk of the project is assessed in **Section 22.4**. Further information on potential for spread of pests, disease or weeds, and the 'general biosecurity duty' is provided in **Chapter 9** (biodiversity).

Appendix A of the SEARs: Commonwealth (EPBC Act) General Assessment Requirements

Requirement	Where addressed
Key issues	
Key significant impacts associated with proposed action on MNES are associated with the removal of native vegetation, particularly the Coastal Swamp Oak Forest ecological community, and habitat critical to the survival of the Koala, Swift Parrot, Regent Honeyeater, and Grey-headed Flying-fox. These impacts must be appropriately offset for EPBC Act purposes.	Key significant impacts associated with proposed action on MNES are discussed in **Section 9.2.3** and **Section 9.2.4**. A Biodiversity Offset Strategy (BOS) has been prepared for the project and is provided in **Appendix I**.
General assessment requirements	
For each of the EPBC Act-listed species and ecological communities impacted by the proposed action, the EIS must provide: 1. Survey results, including details of the scope, timing and methodology for studies or surveys used and how they are consistent with (or justification for divergence from) published Commonwealth guidelines and policy statements. For ecological communities, this includes any condition thresholds provided in the listing advice or approved conservation advice.	A summary of the surveys is presented in **Section 9.2.3**. Further details of surveys such as timing, scope and methodologies are provided in the Biodiversity Assessment Report (BAR) (**Appendix I**).
2. A description and quantification of habitat in the study area (including suitable breeding habitat, suitable foraging habitat, important populations and habitat critical for survival), with consideration of, and reference to, any relevant Commonwealth guidelines and policy statements including listing advices, conservation advices and recovery plans, threat abatement plans.	A description of habitat within the study area is provided in **Section 9.3**. Further details are provided in the BAR (**Appendix I**).
3. Maps displaying the above information (specific to EPBC matters) overlaid with the proposed action. It is acceptable, where possible, to use the mapping and assessment of Plant Community Types (PCTs) and the species surveys prescribed by the BAM as the basis for identifying EPBC Act-listed species and communities. The EIS must clearly identify which PCTs are considered to align with habitat for the relevant EPBC Act-listed species or community, and provide individual maps for each species or community.	The PCTs and threatened ecological communities within the construction footprint have been mapped in **Figure 9-5** and **Figure 9-6** respectively. **Table 9-6** identifies the PCTs that align with the threatened ecological communities. **Section 9.3.5** identifies habitat for threatened species listed under the TSC Act and the EPBC Act. Threated species recorded within and adjacent to the construction footprint are displayed on **Figure 9-7**. Individual maps are provided in the BAR (**Appendix I**).
4. Description of the nature, geographic extent, magnitude, timing and duration of any likely direct, indirect and consequential impacts on any relevant EPBC Act-listed species and communities. It must clearly identify the location and quantify the extent of all impact areas to each relevant EPBC Act-listed species or community.	Impacts to EPBC Act listed species and migratory species are detailed in the BAR (**Appendix I**) and summarised in **Section 9.4.2** and **Section 9.4.3**.

Requirement	Where addressed
5. Information on proposed avoidance and mitigation measures to deal with the impacts of the action, and a description of the predicted effectiveness and outcomes that the avoidance and mitigation measures will achieve.	Design refinements that have avoided or minimised potential impacts of the project are outlined in **Section 9.4.1**. Environmental management measures identified to minimise the biodiversity impacts of the project are presented in **Section 9.5**.
6. Quantification of the offset liability for each species and community significantly impacted, and information on the proposed offset strategy, including discussion of the conservation benefit for each species and community, how offsets will be secured, and the timing of protection. It is a requirement that offsets directly contribute to the ongoing viability of the specific protected matter impacted by a proposed action i.e. 'like-for-like'. Like-for-like includes protection of native vegetation that is the same ecological community or habitat being impacted (preferably in the same region where the impact occurs), or funding to provide a direct benefit to the matter being impacted e.g. threat abatement, breeding and propagation programs or other relevant conservation measures.	Quantification of offset liability is provided in **Section 9.6**. A BOS has been prepared for the project and is provided in **Appendix I**.