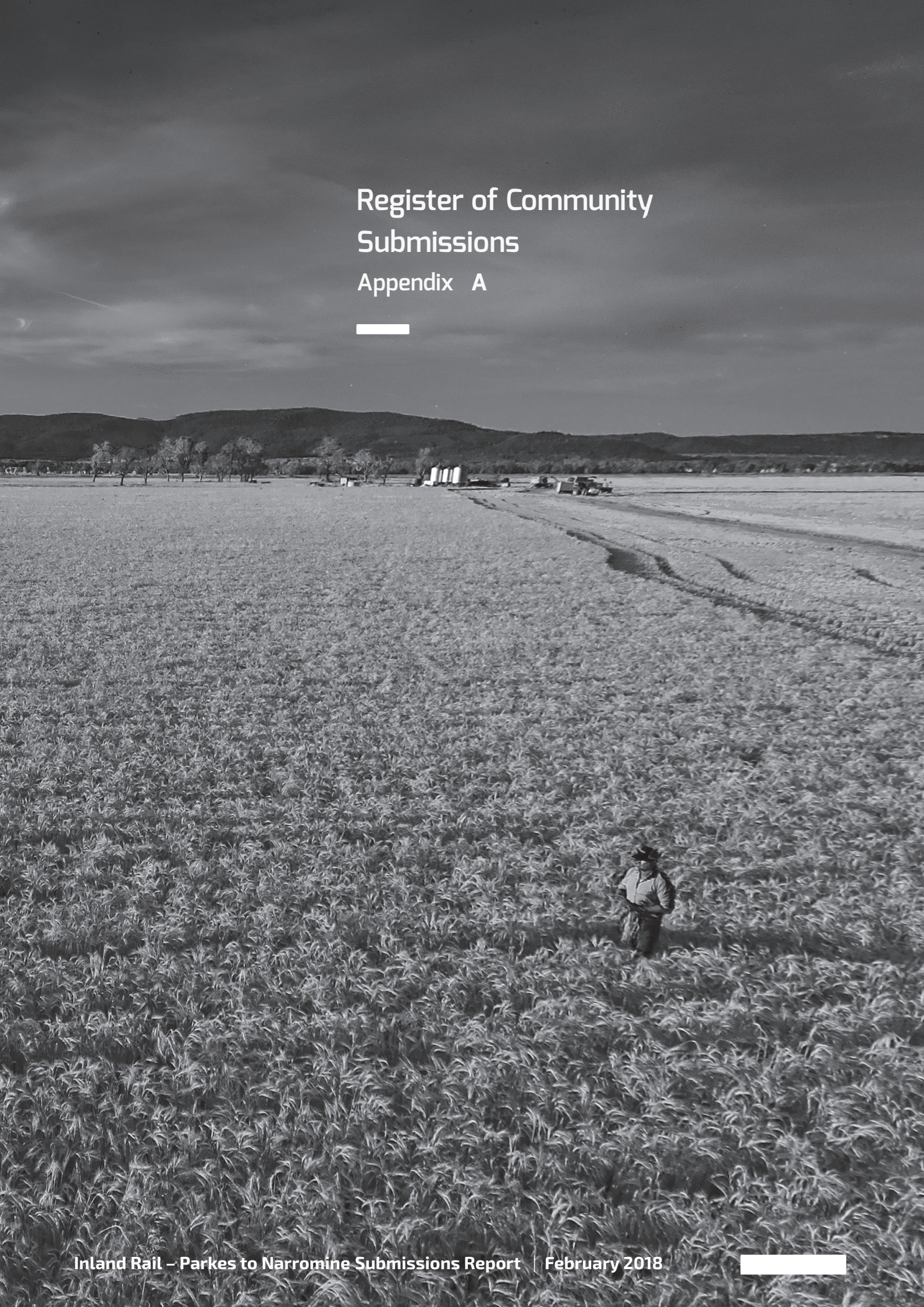


Register of Community Submissions

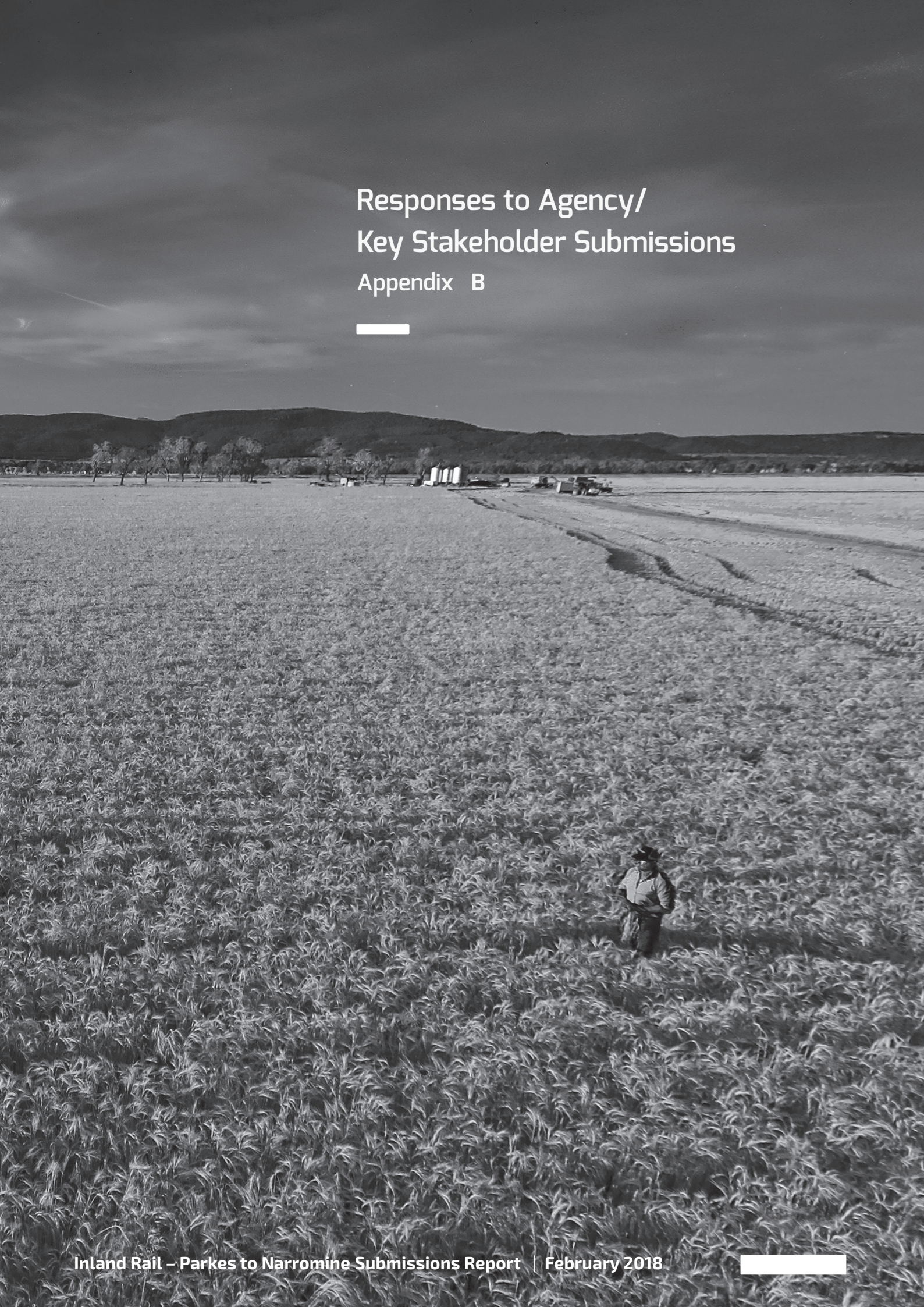
Appendix A

Table A-1 Summary of community submissions and response locations

Sub no	Submitter	Key issue raised	Sub-issues	Report section
21_13	Anonymous_Parkes	Proposal features and design	Level crossings	Section 6.2.2
19_P12	Warick Kopp	Health and safety	Safety at rail and level crossings	Section 6.10.1
17_11	Anonymous_Narromine	Land use and property	Property values and compensation	Section 6.8.1
17_11	Anonymous_Narromine	Noise and vibration	Construction impacts	Section 6.5.1
17_11	Anonymous_Narromine	Noise and vibration	Operational impacts	Section 6.5.2
15_P10	Christopher Dalitz	Out of scope	Not applicable	Section 6.11.2
15_P10	Christopher Dalitz	Proposal features and design	Design	Section 6.2.1
15_P10	Christopher Dalitz	Proposal features and design	Design	Section 6.2.1
14_09	Anonymous_Peak Hill	Noise and vibration	Construction impacts	Section 6.5.1
14_09	Anonymous_Peak Hill	Noise and vibration	Operational impacts	Section 6.5.2
14_09	Anonymous_Peak Hill	Air quality	Construction impacts - dust	Section 6.6.2
14_09	Anonymous_Peak Hill	Land use and property	Property values and compensation	Section 6.8.1
14_09	Anonymous_Peak Hill	Land use and property	Property impacts	Section 6.8.2
14_09	Anonymous_Peak Hill	Health and safety	Safety at rail and level crossings	Section 6.10.1
14_09	Anonymous_Peak Hill	Proposal features and design	Level crossings	Section 6.2.2
14_09	Anonymous_Peak Hill	Health and safety	Maintenance of the existing corridor	Section 6.10.2
13_P8	Anonymous_Narromine	Proposal benefits	Not applicable	Section 6.3.2

Sub no	Submitter	Key issue raised	Sub-issues	Report section
13_P8	Anonymous_Narromine	Land use and property	Property values and compensation	Section 6.8.1
13_P8	Anonymous_Narromine	Socio-economic	Operational impacts	Section 6.9.2
12_P7	Anonymous_Peak Hill	Noise and vibration	Noise mitigation measures	Section 6.5.3
12_P7	Anonymous_Peak Hill	Noise and vibration	Construction impacts	Section 6.5.1
06_C1	Anonymous_Peak Hill	Noise and vibration	Operational impacts	Section 6.5.2
06_C1	Anonymous_Peak Hill	Proposal features and design	Level crossings	Section 6.2.2
09_P5	Pauline Allen	Noise and vibration	Operational impacts	Section 6.5.2
09_P5	Pauline Allen	Noise and vibration	Noise mitigation measures	Section 6.5.3
08_P4	Robert Handsaker	Land use and property	Property values and compensation	Section 6.8.1
08_P4	Robert Handsaker	Proposal features and design	Level crossings	Section 6.2.2
07_P4	Robert Handsaker	Land use and property	Property values and compensation	Section 6.8.1
06_P3	Charissa Thurbon	Noise and vibration	Operational impacts	Section 6.5.2
06_P3	Charissa Thurbon	Health and safety	Safety at rail and level crossings	Section 6.10.1
06_P3	Charissa Thurbon	Traffic, transport and access	Operation impacts – level crossing traffic delays	Section 6.4.1
06_P3	Charissa Thurbon	Landscape and visual	Operational impact - visual	Section 6.7.2
05_P2	Leslie Radford	Land use and property	Property values and compensation	Section 6.8.1
05_P2	Leslie Radford	Noise and vibration	Operational impacts	Section 6.5.2

Sub no	Submitter	Key issue raised	Sub-issues	Report section
05_P2	Leslie Radford	Land use and property	Property values and compensation	Section 6.8.1
05_P2	Leslie Radford	Health and safety	Safety at rail and level crossings	Section 6.10.1
05_P2	Leslie Radford	Noise and vibration	Operational impacts	Section 6.5.2
05_P2	Leslie Radford	Traffic, transport and access	Operation impacts – level crossing traffic delays	Section 6.4.1
Late submission	Anonymous	Health and safety	Safety at rail and level crossings	Section 6.10.1
Late submission	Anonymous	Socio-economic	Operational impacts	Section 6.9.2
Late submission	Anonymous	Land use and property	Property values and compensation	Section 6.8.1
Late submission	Anonymous	Proposal features and design	Level crossings	Section 6.2.2
Late submission	Anonymous	Noise and vibration	Operational impacts	Section 6.5.2
Late submission	Anonymous	Land use and property	Property values and compensation	Section 6.8.1
Late submission	Anonymous	Noise and vibration	Noise mitigation measures	Section 6.5.3
Late submission	Anonymous	Proposal features and design	Design	Section 6.2.1



Responses to Agency/ Key Stakeholder Submissions

Appendix B

Table B-1 Parkes Shire Council

Submission section/item ref	Key issue	Summary of issue	Response
Parkes north west connection	Traffic, transport and access	Would like to investigate safe crossing treatments for Coopers Road to remain open.	The detailed design has indicated that the preferred option is now a level crossing at Coopers Road. Refer to section 5.2.3 of this report. Mitigation measure D2.1 states that the detailed design of the proposal would minimise the potential for impacts to the surrounding road and transport network, property accesses, and access for emergency vehicles. Mitigation measure D2.2 commits ARTC to consulting with Council regarding the final design and potential impacts to the road network.
Level crossings and traffic and road network impacts	Traffic, transport and access	Council would need to fully consider the impacts of any public road crossings that would be affected by the proposal. Council would need to review construction impacts on rail level crossings and has noted additional information that would be required.	As described in section 6.3.3 of the EIS, ARTC has prepared a level crossing strategy for the proposal. The level crossing strategy involves reviewing all crossings along the proposal site to determine the works required to meet relevant crossing standards, guidelines, and Inland Rail operational criteria. ARTC has a consistent process for selecting level crossing safety improvements. The process includes: ▸ conducting site visits and assessments ▸ seeking input from road authority or land owners ▸ designing a proposed solution (safety treatment) ▸ seeking feedback from road authority or landowner. ARTC is currently undertaking stage 2 of the level crossing strategy, which involves consulting with relevant stakeholders to confirm the preferred approach, and finalise the design for the works at each crossing. For public level crossings, ARTC will liaise with the relevant road authority during the design process. To assess public level crossings ARTC would use the Australian Level Crossing Assessment Model (ALCAM), which considers factors such as future road traffic numbers, vehicle type, train numbers, speeds, and sighting distances. Updated traffic counts would also be sourced as part of this process.

Submission section/item ref	Key issue	Summary of issue	Response
			Additionally, the following is noted with regards to the level crossing strategy: ▸ Any closure of public level crossings will be in accordance with State legislation to ensure that relevant issues have been considered and adequate consultation has been undertaken. The relevant road manager will need to agree to the road closure. ▸ Private level crossings will also not be closed unless there is an alternative means of legal access to the property and the landowner has agreed to the closure. It is important to note that no level crossing treatments have been finalised at this time. Mitigation measure D2.2 commits ARTC to review all level crossings and the potential treatments in consultation with relevant stakeholders during the detailed design. The methodology for determining public level crossing treatments is provided in Appendix H.
Public utilities	Land use and property	Council will require impacts from the proposal on Parkes Shire Council-owned public utilities to be fully detailed.	Mitigation measure D10.5 commits ARTC to continuing to consult with utility and service providers during detailed design to identify possible interactions and develop procedures to minimise the potential for service interruptions and impacts on existing land uses.

Table B-2 Narromine Shire Council

Submission section/item ref	Key issue	Summary of issue	Response
Outdated crash data	Traffic, transport and access	Noted that crash history data is outdated and information for new road train routes would be beneficial to describe increased traffic and points of conflict.	As described in chapter 9 of the EIS, the traffic assessment commenced in 2016, when the 2009-2013 data was the most recent data available. More data became available in 2016 after the assessment commenced. As described in section 5.1.2. of this report, the 2012-2016 crash data has been reviewed and while the data is different to that used in the original assessment, the outcomes of the traffic, transport and access assessment provided in the EIS have not changed The review of the updated data did not indicate any significant road safety issues that would be exacerbated by the proposal.

Submission section/item ref	Key issue	Summary of issue	Response
Track work	Noise and vibration (Amenity impacts)	Raised tracks would result in an increase in operational noise and would require consideration of noise attenuation measures where there are sensitive receivers nearby.	Operational noise impacts were assessed in accordance with the RING, as described in section 11.4.4 of the EIS. The assessment included impacts of the track design, increased number of trains, and increased operational speeds. The operational noise assessment was undertaken based on the design vertical alignment, which incorporates all track lifts. Therefore, potential noise mitigation measures have considered the track lifts. Mitigation measure D4.1 specifies that the proposal would be designed with the aim of achieving the operational noise and vibration criteria specified in the EIS. Mitigation measure D4.3 commits ARTC to undertaking an operational noise and vibration review to guide the approach to identifying mitigation measures to be incorporated in the detailed design.

Submission section/item ref	Key issue	Summary of issue	Response
Construction traffic	Traffic, transport and access	Concerned about lack of assessment of construction traffic impacts on local roads between Peak Hill to Narromine, and requested if this would be assessed as part of another study.	The traffic and transport impact assessment (summarised in chapter 9 of the EIS) considered the implications of construction traffic on the operation of the road network, and the potential for delays to other traffic. As the busiest road in the study area, the potential for impacts on the Newell Highway would be generally greater than on local roads. As detailed in Appendix K of the EIS, the issue of road asset condition, and the impacts of this from construction traffic, would be addressed as part of the contractor's Construction Traffic Management Plan, which would be developed in consultation with the relevant road authorities.

Submission section/item ref	Key issue	Summary of issue	Response
Spoil mounds	Hydrology and flooding	The impacts created by spoil mounds placed in the rail corridor need to be investigated.	As detailed in section 7.4.2 of the EIS, the design of spoil mounds would be confirmed during detailed design, when the location and volume of spoil material is better understood. The spoil mounds would be placed within the rail corridor, but not within areas that would adversely affect flooding, such as near watercourses, drainage lines, longitudinal (cess) drains, or culverts within the floodplain (where possible). By their nature, spoil mounds intercept a small volume of local sheet flow, which would be directed around the base of the spoil mounds. Provided the spoil mounds are correctly designed and located, the potential impacts to flows as a result of this minor redirection of flows is considered to be minimal. The updated flood modelling to be undertaken as part of detailed design would consider all relevant aspects of the design, including the placement of spoil mounds. In the event that the detailed flood modelling indicates a potential for the spoil mounds to impact flood levels, the design and/or location of the spoil mounds would be revised to minimise the potential impacts. Mitigation measure D6.1 commits ARTC to undertaking further investigation of the impacts associated with the spoil mounds during detailed design.

Submission section/item ref	Key issue	Summary of issue	Response
Hours of operation	Noise and vibration (Amenity impacts)	Construction hours need to take into account nearby sensitive receivers particularly in rural areas as the background noise levels are much lower than in towns and cities.	Baseline monitoring was undertaken to determine existing noise levels in the vicinity of the proposal, as detailed in section 11.1 and section 11.3.1 of the EIS. The Inland Rail NSW Construction Noise and Vibration Framework and the proposed working hours have been selected with the intention of reducing the duration of construction noise impacts to the community. The majority of the proposal is located in a relatively unpopulated area, and predominantly on an existing railway line. As per the ICNG, noise from longer term works generally creates more frustration for residents and the community than noise from the same type of works occurring for only a few days. ARTC believes that the proposed working hours would minimise the duration of works on noise sensitive receivers without significant sleep disturbance impacts. The ICNG requires an assessment against management levels, above which there may be some community reaction to noise. The noise management level for works undertaken in standard hours is derived from the rating background level (RBL) +10 dB, and for out of hours works it is the RBL +5 dB. ARTC's primary proposal working hours (6am to 6pm, Monday to Sunday) span both standard and out of hours construction periods. To provide a worst-case assessment of impacts, the works were assessed against the out of hours criteria (RBL +5). The EIS identified exceedances at some receivers of up to 33 dB(A) above the baseline of 35 dB(A). While this seems high, it is a reflection of the rural locality, the existing low RBLs (as low as 30dB), and the type of equipment required for rail construction. Rail works require specialised equipment and there is limited opportunity to substitute quieter alternatives. ARTC has however identified a suite of standard mitigation measures in the Inland Rail NSW Construction Noise and Vibration Management Framework, which would be applied to the proposal (as per mitigation measure D4.2).

Submission section/item ref	Key issue	Summary of issue	Response
Flood impacts following construction	Hydrology and flooding	Requested that consultation with Council be undertaken due to the flood impacts predicted on local roads.	To minimise the extent of works, as part of the concept design it was proposed that the existing height of public road level crossings be retained. As a result, the potential for some additional road flooding was identified in the EIS (section 15.3.5). During detailed design, some additional track lifts may be identified at affected level crossings, which would be incorporated into detailed flood modelling. This would allow for the potential impacts to be further refined and, if necessary, mitigation strategies identified for discussion with Council. The flooding impacts reported in the EIS were based on preliminary hydrological modelling, which was undertaken in advance of obtaining detailed survey data for the rail corridor, and ground levels upstream and downstream of the proposal site. As part of the detailed design, detailed hydrological and hydraulic models are being developed to use available survey and ground level data. The modelling uses a comprehensive approach calibrated to regional flow gauge data, which assesses multiple storm event and design scenarios. The detailed analysis would develop a thorough understanding of the existing flood conditions within the catchments, as well as the potential impacts of the project under a range of design scenarios. The detailed design would aim to achieve improved flood immunity and performance of the rail line while not causing significant or perceptible flooding impacts in adjacent land. While it would not be possible to design the proposal to achieve a zero impact on flooding, the proposal would seek to establish reasonable impacts that do not affect the use of adjacent land or compromise the safety of residents and users of the adjacent land and other infrastructure (such as roads and utilities). The hydrology design process is provided in Appendix G. As per mitigation measure D2.1, the detailed design of the proposal would minimise the potential for impacts to the surrounding road and transport network. Mitigation measure D2.2 commits ARTC to consult with Council regarding the final design and potential impacts to the road network. Mitigation measure D6.1 includes a commitment to refine the design to minimise flood impacts.

Submission section/item ref	Key issue	Summary of issue	Response
Subsequent stage of Inland Rail	Approval pathway	Subsequent stages of Inland Rail to the north of the Parkes to Narromine section should be considered as State significant infrastructure due to the sensitivity of the proposed location.	Any proposal to the north of Narromine would be assessed in accordance with the EP&A Act.

Table B-3 NSW Environment Protection Authority

Submission section/item ref	Key-issue	Summary of issue	Response
Standard operating hours	Noise and Vibration (Amenity impacts)	Clear justification (other than convenience) is required for proposed works outside the *Interim Construction Noise Guideline* (ICNG) recommended standard construction hours.	The proposal for non-standard construction hours is justified in accordance with Section 2.3 of the ICNG because: ▸ The proposed works relate to an existing, operational rail corridor. They constitute the maintenance and repair of public infrastructure where disruption to essential services and/or considerations of worker safety do not allow work within standard hours. The application of standard working hours would: • prolong the closure of existing operational public infrastructure, significantly impacting existing train operators, mines, grain handling facilities, and other users of the rail network. • create indirect community impacts by leading to an increase in road freight to meet the shortfall in rail freight services. An increase in road freight may have consequences in terms of noise, air quality, and safety for the wider community. ▸ The noise generated by construction would be offset by the absence of noise from operational rail freight during the construction period. As work would progressively move along the alignment, residents would experience construction noise for only a portion of the overall project construction period. The closure of the railway and the primary proposal construction hours (6am to 6pm) mean that night time amenity is not impacted by construction or operational rail noise (except when out of hours construction work is permitted). ▸ The location of the proposed works is in a relatively unpopulated area. To capture the potential work outside of the recommended standard construction hours, the noise and vibration assessment undertaken as part of the EIS (Technical Report 5) adopted the more stringent construction noise management level of 35 dB(A) to assess construction noise impacts. Additionally, location specific impacts during the primary proposal

Submission section/item ref	Key-issue	Summary of issue	Response
			construction hours would be assessed by implementing the Inland Rail NSW Construction Noise and Vibration Management Framework (provided in Appendix E), which includes procedures works outside of the primary proposal construction hours. Mitigation measure C4.1 commits ARTC to implementing the Inland Rail NSW Construction Noise and Vibration Management Framework, and constructing the proposal to achieve the construction noise management levels provided in the EIS assessment.
Sleep disturbance criteria	Noise and Vibration (Amenity impacts)	Sleep disturbance and awakening noise levels (from the Road Noise Policy) have been incorrectly interchanged in the assessment. Sleep disturbance needs to be assessed in accordance with the *Industrial Noise Policy* (EPA, 2000) relevant application note.	Section 1.3 of the INP explicitly excludes transportation corridors (roadways, railways and air corridors) from its scope. Accordingly, the INP was not considered applicable to the proposal when undertaking the noise and vibration assessment as part of the EIS (Technical Report 5). The ICNG requires a quantitative sleep disturbance assessment be undertaken, but does not provide specific assessment criteria for sleep disturbance impacts. Numerous guidelines provide research and discussions around sleep disturbance impacts (including the RNP and the INP). These guidelines all acknowledge that no absolute noise level criteria have been established that correlate to an acceptable level of sleep disturbance, however offer suggestions to assess possible sleep disturbances and awakening impacts. The ICNG suggests that some guidance can be found in the *NSW Environmental Criteria for Road Traffic Noise* (EPA, 1999), which has been superseded by the RNP. The RNP discusses a sleep disturbance impact screening level. It suggests that the $L_{A1,1min}$ noise level should not exceed the background L_{A90} level by more than 15 dB(A). This advice is analogous to that provided in the INP Application Notes. The INP bases its research on the RNP and suggest that the L_{Amax} or $L_{A1,1min}$ noise level should not exceed the background L_{A90} level by more than 15 dB(A). These guidelines suggest that this value can be used as a screening test to identify potential for sleep disturbance. Therefore, while the INP is not directly applicable, it does consider research

Submission section/item ref	Key-issue	Summary of issue	Response
			and discussions around sleep disturbance, which are relevant to the construction assessment component of this proposal. As such, in the absence of specific criteria in the ICNG, an assessment of sleep disturbance has been undertaken which incorporates the screening assessment described in the INP. This additional assessment is provided in section 5.2.1 of this report. The additional assessment identified the potential for construction to cause sleep disturbance impacts to numerous sensitive receivers. Given the potential for sleep disturbance impacts, feasible and reasonable noise and vibration mitigation measures would be implemented in accordance the Inland Rail NSW Construction Noise and Vibration Management Framework. Mitigation measure C4.1 commits ARTC to implementing the Inland Rail NSW Construction Noise and Vibration Management Framework and constructing the proposal with the aim of achieving the construction noise management levels identified by the noise and vibration assessment.
Construction vibration	Vibration (Structural) impacts	Requested that the appropriate criteria in Assessing Vibration: A Technical Guideline (AVTG) be used for assessing and mitigating impacts.	Assessment of vibration levels from intermittent construction sources is described in AVTG, which is based on BS 6472:1992. The assessment evaluates a vibration dose value (VDV), which incorporates the magnitude of vibration and the length of time the source operates. During construction of a project, the vibration impact on a receiver can be measured and compared directly to the AVTG VDV criteria. The detailed construction methodology, such as the operating duration of vibration generating equipment, would be confirmed once a construction contractor is appointed. \. As a result, the estimation of VDV values from construction sources require a broad range of assumptions to be made. Given this, consideration was given to BS 5228-2:2009, which refers to standards for assessing the 'human comfort criteria' for residential building types. BS 5228-2:2009 contains human response criteria for construction activities, and uses the most practical unit of measurement, which is peak particle velocity. As such, ARTC considers BS 5228-2:2009 to be the more

Submission section/item ref	Key-issue	Summary of issue	Response
			relevant guideline to the construction of the proposal. However, as requested, an assessment of construction vibration in accordance with the AVTG has been undertaken, and the results are summarised in section 5.2.1. The assessment found that sensitive receivers would potentially be exposed to vibration that may impact on human comfort, taking into consideration safe-buffer distances from either the BS 5228-2:2009 or the AVTG. To minimise the potential for these impacts, potential vibration exceedances would be managed and mitigated by implementing the Inland Rail NSW Construction Noise and Vibration Management Framework, which includes development of Construction Noise and Vibration Impact Statements prior to specific construction activities. These would be prepared based on a more detailed understanding of the construction methods, including the size and type of construction equipment, duration and timing of works, and detailed reviews of local receivers as required. Mitigation measure C4.1 commits ARTC to implementing the Inland Rail NSW Construction Noise and Vibration Management Framework.
Wastewater	Water quality	Any discharge to water will need to comply with s.120 of the POEO Act	The CEMP outline (provided in Appendix F of this report) includes reference to the POEO Act when considering management of groundwater (including potential dewatering), spills and leaks and waste management.
Re-use of mine water	Construction of the proposal	If recycled water/treated water from Parkes North and Peak Hill mines is to be used for construction, investigations need to be undertaken to confirm the wastewater is fit-for-purpose and does not pose a risk of non-trivial harm to human health or the environment before it is	Access requirements relating to the construction water supply options detailed in section 15.3.2 of the EIS are still being assessed. Preliminary investigations into the validity of possible supplies (establishing yields from each source etc) has been advanced by ARTC, with quantities from each source being anecdotally provided. Further works would be needed to scientifically verify that these sources can meet the water demand profile in a sustainable manner. Preliminary communications have also occurred between ARTC and the stakeholders associated with these sources, to determine if they would be willing to allow

Submission section/item ref	Key-issue	Summary of issue	Response
		sourced for use on the project.	ARTC to negotiate access to the water. A number of stakeholders have indicated that they are prepared to discuss this option further, and ARTC is currently confirming its position in this regard before formally engaging with the stakeholders. These negotiations remain commercial in confidence at this time. Once access negotiations are more advanced, Phase 1 desktop assessments of water sources are planned to be undertaken. These assessments are intended to evaluate the overall condition of the source (age, condition of equipment, storage facilities etc); determine what infrastructure may be present (pipework, pumps, rising main etc.); potential yields; quality; and current water licence conditions. Some preliminary field works may also be required to confirm the source conditions identified in the Phase 1 assessment, and to complete any additional data required. Preliminary field work may also be required to confirm the conditions identified by the Phase 1 assessment, involving testing of water levels, drawdowns, yield, and water quality. This would be undertaken to ensure that the potential water source is sustainable, and that the quality parameters are acceptable. If any of these parameters indicate that the potential water source would not be suitable, or that there would be risks to the project in terms of timing or prohibitive costs, alternative water sources would be considered. If the Phase 1 and preliminary site assessments indicate that the potential water source is suitable, a detailed supply scenario would be finalised, and any relevant approvals would be sought. It is noted that ARTC has applied the following hierarchy at a strategic level with regard to classifying sources for construction water supply for all 13 projects in the Inland Rail programme (from most preferred to least preferred): ▸ Existing council or commercial sources (town supply, mining or other commercial operations) - where infrastructure is already in place and operating, and water takes are current (licences and monitoring

Submission section/item ref	Key-issue	Summary of issue	Response
			requirements already defined and in place). - Surface waters and dams (including landholder dams) – preferably where infrastructure is already in place and operating and water takes are current (licences and monitoring requirements already defined and in place). - Waste water treatment plants or other processed water facilities – typically infrastructure may already be in place, some licence and monitoring requirements may be needed. - Private landholder bores – quality and type of bore and infrastructure would need to be assessed. Licence requirements and monitoring needs would also need to be defined, as well as evaluation of quantity available (can bore meet forecast demand). - Drilling new bores – least preferred, as a large amount of preparatory work would be required, including land access. Also there is the potential for significant cost and risk (water in volumes required may not be there). This hierarchy applies to the proposal's water supply strategy, with the expectation that the majority of identified water needs would be met by existing water supply infrastructure. Mitigation measure D6.4 commits ARTC to confirming appropriate sources for construction water prior to construction, in consultation with relevant stakeholders, and seeking appropriate approvals and agreements.
Soils and contamination	Soils and contamination	The proponent should be required to engage a Site Auditor accredited by the NSW EPA under the Contaminated Land Management Act 1997, to prepare a Section B Site Audit Statement to determine	Chapter 14 of the EIS includes an assessment of the potential for contamination to be encountered during construction of the proposal. Based on the results of the targeted site investigations, in which all samples except one had laboratory results below the limit of reliability and below the relevant human health screening criteria, the potential for encountering contamination is considered low. The proposal consists largely of works on an existing rail line, and there will be no change in land use for the majority

Submission section/item ref	Key-issue	Summary of issue	Response
		the appropriateness of a management plan	of the proposal site. The CEMP outline (provided in Appendix F of this report) allows for sign-off of a contamination and hazardous materials management sub-plan by a certified practitioner. This sub-plan would include an unexpected finds protocol that would be prepared with consideration to appropriate reporting requirements in accordance with the *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997* (EPA, 2015). Based on the low potential for contamination to be encountered and the works being undertaken this is considered sufficient.
Air quality	Air quality	Dust generating activities should be managed on site so as to minimise the generation of dust and prevent it going offsite so far as reasonably practicable.	The CEMP outline (provided in Appendix F of this report) contains mitigation measures to minimise the generation of dust. Additionally mitigation measure C5.1 commits ARTC to road watering when sensitive receivers are located within 150 metres of construction works, or visible dust is generated from vehicles using access roads.

Table B-4 Department of Primary Industries

Submission section/item ref	Key issue	Summary of issue	Response
Water supply	Construction of the proposal	Additional information is required to ensure water supply security as there is no confirmation for access to identified potential water sources in the EIS.	Access requirements relating to the construction water supply options detailed in section 15.3.2 of the EIS are still being assessed. Preliminary investigations into the validity of possible supplies (establishing yields from each source etc) has been advanced by ARTC, with quantities from each source being anecdotally provided. See additional information regarding the proposal's water supply strategy, provided in the above response to the NSW Environment Protection Authority. Mitigation measure D6.4 commits ARTC to confirming appropriate sources for construction water prior to construction, in consultation with relevant stakeholders, and seeking appropriate approvals and agreements.
Water supply and groundwater	Assessment and Approvals	A number of submissions identified the potential need for additional approvals and licences for water sourced from bores, dams and the Macquarie River.	ARTC acknowledges the exemptions from approval requirements in section 115ZG of the EP&A Act, and will assess the need for water related authorisations once more information relating to the possible water sources is obtained. As noted above, mitigation measure D6.4 commits ARTC to obtaining appropriate approvals prior to extraction. ***Dams*** The use of dams as part of the detailed water supply strategy for the proposal is still being evaluated. ARTC acknowledges the potential for additional licensing requirements (if not excluded by the EP&A Act) should dams be included in the detailed water supply profile and the lead times associated with the preparation, submission and granting of such approvals are to be included in the water supply source evaluation process. Preliminary communications have occurred between ARTC and selected landholders who have dams on their properties and may be willing to allow ARTC to negotiate for access to the water. A small number indicated that they are prepared to discuss this option further, and ARTC is preparing their position in this regard before engaging with the landholders in a formal manner. Preliminary water yield and water

Submission section/item ref	Key issue	Summary of issue	Response
			quality testing may be required to confirm the suitability of these options. Should either of these parameters not meet requirements, then alternate sources would be identified. ***Groundwater bores*** No detailed assessment of possible impacts to the proposed supply bore or any cumulative impacts can be defined at this stage. Once access negotiations are more advanced, a Phase 1 desktop assessment of identified bores would be undertaken where necessary. This may include a desktop bore survey of neighbouring properties to determine groundwater use in the area of the proposed supply bore/s. This would assist in identifying any possible risk of impact to the supply bore, as well as any cumulative impacts to the local groundwater supply. Should there be no other users, the risk of impact to neighbouring users would be low. Preliminary field work may also be required to confirm the conditions identified by the Phase 1 assessment, involving testing of water levels, drawdowns, yield, and water quality. This would be undertaken to ensure that the potential water source is sustainable, and that the quality parameters are acceptable. If any of these parameters indicate that the potential water source would not be suitable, or that there would be risks to the project in terms of timing or prohibitive costs, alternative water sources would be considered. If the Phase 1 and preliminary site assessments indicate that the potential water source is suitable, a detailed supply scenario would be finalised, and any relevant approvals would be sought.

Submission section/item ref	Key issue	Summary of issue	Response
Surface water and watercourses	Hydrology	Consideration of buffers specified in the *Guidelines for Controlled Activities on Waterfront Land* (Office of Water, 2012) is recommended when constructing compounds and access tracks, to mitigate impacts to watercourse stability and maintain riparian vegetation. This guideline should also be considered when designing culvert rock protection.	Mitigation measure D6.1 commits ARTC to consider these guidelines when undertaking flood modelling as part of detailed design.

Table B-5 Office of Environment and Heritage

Submission section/item ref	Key issue	Summary of issue	Response
Inadequate justification for impacts to biodiversity values	Biodiversity	Temporary impacts to biodiversity, particularly native vegetation associated with temporary structures (particularly in work areas 3, 11, 18 and 22), have not been justified in the EIS and should be avoided where possible. Where avoidance is not possible and has been justified, the residual impacts must be assessed using the *Framework for Biodiversity Assessment* (OEH, 2014a) and offset within the Biodiversity Offset Strategy.	Construction of the proposal would result in temporary impacts associated predominantly with compounds and temporary access tracks. While the EIS (section 8.4) included consideration of compound locations these were indicative only, and would be confirmed during detailed design and construction planning. Section 8.6 of the EIS considers site access during construction. As far as possible, access to compounds and the rail corridor would be via existing access alignments within and adjacent to the rail corridor or existing agreed property access roads. Section 9.3.2 of the EIS noted the potential for temporary access tracks in some locations; however preference would be given to the use of existing access tracks, wherever possible. The EIS (section 8.4) provided the criteria that would be applied when considering the location of compounds. The location of any additional temporary access tracks would also be identified based on these criteria, namely: ▸ at least 50 metres from watercourses and outside the ARI 20-year flood zone ▸ where no or only minor clearing would be required, and not within areas identified as threatened communities or species habitat ▸ no significant impacts to utilities, primarily gas and electricity ▸ at least one kilometre from the nearest residence or other noise sensitive receiver where possible ▸ not on or near sites with known Aboriginal or non-Aboriginal heritage value ▸ minimise use of private land ▸ where safe access to the road network and rail corridor can be provided
Biodiversity impacted by temporary disturbance must be assessed	Biodiversity	The impacts on biodiversity values, including the koala, and the subsequent biodiversity offset requirements as a result of temporary disturbance activities (access tracks and compounds) must be determined using the BioBanking credit calculator. Information entered into the calculator regarding the magnitude of these impacts must be justified in accordance with the FBA.	

Submission section/item ref	Key issue	Summary of issue	Response
			▸ relatively flat land. Consideration of the above criteria in relation to construction facilities would mean that impacts on threatened communities and species habitat (including koala habitat) are reduced, if not avoided completely. Areas of non-threatened native woodland and derived native grassland would also be avoided, where practicable. As a result, native vegetation occurring in these areas is not expected to be fully impacted (ie it would not be cleared). However, there may the potential for some temporary disturbance (eg pruning, vegetation being driven over or having equipment stored on it for a period of time etc.). While the vegetation and habitats in these areas may be subject to temporary impacts, it is considered that these areas would regenerate following use of these sites. As such, it is considered that these areas are not likely to decline in site value over the construction timeframe. As a result, credits, in accordance with the *Framework for Biodiversity Assessment* (OEH, 2014a) were not calculated as part of the biodiversity assessment. No residual temporary impacts were predicted, and are therefore not proposed to be offset using the *Framework for Biodiversity Assessment*. The detailed design will involve reviewing and updating the *Framework for Biodiversity Assessment* credit calculations for the proposal, which will be revised to generate the final ecosystem and species credit requirements, including the temporary impacts as identified in the EIS. In the event that areas containing native vegetation are impacted through temporary disturbance, the proposed rehabilitation strategy would be implemented (as per mitigation measure D3.5).

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Biodiversity impacts of the final footprint must be finalised prior to project determination	Biodiversity	Potential impacts on biodiversity values (temporary and permanent) should be finalised prior to Project approval.	As described in the EIS (Technical Report 2 and section 10.3.2), the final credit generation for the proposal will be confirmed as an outcome of the detailed design and biodiversity offsetting for the proposal will be based on the final credit calculations, including temporary impacts as identified in the EIS. Due to the nature of the design process for a large scale linear infrastructure project such as this proposal, the impacts of the proposal have been assessed on a potential impact corridor. This is a standard approach to assessment of impacts for linear infrastructure projects in NSW. This impact corridor and the EIS characterise the likely impacts of the proposal on biodiversity and the detailed design will involve reviewing and updating the *Framework for Biodiversity Assessment* credit calculations for the proposal, which will be revised to generate the final ecosystem and species credit requirements ARTC has committed to undertake a final credit calculation for the proposal, to ensure that all impacts are captured and appropriately offset under the *Framework for Biodiversity Assessment*.
Incorrect identification of full native vegetation extent in the buffer area and development footprint	Biodiversity	The native vegetation mapping should be reviewed and updated to ensure that the identified deficiencies have been addressed. Relevant components of the BAR and BioBanking Credit Calculator must be updated following this review.	A review of the native vegetation mapping results, provided in Technical Report 2 and summarised in chapter 10 of the EIS, was undertaken. Some errors in reporting where noted in the mapped areas provided in technical reports 2 and 4. As a result, the calculations for temporary and permanent impacts to native vegetation, including those that conform to EPBC and/or TSC Act listed communities, are provided in section 5.1.1 of this report. It was confirmed that these errors are only reporting errors/typos, and they do not impact the BioBanking credit calculations provided in Technical Report 2. In any event, once the detailed design has been completed, the design will be reviewed and the *Framework for Biodiversity Assessment* credit calculations for the proposal will be revised to generate the final ecosystem and species credit requirements. In accordance with mitigation measure D3.2, ARTC commits to minimising the construction footprint and avoiding impacts to native vegetation as far as practicable during detailed design and construction planning. With regards to the mapping method, as described in the EIS (in chapter 10

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			and Technical Report 2), potential impacts on native vegetation within the proposal site and a 550 metre buffer area have been assessed according to Appendix 5 in the *Framework for Biodiversity Assessment* (Assessing landscape value for linear shaped developments or multiple fragmentation impacts). According to Appendix 5, the area of native vegetation cover takes into account the extent and condition of the over-storey cover compared to the benchmark condition. In addition to this, the definition of 'per cent native vegetation cover' in the *Framework for Biodiversity Assessment* states that: '*Cover estimates are based on the cover of native woody and non-woody vegetation relative to the approximate benchmarks for the PCT, taking into account vegetation condition and extent. Native over-storey vegetation is used to determine the per cent cover in woody vegetation types, and native ground cover is used to assess cover in non-woody vegetation types.*' As all PCTs identified within and surrounding the proposal site are presently, or were previously, woody vegetation types in the form of woodlands, only the current woody vegetation forms of these PCTs have been included in the per cent native vegetation cover as per the above definition. Areas of derived native grasslands were not included in the per cent native vegetation cover calculations as they do not contain a native over-storey. It is noted that the Central West/Lachlan State vegetation map (SVM) (OEH, 2016) is an updated regional vegetation mapping product that covers the study area. Prior to the release of the SVM, the latest relevant regional mapping was the *Reconstructed and Extant Distribution of Native Vegetation in the Central West and Lachlan Catchment* (DEC, 2006b). This mapping was used by the biodiversity assessment to scope and guide the field survey effort. The SVM was not available when the field surveys and vegetation mapping was undertaken. However, as two products were completed at a regional scale, vegetation in the proposal site was ground-truthed to accurately map the vegetation zones (combination of PCTs and broad condition states) in the proposal site. This involved meandering transect surveys, 48 systematic

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			plots/transects, and 214 rapid vegetation assessments. Digital aerial photography interpretation of high resolution aerial photographs was also undertaken to map vegetation zones with the proposal site and native vegetation within the surrounding 550 metre buffer area. The regional vegetation mapping was only used to inform the field survey component of the assessment prior to the completion of surveys, and to determine the extent and likely composition of PCTs likely to be encountered during field surveys. Following the completion of field surveys, the PCTs encountered were mapped in GIS using high resolution aerial photographs. The regional vegetation mapping was not used to map any of the proposal site and was not used in any way that contributed to the allocation of ecosystem credits for these PCTs. This level of survey effort allowed detailed vegetation mapping to be completed, which included defining vegetation zones and threatened ecological communities, and establishing the boundary between derived native grassland and exotic grassland. As described in the EIS, six plots/transects were completed in exotic grassland areas within the proposal site. The site value achieved was 8.85, which is below the site value score of 17 required for offsets to be calculated in accordance with the *Framework for Biodiversity Assessment*. ARTC notes OEH's request to review the mapping extent of TECs against the NSW Scientific Committee listing advice to ensure the full extent has been captured. In this regard, a thorough review of threatened ecological communities under both the TSC Act and the EPBC Act was undertaken as part of the biodiversity assessment. Appendix D (Threatened ecological community analysis) of Technical Report 2 includes a thorough assessment of each of the relevant vegetation zones within the proposal site against NSW Scientific Committee and/or the Commonwealth *Threatened Species Scientific Committee Guidelines* (Threatened Species Scientific Committee), and listings under the TSC Act and EPBC Act., ARTC will provide the required information to OEH in accordance with their request (including the rapid vegetation

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			assessments and high resolution aerial photography).
Incorrect identification of full native vegetation extent in the buffer area and development footprint	Biodiversity	Provide a justification for the use of a 3 to 1 crown separation ratio to identify woodland areas.	A crown separation ratio of 3 to 1 is a commonly used method for measuring cover in vegetation. According to Hnatiuk, Thackway and Walker (National Committee on Soil and Terrain, 2009), crown cover is the recommended method for reporting the cover of plants with discrete crowns over one metre tall. In conducting the biodiversity assessment undertaken as part of the EIS (Technical Report 2) a crown separation ratio was set to allow a consistent approach to mapping woodland areas across a large area since no guidance on this matter is provided in the *Framework for Biodiversity Assessment* methodology. Table App 2.1 of the *Native Vegetation Interim Type Standard* (Sivertsen, 2009) includes a conversion table for crown separation, crown cover per cent, and foliage projective cover percentage. According to this table, a crown separation ratio of three equates to a crown cover percentage of five per cent, which is the same value according to the equation from Hnatiuk, Thackway and Walker (National Committee on Soil and Terrain, 2009). Relating this back to the benchmark data for PCTs requires it to be converted to foliage cover, which, according to the conversion equation from Hnatiuk, Thackway and Walker, would equate to about a two per cent foliage cover. The lower foliage cover benchmarks for the PCTs identified as both remnant woodland and derived native grassland forms were reviewed as part of the assessment, and found to range from 8 to 12 per cent. As a result, the 3 to 1 crown separation ratio applied by the assessment is a conservative approach. It captures areas of woodland with foliage cover less than the lower benchmarks, and does not under-estimate the extent of woodland in the proposal site.
Inconsistencies in extent of native vegetation clearing	Biodiversity	Inconsistencies in the total area of native vegetation to be cleared as identified in the BAR and as entered into the	The area of permanent disturbance for each of the vegetation zones was correctly entered into the BioBanking credit calculator (described in Table 5.2 of Technical Report 2), and the ecosystem credit requirements are correct. However, as noted above, the technical reports contained reporting

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		BioBanking Credit Calculator needs to be explained. Appropriate amendments to the BAR or the credit calculator must be undertaken	errors/typos. Updated calculations for permanent and temporary impacts to native vegetation are described in section 5.1.1 of this report. As per mitigation measures D3.1 and D3.2, ARTC commits to minimising the construction footprint and avoiding impacts to native vegetation as far as practicable, and finalising the biodiversity offset strategy for the proposal in accordance with the requirements of the *Framework for Biodiversity Assessment* and the *NSW Biodiversity Offsets Policy for Major Projects*. As part of this process, the BioBanking Credit Calculator calculations would be updated, and the final biodiversity credit requirements would be determined to include temporary impacts.
No explanation regarding exclusion of PCTs as potential koala habitat	Biodiversity	Justification should be provided as to why PCT 55 and PCT 70 are not considered to be potential koala habitat in the development site.	PCT 55 (*Belah woodland on alluvial plains and low rises in the central NSW wheatbelt to Pilliga and Liverpool Plains regions – Moderate to Good Condition*) and PCT 70 (*White Cypress Pine woodland on sandy loams in central NSW wheatbelt – Moderate to Good Condition*) contain bimbil box (*Eucalyptus populnea* subsp. *bimbil*) as a subdominant to sporadic canopy species. However, this species is not listed as a main koala food tree (primary or secondary) in the Central and Southern Tablelands Koala Management Area (comprising the Central West and Lachlan catchment management authority boundaries) in which the proposal site is located. As noted by OEH in their submission, bimbil box is a secondary feed tree in the Western Slopes and Plains Koala Management Area. However, the proposal site does not occur in this region, and these PCTs are not considered as potential koala habitat.
Requirement for a clear timeframe for the retirement of biodiversity credits	Biodiversity	Phase 2 of the Biodiversity Offset Strategy should be submitted to OEH in the Submissions report. Phase 3 and the subsequent retirement of biodiversity credits should be finalised to the satisfaction of OEH within 12 months of	Mitigation measure D3.1 commits ARTC to finalising the biodiversity offset strategy for the proposal in accordance with the requirements of the Framework for Biodiversity Assessment and the NSW Biodiversity Offsets Policy for Major Projects, and seeking approval for the strategy from the Department of Planning and Environment prior to the commencement of construction work that would result in the disturbance of relevant ecological communities, threatened species, or their habitat, unless otherwise agreed. **Phase 1** of the Biodiversity Offset Strategy provided in the EIS (in Appendix L)

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		project approval.	identifies the offset requirements for the proposal and the proposed delivery approach. It considers the availability of suitable offsets, and defines the next steps. This strategy has been updated, and an updated strategy is provided in Appendix D of this report. The updated strategy takes into account the updated areas provided in Table 4.4 and Table 4.5 in section 5.1.1 of this report. **Phase 2** of the strategy will be prepared as part of the detailed design, and prior to commencement of construction. Phase 2 will involve confirming the biodiversity credits, providing preliminary field inspection outcomes for the proposed offset site/s, and condition, key threats and likely management actions for the site/s. Detailed design for the proposal is underway and since exhibition of the EIS, Phase 2 of the BOS has commenced. In summary: 1. Desktop offset site analysis – as a result, 22 potential offset sites were identified 2. Landholder & stakeholder consultation – contact was made with 22 landholders to seek their interest in providing an environmental offset on their property. Undertaking a 'credits wanted' on the OEH website – and subsequent emails/phone calls. Engaging with Local Land Services, OEH and other BioBankers. As a result of tasks 1 and 2, a total of 11 properties were progressed. 3. Preliminary Site Assessment – Five of the 11 properties have been assessed. Preliminary results of the biodiversity offset sites site assessments is provided in Appendix I. **Phase 3** of the strategy will be prepared and submitted for approval within 12 months of the commencement of construction. The phase 3 strategy will define the final offset site/s in detail, confirm the PCTs and species credits at the site/s, provide final biodiversity credit calculator outputs, and a detailed offset site management plan. The endorsed offset site/s would be legally secured within two years of the

Submission section/item ref	Key issue	Summary of issue	Response
			commencement of construction.
Investigation into tail water conditions downstream of culverts required	Hydrology and flooding	Tail water conditions downstream of culverts should be investigated to ensure the upgraded culverts do not increase flooding impacts.	The flooding assessment undertaken as part of the EIS (refer to chapter 15 and Technical Report 6) involved review and modelling of existing conditions. This identified that the floodplain areas within the vicinity of the proposal site are typically broad and relatively flat, meaning that ground levels downstream of the proposal site are comparable to those upstream. As a result, when tail water levels are elevated (ie during a large scale regional flood event), flood levels upstream of the proposal site would also be elevated. This means that flows through the culverts and over the rail line would be small and inconsequential in the context of the regional flood flow, especially for larger flood events such as the 0.5 and 0.2 per cent AEP events. If an analysis of tail water conditions during different size flooding events was undertaken, the analysis would underestimate the range of potential impacts associated with the proposal, and potentially result in undersized culverts. In contrast, the flood modelling assessment undertaken considered the occurrence of local catchment flooding with free flowing outlet conditions. This allowed for estimation of the likely maximum impacts to flood levels, in particular, upstream flood conditions. Therefore, the adopted method is considered to provide an estimate of the maximum (worst-case) culvert size required to minimise changes to upstream flood levels. Potential changes to downstream flood levels would be minimised by incorporating suitably designed energy dissipation measures. Such measures, when correctly designed and installed, would reduce the flow velocities downstream of the culverts, reducing erosion and scouring, and promoting the spread of downstream flood flows to depths and widths comparable to the existing conditions. In addition to the above, it should be noted that the flooding impacts reported in the EIS were based on preliminary hydrological modelling undertaken in advance of detailed survey of the rail corridor and ground levels upstream and downstream of the proposal site. Detailed hydrological and hydraulic models

Submission section/item ref	Key issue	Summary of issue	Response
			are currently being developed using best available survey and ground level data. These include a comprehensive modelling approach calibrated to regional flow gauge data, which assesses multiple storm event scenarios and multiple design scenarios. This will result in a thorough understanding of the existing flood conditions within the catchments, and the potential impacts of the proposal under a range of design scenarios. The hydrology design process is provided in Appendix G. Mitigation measure D6.1 commits ARTC to continue to refine the proposal design features to not materially worsen existing flooding characteristics, where feasible and reasonable, up to and including the one per cent AEP event. The detailed design will aim to achieve improved flood immunity and performance of the rail line, while not causing significant or perceptible flooding impacts in adjacent land. The detailed flood modelling would include the detailed design of the proposed culverts, formation level, and downstream energy dissipaters, to estimate the potential changes in flood levels upstream and downstream of the proposal site. Refinements to the design of the culverts, formation level, and downstream energy dissipaters may be required to minimise the estimated impacts on flood levels and extents. It is expected that the detailed flood modelling would consider local catchment flooding, with both free flowing outlet conditions, and a range of tail water conditions.
Assessment of the Macquarie River during large flood not considered	Hydrology and flooding	Investigate the breakout of the Macquarie River during large flood events to ensure the proposed culvert upgrade minimise flood impacts	The hydrology and flooding assessment was undertaken using available flood studies and related documents, including the *Narromine Flood Risk Management Study and Plan* (Narromine Shire Council, 2009). While it is noted in the EIS that there is a minor risk of interaction between the Macquarie River and the proposal site, the Narromine flood study and plan does not consider the effects of Macquarie River and the Backwater Cowal on flood levels, as this was not identified as a major risk. The breakout of Macquarie River was therefore not addressed as part of the EIS flood modelling. However, as described above, further analysis undertaken during detailed design would develop a thorough understanding of the existing flood conditions within the catchments, and the potential impacts of the proposal under a range

Submission section/item ref	Key issue	Summary of issue	Response
			of design scenarios. The hydrology design process is provided in Appendix G.
Spoil mound impacts on flooding	Hydrology and flooding	Spoil mounds should not adversely impact on flooding.	The exact design and location of spoil mounds would be confirmed during the detailed design, when the location and volume of spoil material is better understood. The spoil mounds would be placed within the rail corridor, but not within areas that would materially adversely affect flooding, such as near watercourses, drainage lines, longitudinal (cess) drains, or culverts within the floodplain (where practicable). As the mounds provide a topographical barrier, they would intercept a small volume of local sheet flow, which would be directed around the base of the mounds. Provided the mounds are correctly designed and located, the potential impacts to flows as a result of this minor redirection of flows would be negligible compared to regional flow behaviour. The flood modelling undertaken as part of the detailed design would consider all relevant aspects of the design, including the placement and design of spoil mounds. In the event that this modelling indicates a potential for the mounds to impact flood levels, the design and/or location of the mounds would be further refined to minimise the potential for impacts. While it would not be possible to design the proposal to achieve a zero impact on flooding, the proposal would seek to establish reasonable impacts that do not affect the use of adjacent land. As per mitigation measure D6.1, ARTC commits to refine the design features of the proposal to not materially worsen existing flooding characteristics, and to undertake detailed flood modelling to consider the potential changes to overland flow paths and storage impacts associated with spoil mounds.

Submission section/item ref	Key issue	Summary of issue	Response
Procedures for discovery of suspected human remains	Heritage	Guidance provided regarding the procedure for the discovery of suspected human remains	The mitigation measures related to unexpected finds (including skeletal material) have been refined and updated. The new measure, D8.6, requires an unexpected finds procedure to be developed and included in the CEMP to provide a consistent method for managing any unexpected Aboriginal and non-Aboriginal heritage items discovered during construction, including potential heritage items or objects, and human skeletal remains. The updated CEMP outline, provided in Appendix F of this report, includes reference to relevant guidelines. Mitigation measure C8.1 has been updated to specify that if potential Aboriginal or non-Aboriginal archaeological remains, relics, items, or human remains are uncovered, works within the immediate area of the item would cease, and the unexpected finds procedure would be implemented.
Archaeological excavations outside project area	Aboriginal heritage	Does not support the proposed archaeological excavations outside the construction footprint.	Noted. Potential impacts to Aboriginal heritage items would be mitigated by implementing mitigation measures D8.1, D8.2, D8.4, D8.6, and C8.1.

Table B-6 Transport for NSW

Submission section/item ref	Key issue	Summary of issue	Response
Railway level crossings	Traffic and Transport	Requested that changes to level crossings including the preferred mitigation approaches be undertaken during the EIS process.	Refer to the responses provided in Table B-1.
Issues 1-3 Railway level crossings	Traffic and Transport	Requested that further assessment be undertaken at key road crossings (four State road crossings and one regional road crossing) as part of the EIS to examine the efficiency and safety implications of increased freight rail movements.	The options considered for the proposed works to level crossings are described in section 6.3.3 of the EIS. The potential traffic impacts of the works to level crossings are described in section 9.3.3 of the EIS. Separating the intersection of a road and a railway line by building bridges or underpasses (grade separation) is one of the safety improvements to be considered during detailed design. Where grade separation is not a viable option, other safety improvements will be considered, such as: ▸ upgrades of public crossings from passive or flashing lights to boom barriers ▸ renewal of level crossing infrastructure such as signage ▸ provision of gates at private crossings ▸ closure of crossings. ARTC's policy is that rail-road interfaces will be automatically grade separated in the following three instances: ▸ rail-road crossings with four rail tracks (current) ▸ rail-road crossings of freeways and highways of four or more lanes (current and committed future plans) ▸ where grade separation is the logical option for topographical reasons. All other crossings will be assessed during the detailed design. Mitigation measure D2.1 commits ARTC to minimising potential impacts to the surrounding road and transport network during detailed design, and mitigation measure D2.2 commits

Submission section/item ref	Key issue	Summary of issue	Response
			ARTC to consulting with relevant stakeholders during this process. The methodology used for determining public level crossing treatments is provided in Appendix H. The assessment of the potential impacts of the proposal on traffic and the road network is described in chapter 9 of the EIS and Technical Report 1. As described in Technical Report 1 the modelled delays at level crossings were based on an existing train speed of 90 km/hr, increasing to 110 km/hr by 2040. This is based on typical operating train speeds at the majority of level crossings. However, train speeds may be reduced through some level crossings, due to the presence of other rail infrastructure nearby such as sidings, which may influence a trains approach speed. Two level crossings at which existing or proposed train speeds would be slower than the 90 km/hr assumed in the EIS are The McGrane Way and Henry Parkes Way crossings. Further information is provided below in relation to the potential impacts to these particular roads, as identified in the submission. ***The McGrane Way*** The existing traffic volume on The McGrane way is about 810 vehicles per day. By 2040, this would be expected to increase to about 950 vehicles per day. Assuming a peak hour traffic volume that is 15 per cent of the daily volume, there would be about 150 vehicles in the peak hour (in both directions). The existing train speed at McGrane Way level crossing is 70 km/h due to the presence of nearby sidings, and a 1,800 metre long train, with pre-and post-warning periods, would close the road for 145 seconds. If a train arrives during the peak hour, it is estimated that about six vehicles would arrive while the road is closed. Assuming random traffic arrivals during the peak hour, there is a 95 per cent probability that up to nine vehicles would arrive while the level crossing is closed. If 70 per cent of traffic was travelling in one direction, the expected queue length would be about 105 metres, assuming that 43 per cent of the vehicles are heavy vehicles. There is sufficient space for a queue of this length to be accommodated on approaches to the level crossing on The McGrane Way without obstructing any public road intersections. The queue may extend across local property accesses

Submission section/item ref	Key issue	Summary of issue	Response
			of which there are two within 130 metres of the level crossing. Localised traffic management measures would be installed if necessary to permit turns across any queue. Mitigation measure D2.2 has been updated, and this measure commits ARTC to seek input from relevant stakeholders (including Parkes Shire Council, Narromine Shire Council, Transport for NSW, and Roads and Maritime Services) prior to finalising the detailed design of those aspects of the proposal that impact on the operation of road and transport infrastructure under the management of these stakeholders. Additionally, this mitigation measure commits ARTC to review all level crossings and the potential treatments in consultation with relevant stakeholders during the detailed design. ***Henry Parkes Way*** The existing traffic volume on Henry Parkes Way is about 1,400 vehicles per day. By 2040, this would be expected to increase to about 2,050 vehicles per day. Assuming a peak hour traffic volume that is 10 per cent of the daily volume, there would be about 200 vehicles in the peak hour (in both directions). The rail speed at the Henry Parkes Way level crossing is 115 km/h, although a speed of 70 km/h has been adopted given the proximity to the proposed Parkes intermodal facility as trains would need to slow on approach to the facility. A 1,800 metre long train, with pre-and post-warning periods, would close the road for 145 seconds. If a train arrives during the peak hour, it is estimated that about eight vehicles would arrive while the road is closed. Assuming random traffic arrivals during the peak hour, there is a 95 per cent probability that up to 13 vehicles would arrive while the level crossing is closed. If 70 per cent of traffic was travelling in one direction, the expected queue length would be about 112 metres, assuming that 15 per cent of the vehicles are heavy vehicles. There is sufficient space for a queue of this length to be accommodated on the approaches to the level crossing on Henry Parkes Way without obstructing any public road intersections or private property accesses. **Newell Highway crossings**

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			None of the three locations on the Newell Highway are located within the proposal site.
Issue 5 - Rail noise in Parkes	Noise and vibration (amenity impacts)	Suggested that the latest data on noise modelling and rolling stock standards could be provided by TfNSW to produce an updated version of Technical Report 5.	The proposal involves upgrading the track, track formation, and culverts within the existing rail corridor between Parkes and Narromine. It involves realigning the track where required within the existing rail corridor to minimise the radius of tight curves. The EIS (section 11.5.1) provides mitigation options for potential operational noise impacts, including wheel squeal. ARTC is committed to mitigating the potential noise impacts during operation, including wheel squeal. As per mitigation measure D4.1, ARTC commits to designing the proposal to achieving the operational noise and vibration criteria identified by the noise and vibration assessment. As described in section 11.5 of the EIS, final mitigation strategies would be developed as part of the detailed design. As per mitigation measure D4.3, an operational noise and vibration review would be undertaken to guide the approach to identifying feasible and reasonable mitigation measures to incorporate in the detailed design.
Issue 6 - Specific issues noted in EIS Review	General	Identified a number of specific issues throughout the EIS and requested additional information on these issues.	It is noted that Transport for NSW provided a number of queries and suggestions in their submission in relation to the traffic, transport and access assessment undertaken for the EIS. As part of the detailed design, ARTC would continue to consult with relevant stakeholders, including Transport for NSW. As described above mitigation measure D2.2 has been updated, and this measure commits ARTC to seek input from relevant stakeholders (including Parkes Shire Council, Narromine Shire Council, Transport for NSW, and Roads and Maritime) throughout the detailed design of those aspects of the proposal that impact on the operation of road and transport infrastructure under the management of these stakeholders.

Table B-7 Sliding Springs Dark Sky Committee

Submission section/item ref	Key issue	Summary of issue	Response
Operating of Siding Spring Observatory	Landscape and visual	Require the provisions of *Dark Sky Planning Guideline: Protecting the observing conditions at Siding Spring* (Department of Planning and Environment, 2016) (the Dark Sky Planning Guideline) to be implemented during construction and operation.	Noted. As per mitigation measure C9.1, ARTC commits to designing and siting temporary and permanent lighting to comply with AS 4282-1997 Control of the Obtrusive Effects of Outdoor Lighting and the Dark Sky Planning Guideline.