

26 May 2020



ARTC REF: 3-0000-260-EAP-00-LT-0007

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Dear Glenn

**Inland Rail – Narrabri to North Star Project (SSI-7474)**  
**Response to submissions on the SPIR**  
**Major Project Portal task EXH-2646**

The Inland Rail Narrabri to North Star (N2NS) Project is undergoing assessment as a Critical State Significant Infrastructure Project under Part 5 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (Comm) (EPBC Act).

We write in response to the issues raised in response to public exhibition of the Submissions and Preferred Infrastructure Report by State agencies in the following documents.

**Table 1 List of Submissions**

AGENCY	DOCUMENT	DATE
<b>DPIE – Biodiversity Conservation Directorate</b>	Biodiversity Response	20 January 2020
<b>Environmental Protection Agency</b>	Agency Response	20 January 2020
<b>Heritage Council of NSW</b>	Agency Response	21 January 2020
<b>Transport for NSW (TfNSW)</b>	Agency Response	28 January 2020
<b>DPIE – Biodiversity Conservation Directorate</b>	Hydrology Response	29 January 2020
<b>Moree Plains Shire Council (MPSC)</b>	General Response	29 January 2020
<b>Gwydir Shire Council (GSC)</b>	General Response	31 January 2020
<b>DPIE – Water</b>	Water Response	17 February 2020

We have addressed under separate cover the Department's requests for further information dated 15 January 2020 (RFI-2723) and 29 January 2020 (RFI-2905), and note your advice that further information may be sought by the Department following the receipt of comments from other agencies.

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The Australian Government is delivering  
Inland Rail through the Australian  
Rail Track Corporation (ARTC), in  
partnership with the private sector.

The following acronyms are used in this letter in relation to project elements:

- ▶ EIS, *Narrabri to North Star Environmental Impact Statement* (ARTC/GHD, November 2017);
- ▶ SPIR, the *Narrabri to North Star Submissions and Preferred Infrastructure Report* (ARTC/GHD, December 2019); and
- ▶ CIZ, the construction impact zone, or footprint of development where construction work would occur including permanent and temporary impacts.

### Supporting information

Our response is supported by the following documents:

- ▶ **Attachment A – 2020 BDAR**

Prepared by Umwelt, April 2020 (ARTC Ref: 3-0000-260-ESV-00-RP-002)

- ▶ **Attachment B – Addendum Historic Heritage Assessment & Statement of Heritage Impact**

Prepared by IRDJV, March 2020 (ARTC Ref: 3-0001-260-EEC-00-RP-0001)

- ▶ **Attachment C – Waterloo loop**

Prepared by IRDJV, May 2019 (ARTC Ref: 3-0001-260-CCW-00-DR-0119)

### Next Steps

We trust the advice below addresses the issues raised in the submissions together with the response to the Department's information requests, and will allow the Department to complete its assessment of the project and finalise its reporting to the Minister.

ARTC would be pleased to continue the effective collaboration with the Department to address any remaining issues and in the setting of suitable conditions of approval. Please contact Andrew Skele (NSW Environment Manager), Wayne Window or Sam Blanco as necessary (Senior Environmental Advisors).

Yours sincerely



Colin Forde  
**Project Director – P2N and N2NS**

## **EPA – Response to Submission: 20 January 2020**

### **Construction Noise**

The EPA reviewed the documents in relation to noise and vibration and considers that the noise impact assessment for Phase 1 is adequate. It is noted that there is potential for construction noise to exceed the relevant criteria at various receivers and that a number of residential receivers have the potential to exceed the redeveloped rail line criteria for operational rail noise by the year 2040.

The EPA advises that the proponent must ensure that construction noise and vibration impacts are minimised and that operational mitigation measures are adequately assessed in the detailed design. The EPA expects that all reasonable and feasible mitigation measures will be implemented to minimise both construction and operational noise and vibration levels.

The EPA reiterates previous comments made regarding the recommended conditions of approval (EPA submission letter dated 15.12.17):

- ▶ Any approval should include a requirement for the proponent to implement the construction noise and vibration management framework, to minimise the likely construction noise and vibration impacts of the project; and
- ▶ The proponent's proposed operational compliance assessment should be included as a condition of any approval.

ARTC acknowledges the EPA's comments and notes the advice regarding the imposition of conditions.

The refinement of the construction noise and vibration management framework discussed in response to DPIE's request for further information provides further rigor to methodology availability to address construction phase impacts.

ARTC will review the Department's suggested conditions in respect of these requirements and will provide separate feedback.

## Gwydir Shire – Response to Submission: 31 January 2020

### Flood impacts

After reviewing the SPIR, GSC has found issues with

- ▶ Flooding along Buckie Road in Croppa Creek (11-02 Public road over topping)
- ▶ Croppa Creek School – Flood levels increasing by 148mm in 1% AEP (11-03 Building and property impacts).

Gwydir will require the scope of level crossing works on Buckie Road to be expanded to include further mitigation measures for the above flooding concerns. GSC is open to considering additional infrastructure (culverts etc) on its road network to mitigate these concerns (namely the significant increase observed at Croppa Creek School during 1% AEP).

ARTC acknowledges Gwydir Shire Council's concerns and advise that additional design analysis and flood impact assessments have been undertaken at this location. Direct consultation with affected landholders and Council officers occurred on mid- February 2020, which has resulted in the

- ▶ Presentation of a number of design options and discussion on the changes these could have on impacts to properties and roads;
- ▶ Through discussion, identification of revised culvert arrangements on Buckie Road and the private driveway upstream of the road; and
- ▶ redirection of water through these culverts that better manages afflux upstream of the road and within the school grounds.

ARTC will continue to work with the school community, landholders and Council to this impact, and consistent with SPIR mitigation measure D6.1 will:

- ▶ Prepare the upgraded design and undertake localised flood impact modelling on an iterative basis to refine the design and mitigations to minimise afflux on the road, private access points, school grounds and bowls club;
- ▶ Present the design and modelling outcomes to affected parties (being Council, the school, sports club committees and landholders);
- ▶ Include the resolved outcomes within the flood consultation and level crossing reports required under the conditions of approval; and
- ▶ Implement the finalised design as part of the construction program.

Additionally, as resolution of this design has a strong linkage with the requirement for construction phase access to land, ARTC is addressing this as a high priority.

## Heritage NSW – Response to Submission: 22 January 2020

### Gwydir River and Mehi River bridges

Heritage NSW, on behalf of the Heritage Council, have previously raised concerns of the proposed demolition of Gwydir River and Mehi River bridges as part of the Inland Rail Project. It is understood that ARTC has refined the design with the aim of addressing the several issues raised in submissions, while also minimising potential impacts. Therefore, Narrabri to North Star has been divided into two phases, the first of which is the preferred infrastructure (the subject of this referral). The Gwydir River and Mehi River bridges are no longer within the preferred infrastructure site but will part of the Stage 2 of Narrabri to North Star project.

Based on the above, the revised mitigation measures for Non-Aboriginal Heritage (EIS Id No. D9) provided in Narrabri to North Star, Submissions Preferred Infrastructure Report, prepared by ARTC 2019, are considered appropriate to guide Stage 1 (sic) of Inland Rail - Narrabri to North Star.

Heritage NSW would like to be consulted on Stage 2 (sic), specifically regarding the treatment of Gwydir River and Mehi River bridges. We would be happy to meet with you to assist progression this project.

Heritage NSW's comments in respect of non-Aboriginal Heritage are noted.

Consultation with Heritage NSW will be progressed as part of the Phase 2 project.

## **DPiE Water –Response to Submission: 17 February 2020**

### **Water Supply**

#### Cover Letter

Confirmation of the water supply works to ensure an adequate water supply is available and the impacts of the proposed extraction are adequately assessed. The identification and assessment of water supply works will enable exclusion of approval requirements under the Water Management Act 2000 where applicable and confirm the availability of a secure supply.

Furthermore, an impact assessment (including viable mitigating measures) is required if there is the potential for a loss of water supply and a new surface flow path (due to redirecting surface flows).

More detail regarding these recommendations are provided in Appendix A.

#### Appendix A

The EIS has estimated construction water of 150ML over a two year period will be required to meet demands for dust control, site compaction and site reinstatement. The information provided within the Submissions Preferred Infrastructure Report (SPIR) is inadequate to identify the extraction site, licensing requirements and security of supply. The impacts of the proposed water extraction are yet to be assessed.

The SPIR proposes to confirm the ability to access water supplies and any licensing requirements after project approval through individual Construction Water Supply Plans for each section of the Inland Rail program. This could represent a commercial risk to the project. Therefore, it is recommended this be confirmed to enable exclusion of approval requirements under the Water Management Act 2000 where applicable.

We note that to DPiE Planning and Assessment's RFI (16 January 2020) seeks similar additional detail on the identification of water supply arrangements. Corresponding detail will be provided to in the response to the RFI.

As discussed in Section 7.2.1 of the SPIR, ARTC is undertaking a program-wide study to analyse construction water demand and potential sources of supply as required by the relevant SEARs. Appropriate preliminary investigations have now been completed for the N2NS Project, considering surface water, groundwater, wastewater and recycled sources.

ARTC's intent is to obligate the construction contractor to secure existing available water through commercially available water under market mechanisms, utilising a range of sources that can maximise supply across the project's geographic area. Water would only be purchased from water holders where that water exceeds the holder's current requirements.

The following discussion outlines how this will be implemented and the measures undertaken to minimise the environmental impacts of water supply.

#### Water regulation and terminology

The *Water Act 2000* (NSW) (Water Act) seeks to balance water requirements for environmental purposes with water requirements for urban and rural uses. As such, the Water Act regulates the allocation, provision and use of water, and establishes systems for the responsible management of water and water infrastructure.

The Water Act regulates surface water and groundwater systems through Water Sharing Plans (WSPs), and the allocation and extraction of water from regulated systems through Water Access Licences (WALs). The WSPs:

- ▶ Set the rules for sharing water, ie, the allocation of water between environmental needs and users, including different types of users;

- ▶ Govern how WALs can be used; and
- ▶ Explain the rules for the allocation of water licences.

A WAL is an entitlement to a share of the available water in the system but is not a guaranteed volume of water. The allocation of water that a licenced user receives varies from year to year based on the licence category and size of individual entitlements. Drought measures may be applied under a WSP which will restrict WAL allocations.

A WAL allows the holder to take water at specific times, rates or in particular circumstances. A WAL holder may:

- ▶ Sell their water licence (ie, sell their entitlement permanently); or
- ▶ Trade or part of the licence, for a defined period.

Alternatively, a WAL holder may, within a water year, trade a specific volume of water from an allocation.

Multiple WSPs exist across the N2NS project extent, which variously address surface water systems and related aquifers, surface water only systems, or groundwater only systems. The surface water and groundwater only WSPs have differing extents due to the changes in geology.

Separate to a WAL, the Water Act requires additional approvals to be held:

- ▶ A water use approval, that allows the approval holder to use water for a particular purpose at a particular location; and/or
- ▶ A water management work approval, to allow the holder to construct and use water supply works at a specified location; and/or
- ▶ An activity approval, that allows the holder to undertake a controlled activity on waterfront land or interfere with an aquifer (ie, establish and operate a bore).

Section 5.23 of the EP&A Act states that State Significant Infrastructure is not required to hold these approvals. Despite that, where the project intends to purchase water on the market, the water must have been lawfully taken under a suitable WAL and associated approvals.

### Construction water demand and sources

Water used during the construction period will be used for a variety of purposes, including:

- ▶ Construction processes to meet engineering specifications and for environmental management;
- ▶ Landscape and rehabilitation; and
- ▶ Potable supply for construction team personnel use, estimated as 2% of total demand.

Each use has differing water quality characteristics, and therefore differing sources may be required.

Water demand will vary during the construction period, and will be reflective of the construction schedule, activities required, climatic conditions encountered during construction and location within the project corridor. A volume of 1,215ML supply has been estimated for the N2NS construction phase, spanning an estimated construction duration of 51 months. This demand averages 24ML/month.

To be considered suitable for construction supply, ARTC has determined a source should:

- ▶ Preferably be located within 25km of the N2NS corridor. This is required in order to minimise transport costs and supply logistics, and will likely necessitate the establishment of various supply sources due to the staggered nature of the construction workforce. For example, sources near to Narrabri would likely be unsuitable to service work sites between Moree and North Star due to the transport requirements; and
- ▶ Preferably have an available share components (allocations) in the WAL entitlement in excess of 150ML/year or an on-going regularity of supply from the wastewater or coal seam water sources. This

availability is necessary to provide an adequate buffer of supply, so that a variety of sources may be drawn upon across the construction duration. The volume of supply provides at this level allows for water resources to be utilised without impacting significantly upon sources, as this available volume indicates a substantive water resource volume would exist.

#### Potential water source assessment methodology

As noted in the SPIR, a hierarchy of water supply sources has been established, being:

- ▶ Commercial water sources;
- ▶ Surface water sources with existing WALs;
- ▶ Recycled water from sewage treatment plants, other wastewater sources or coal seam water;
- ▶ Existing groundwater bores with existing WALs; and
- ▶ Establishment of new groundwater bores.

For each of the potential source types, analysis has considered the water availability and robustness of this availability. Sources have been refined to include only options that can meet the project's volume requirements over time, transport considerations and cost impacts.

The following process has been completed:

- 1) Identification of all water sources within the 50km wide buffer of the project corridor (the search area);
- 2) Review of NSW Water Register within the search area to:
  - a) Identify, for each water source in the 2019/20 period, the total number of WALs and water usage; and
  - b) Categorise these WALs by licence category and the total existing water allocation. This step then filtered out licence types that would not be able to provide water to the project;
- 3) The remaining licences were reviewed to identify share access components to determine the extent of unallocated water. WALs with share components less than 150ML/year were then omitted, and the remaining WALs ranked to prioritise those with larger share components;
- 4) This group of WALs has then been analysed to determine proximity to the construction zone. Wastewater and other sources were also included into this step of the assessment. This provides a prioritised list of WALs; and
- 5) Finally, the proximate list of WALs has been prioritised based on drought restrictions and overall allocation of groundwater resources in aquifers.

#### Potable supplies

Potable supplies for personnel use would be commercially sought through Council operated supplies, or through groundwater supplies where meeting potable standards. This supply requirement is limited to construction offices, lunchrooms and kitchens, and hand washing/showers, and the limited volume required for these could be met through existing systems.

#### Surface water outcomes

There are three Water Sharing Plan (WSP) that manage surface water along the N2NS corridor:

- ▶ the Gwydir Unregulated and Alluvial Water Sources (2012)
- ▶ Namoi Unregulated and Alluvial Water Sources (2012); and
- ▶ NSW Border Rivers Unregulated and Alluvial Water Sources (2012).

There are approximately 19 individual surface water sources within these WPS that lie within a 50km buffer around the N2NS corridor.



Currently, there are only a limited number of sources with WALS with share components that exceed the 150ML quantum. There are no potential unallocated shares, with the majority of systems over allocated. As of January 2020, each of the surface water WSP areas was currently regulated under drought contingency measures, such that there are effectively no allocations for general purposes available. The Gwydir WSP was listed as being in severe drought, whilst critical drought restrictions applied to the Namoi and Border Rivers areas.

On this basis, and notwithstanding the significant rainfall which has been received to date in February 2020, the use of surface water is not considered viable.

Should further substantial rainfall occur, and an abundance of surface water become available beyond environmental and rural production requirements, purchase of water from licence holders could be reconsidered.

#### Wastewater, recycled and coal seam water

Wastewater treatment plants are located at a number of locations within the N2NS corridor, generally associated with the towns and larger villages. To be a suitable supply source, the plants must be licenced for treated effluent release.

Available sources that have acceptable discharge characteristics, licensing and volumes comprise the following sewage treatment plant:

- ▶ Moree – treated effluent is used to irrigate various sporting facilities around the town. Excess effluent is discharged to a watercourse. Annual volumes of 1000-5000ML are licenced for discharge;
- ▶ Warialda – treated effluent is used to irrigate the golf course, with excess effluent discharged to a watercourse. Annual volumes of 100-219ML are licenced for discharge;
- ▶ Bingara – all treated effluent is discharged to a watercourse. Annual volumes of 20-100ML are licenced for discharge; and
- ▶ Narrabri – treated effluent is used for irrigation at an effluent irrigation farm and is otherwise discharged to a watercourse. Annual volumes of 219-1000ML are licenced for discharge.

Additionally, discharged wastewater is potentially available from thermal/artesian pool operators in Moree. The quantity of this water may be limited and would require commercial negotiation with these operators.

Water produced from coal seam gas operations has been modelled in the EIS for the Narrabri Gas Project. Should this project receive approval and commence activities, approximately 5ML/day could be available.

Selection of any of these sources by the contractor would require negotiation of the sale of the water from the producer and the issue of suitable waste handling licences or resource recovery orders and exemptions (where required).

#### Existing groundwater sources

For groundwater along the N2NS alignment, there are eight WSPs that deal with groundwater that lie within a 50km buffer of the project area. Across these, there are a number of groundwater aquifers that have the capability of supplying water, variously in shallower alluvial beds and deeper great artesian basin resources.

The WALS for existing bores across these sources have then reviewed to identify those that have a sufficient licenced volume (regardless of the quantum used) to contribute an adequate supply, determine the usage and unused capacity, and consider proximity to the N2NS corridor. From this assessment, within the 50km buffer, there are:

- ▶ 23 aquifer WALS that have low usage compared with allocations, as shown below in Table 2; and

- ▶ 11 aquifer WALs that have usage similar to allocations and may be less suitable.

Table 2 Potentially suitable Groundwater WALs with low usage of allocations

AQUIFER WSP	WALS WITH LATENT SHARE UNITS AVAILABLE	
NSW Murray Darling Basin Fractured Rock Groundwater Sources 2011	WAL 28752 (over 350)	
NSW Murray Darling Basin Porous Rock Groundwater Sources 2011	WAL 29513 (over 200)	
Lower Gwydir Groundwater Source 2019	WAL 111447 (over 250) WAL 11464 (over 400)	WAL 11494 (over 150)
NSW Great Artesian Basin	WAL 16328 (over 450) WAL 15732 (over 450) WAL 15841 (over 450) WAL 15870 (over 450) WAL 15915 (over 450) WAL 15470 (over 450) WAL 15666 (over 450) WAL 15809 (over 250) WAL 15703 (over 350)	WAL 15874 (over 250) WAL 15876 (over 450) WAL 15773 (over 1500) WAL 21380 (over 450) WAL 41202 (over 250) WAL 15813 (over 150) WAL 15743 (over 150) WAL 15671 (over 450) WAL 15923 (over 250)

Negotiation of water purchases from within this group of WAL holders would be the responsibility of the contractor. It is anticipated that this purchase would be through a term transfer, so that the contractor is obligated to comply with the WAL conditions and payment regime.

Through the use of existing groundwater WALs, assessment of the impact of the operation of the bore on the aquifer has been previously undertaken in the WALL process. Nonetheless, the extraction of water and the bore's operation would be monitored in line with licence requirements.

Additionally, analysis of geology and the existing deeper bores indicates that the establishment of new deeper aquifer sources may be a suitable supply option. Despite this, the extent of analysis to ensure a suitable supply is available is not considered practicable given the likelihood of securing water resources from existing bores.

#### Additional groundwater sources

The range of existing groundwater source WALs is considered to provide a wide array of opportunities for the construction contractor to negotiate water supply arrangements with existing WAL holders.

Nonetheless, should the need arise for the creation of an additional groundwater source, the following process would be followed by the construction contractor under ARTC's guidance:

- ▶ Analysis of existing groundwater sources and use levels and associated analysis of existing records of test groundwater bores to identify priority areas within which to seek additional water;
- ▶ Negotiation, with a landholder regarding the potential creation of a bore;
- ▶ Potentially, sinking of test bore(s) to determine water availability, flow and chemical composition;
- ▶ An application for a new WAL (zero allocation) and establishment of suitable land access arrangements;
- ▶ Assessment of the WAL by the Natural Resources Access Regulator (NRAR);
- ▶ Following issue of the WAL, purchase of water allocations on the market.

We note that this approach would likely delay construction activities, through the time and complexity involved in the above steps. ARTC's analysis of the existing market and preliminary consultation with significant participants in the market indicate willingness to trade.

#### Adopted approach and supply preferences

ARTC's adopted approach is to:

- ▶ Obligate the construction contractor to procure the necessary water volumes;
- ▶ Advise the construction contractor of the outcomes of the analysis completed to date and the WALs that are suitably located with appropriate capacities, to enable the contractor to negotiate directly with these holders to make market purchases either as a temporary transfer of WAL allocations or water produced by a WAL holder;
- ▶ Obligate the construction contractor to comply with regulatory and commercial requirements relating to their water production, purchase and usage; and
- ▶ Monitor the construction contractor's management of water usage by water supply source to inform approval and auditing requirements and improve water use practices on-site.

## Hydrological Assessment

### Cover Letter

An assessment of impacts to downstream water supplies and storages, as well as dependent species, communities and ecosystems, arising from altered flood flow patterns created by the addition of up to 50 new culverts.

An assessment of the geomorphic impacts of new downstream cross-drainage flow paths, particularly where these flows re-enter the main river network.

More detail regarding these recommendations are provided in Appendix A.

### Appendix A

The proponent has committed to further analysis regarding detailed design. However, some inconsistencies are evident. In Section 3.1.2 of Appendix E - Flood Study Report, it states that in the absence of soil property information, scour protection will be provided for culverts where discharge velocity exceeds 2.5 m/s, whereas in Section 4.4.2.1, the report states 1.6 m/s as the threshold for scour protection. DPIE – Water supports the lower value as appropriate, but the proponent should clarify its position on this contradiction. Further, all culverts should be designed with reference to soil properties and River Styles properties in the immediate location.

Additionally, the proponent has indicated up to 50 new culverts will be incorporated into the design. This represents a significant alteration to overland and floodplain flows during floods in comparison to existing conditions. While considerable attention has been paid to the impacts on local infrastructure and surrounding properties, no assessment of impacts to downstream water supplies or storages, nor dependent species, communities or ecosystems arising from altered flow patterns has been undertaken. Nor have the geomorphic impacts of new downstream cross-drainage flow paths due to new culverts (particularly where these flows re-enter the main river network) been reviewed. These assessments are required before approval is granted.

### Culvert discharge speed and scour protection measures

The requirement to implement scour protection is recognised and the detailed design includes scour protection through energy dissipation measures and/or downstream stability treatments.

ARTC considers that adequate modelling has been undertaken to understand the potential risk of downstream scour and erosion. Culvert design (position, invert level and cross sectional area) has been prepared on an iterative basis that balances to the greatest degree possible the volumes and velocities of water flows across various event sizes. Through this process, the culvert designs and associated works include energy dissipation devices that minimise scour and the potential for downstream impacts.

The most significant change in the hydraulic performance across the project site stems from the increased in rail level to avoid overtopping. Modelling indicates that currently overtopping occurs only in larger events and in a limited number of areas. Avoidance of this effect has therefore redistributed flows into the associated culverts and watercourses in those events. In smaller events, where there is no overtopping, it is not anticipated that there would be a substantive difference.

The culverts to be installed along the N2NS corridor are necessary as part of the railway design to manage surface water flows within and through the railway corridor. The culverts are to be installed in both watercourses (permanent and ephemeral) and drainage lines. In the flatter floodplain areas between Narrabri and Moree, many of the culverts associated with drainage lines are required for flood relief actions to ensure that flows within watercourses are restricted to manageable flows.

Existing culverts present within watercourses are to be replaced, and as noted in a number of these locations volumes, durations or velocities may present a risk to watercourse stability and if unmitigated could result in erosion. Further review of the flood design outcomes indicates that these impacts are within watercourses, where there is the ability to apply enhanced mitigation through the expansion of scour protection measures.

As noted in the hydrology report, the discharge velocity is the maximum modelled velocity in a 1% AEP event at a single location in the bank of culverts, without allowance for blockage or the behaviour of upstream and downstream flows. In effect therefore, the majority of flow across the culvert bank would be below these speeds.

Section 3.1.2 of the SPIR Hydrology Report discusses aspects of the detailed design criteria and how they have been incorporated into the design process and documented in the Requirements Analysis, Allocation and Tracability Matrix (RAATM). The use of the 2.5m/s criterion in the RAATM was applied as a trigger to identify where additional soil data was needed and/or further consideration on the structure and its performance was necessary. Following this, the detailed design process adopted the 1.6m/s criterion to guide the need for scour protection based on culvert inlet/outlet velocity (as noted in Section 4.4.2.1 of the SPIR Hydrology Report).

All locations where discharge velocities exceed 1.6m/s have scour protection included in the detailed design drawings. The extent of scour protection responds to the velocity and the scale of the culvert bank.

Review of the detailed design specifications and the hydrology outputs indicates that there are:

- ▶ fifteen (15) locations with discharge velocities of up to 0.5m/s; and
- ▶ thirty-three (33) further locations with discharge velocities of between 0.5 and 1.6m/s. In accordance with the NSW guideline for many disturbance activity impacts on waterways and soils, *Managing Urban Stormwater: Soils and Construction - Volume 1* (the Blue Book), scour protection is not immediately required at these locations.

Velocity is not the sole criterion for determining scour protection requirements, as watercourse profiles and existing conditions also dictate the need for protection measures. These additional actions will be determined on site during construction, as site conditions can change considerably after rain events and there is a significant duration between the design and construction phases. This approach will be applied to all culvert banks.

The detailed landscape design series addresses this issue through the inclusion of performance criteria that require consideration of site conditions, geology and soil types, bank profile and stability in addition to the hydrograph and velocity modelled for each culvert set. This allows for the on-site determination of the extent of scour protection or other mitigation measures to be adopted, which meets with EIS mitigation measures and ARTC's obligations as set out in the proposed conditions (refer below).

### Alterations to surface water flows

ARTC considers that there are only minor alterations to volumes of water in surface water flow paths and that there is no practical alteration to inflows to surface water storages or the pattern of downstream species, communities and ecosystems. As noted above, the project does not seek the use of surface water as a major component of water supply.

The hydrological assessment considered the potential for the redirection of flows away from water storage dams downstream of the rail corridor and a loss of water supply to those properties. Avoidance of this outcome was one of the underlying requirements for the cross drainage design process. With that, the design intent has been to maintain flows within existing overland flow paths, whilst preventing overtopping of the railway line. This is primarily undertaken through the upgrading of culverts to balance flows across a range of events.

In broader, flatter floodplains there is currently ponding upstream of the railway line, where water is caught behind the formation. For these locations the outcome of the project design is a general reduction in the depth of ponding of water in immediate proximity to the railway line, with water redirected to the improved culverts. Nearer to culverts, there are very localised alterations to depth, without the establishment of new flow paths. Where there is overtopping of the line in major events, the existing

downstream outcome is shallow ponding. The design case avoids this impact, with water will instead be retained in the formalised flow path.

For locations where there is a more defined flow path, being a watercourse or drainage line, the design case maintains the extent of surface water flow patterns, with only minor alterations to extents in the 1% event. In these locations, it is not considered that there would be adverse impacts on surface water users.

Additionally, between Narrabri and Moree, where the Newell Highway is adjacent to the railway line, culvert locations and volumes have been managed to match the existing road drainage infrastructure, thereby maintaining the surface water paths and consequently water supply arrangements.

## Floodplain Management

### Cover Letter

An assessment of the consistency of the project (and associated impacts) with the requirements of the Floodplain Management Plan for the Gwydir Valley Floodplain 2016.

It is noted that part of the project near Moree is within the area covered by this plan, and the flood study does not reference this.

The EIS Hydrology and Flooding Assessment (Technical Report 6) notes the (then) Draft Floodplain Management Plan, whilst the SPIR Flood Report is cognisant of but does not directly reference the finalised management plan that commenced operation in 2016.

ARTC considers that the design of the preferred infrastructure will maintain the outcomes sought in the floodplain management plan, as outlined in the following review.

### Area of Applicability

The floodplain management plan applies to the area mapped in the plan, which as relevant to the broader N2NS project, includes:

- ▶ The Gwydir and Mehi Rivers, downstream of Biniguy, other than an area around the town of Moree;
- ▶ North of the Moree omitted area, the Gwydir-Mehi floodplain, including Camurra North; and
- ▶ South of Moree, land west of the Newell Highway as far south as Tycannah Creek, from where the management plan boundary continues to the south west away from the highway and railway line.

As such, no part of the preferred infrastructure for the N2NS Phase 1 project lies within the management plan's area of operation.

A large extent of the N2NS Phase 2 area will fall within the management plan area, and will be considered in detail under that project.

### Flood Management Zone

Between Moree and Tycannah Creek, watercourses west of the Newell Highway are mapped as Management Zone A areas, which are defined in the plan as major drainage lines and areas where significant floodwater discharge occurs. Adjacent land is then mapped as Zone B, which provides for conveyance large flood events or pondage extents as modelled in the management plan preparation. Zone C are areas that are not flood impacted.

The SPIR Flood report has modelled these watercourses and flood impacted areas as part of the Tycannah Creek, Clarks Creek, Halls Creek and Marshalls Ponds Creek catchments, and aggregated them into the report's Gwydir02 hydraulic model.

### Consistency with management objectives

The plan adopts a series of objectives and strategies to manage the effect of flooding and the regulation of works in the floodplain that may affect flood behaviour.

The objectives, set out in clause 10, are to:

- (a) facilitate the orderly passage of floodwaters through the Gwydir Valley Floodplain; and
- (b) minimise the risk to life and property from the effects of flooding; and
- (c) maintain flood connectivity to wetlands, other floodplain ecosystems, and areas of groundwater recharge; and

- (d) contribute to the protection of the ecological assets and values of the Gwydir Valley Floodplain; and
- (e) contribute to the protection of cultural, heritage and spiritual features of the Gwydir Valley Floodplain that are significant to Aboriginal people and other stakeholders.

These objectives are not dissimilar to the design objectives and flood management objectives for the preferred infrastructure, as expressed in both the SPIR and the Flood Report. As stated in the SPIR, the flood design has been predicated on maintaining the existing flood situation to the greatest extent possible.

To that end, the preferred infrastructure:

- ▶ Maintains the flow of floodwater through the railway corridor, by providing new and replacement drainage structures with equivalent capacity;
- ▶ Has been designed to avoid afflux or increased hydraulic risk from impacting on residences or roads (additional afflux does occur in road corridors but not on the carriageway); and
- ▶ Maintains flood connectivity, environmental features and significant features.

#### Consistency with management strategies

Clause 11 of the management plan establishes the following strategies to:

- (a) establish management zones for coordinating flood work development; and
- (b) identify the existing and natural flooding regimes in the area; and
- (c) delineate a floodway network that has adequate hydraulic capacity and continuity to effectively convey floodwaters; and
- (d) identify ecological assets and the ecological benefits of flooding; and
- (e) identify cultural assets and the cultural benefits of flooding; and
- (f) identify existing flood works; and
- (g) establish rules for the granting or amending of flood work approvals.

The flood impact analysis has prepared flood modelling on a catchment basis, primarily upstream of the railway line, in order to establish management regimes that address the effect of floodwater on the infrastructure. In doing this, the modelling has mapped areas of flood impact that area equivalent to Zones A, B and C, but with greater resolution. This is as the management plan is based on two flood events (~4% AEP in 2012, and ~10% AEP in 2004), whereas the impact assessment has utilised these events and a range of further rainfall datasets to model the effects of events from 1% AEP to 39% AEP. This has allowed the impact assessment to establish management principles for flood conveyance through these events to maintain existing flood passage into the floodways downstream of the railway, whilst not significantly altering flood behaviour across inundation areas.

Consequently, ARTC considers that the project is consistent with the management plan, as:

- ▶ the work to does not adversely impact on the flood connectivity of ecological and cultural assets and groundwater recharge;
- ▶ the infrastructure does not modify the hydraulic behaviour of floodwaters beyond small, localised changes in the immediate vicinity of the upgraded structures; and
- ▶ the infrastructure maintains downstream flow paths and volumes that inflow to the floodway network controlled under the management plan.



## Post Approval

Should the project be approved, the following are provided as recommended Conditions of Consent:

- ▶ The proponent should clarify the contradiction in proposed thresholds for providing scour protection in culverts. Further, all culverts should be designed with reference to soil properties and River Styles properties in the immediate location. This should be developed in consultation with DPIE - Water during detailed design stages.
- ▶ The proponent should develop the Construction Environmental Management Plan (CEMP) and Operations Environmental Management Plan (OEMP) in consultation with DPIE – Water and NRAR prior to commencing works.
- ▶ The CEMP and OEMP should incorporate a Watercourse Protection Plan, which includes monitoring during and for a period after construction (at least until major floodplain flows are experienced), to ensure effectiveness of scour protection.
- ▶ Works within waterfront land need to be consistent with the Guidelines for Controlled Activities on Waterfront Land (NRAR 2019).

### Scour protection and erosion control

As noted above, the detailed design phase has been completed and has applied an iterative approach to determining culvert design and treatment, to appropriately balance water flows with flood impacts. Scour protection has been applied consistent with this methodology and will be reviewed during construction to ensure soil types and watercourse features are stabilised.

To assist in managing this risk, the ARTC Proposed Conditions of Approval (ARTC, March 2020) include:

*E52 The exit flow velocity from culverts must comply with the Flood Management Objectives. Any alterations to this exit velocity is permitted provided it does not result in impacts on soil structure, condition or cause scour and erosion outside of the rail corridor or beyond the area of scour protection works where an adjacent landholder has agreed to the installation of such works on their properties as per Condition E55.*

*Where areas outside of the rail corridor currently show scour or erosion and this is directly attributable to a culvert that is to be replaced, mitigation measures be implemented to ensure stable downstream conditions, and further scouring or erosion resulting from flows exiting the replacement culvert are mitigated.*

*E53 All scour protection work associated with replacement culverts or the construction of new culverts must be restricted to the rail corridor, or as agreed to by the relevant landowner.*

Adoption of a similarly worded condition that meets these objectives can be negotiated. ARTC will review the Department's suggested conditions in respect of these mitigation requirements and will provide separate feedback.

### CEMP and Watercourse Protection Plan

As outlined above, the CEMP will include a number sub-plans that jointly and separately address the management of water movement and impacts on soil during construction of the project.

For the relevant plans, the Proposed Conditions of Approval (ARTC, March 2020) include in C4 a consultation requirement with DPIE Water, NRAR and the Councils.

### Waterfront activities

Noting that Section 5.23 of the EP&A Act states that State Significant Infrastructure is not required to hold an approval for work on waterfront land, ARTC recognises that works may have potential impacts on watercourse stability or downstream areas.

Mitigation measure D6.1 commits the design to be cognisant of the guidelines, whilst C8.3 applies to works within or near watercourses, which would be undertaken with consideration given to the guidelines for controlled activities.

The Proposed Conditions of Approval (ARTC, March 2020) include:

*E55 Work on waterfront land must be undertaken in accordance with controlled activities guidelines.*

ARTC will review the Department's suggested conditions in respect of these mitigation requirements and will provide separate feedback.

## DPIE BCD Hydrology and Flooding – Response to Submission: 29 January 2020

### Hydrology and Flooding

#### Attachment A

1. Provide BCD with spatial data of areas affected by watercourse instability in the rail corridor vicinity, and land that may be affected by residual erosion risks.
2. Consideration should be given to implementing erosion threshold guidelines outlined in the Floodplain Management Plan for the Gwydir Valley Floodplain 2016.
3. Section 6.2 should state that landholder consultation will occur where land is impacted by increased afflux and flood duration.
4. Identification of erosion instability areas (both riparian and floodplain) in the vicinity of the rail corridor (up to 100 metres) that have the potential to be affected by residual erosion risks should be included as recommended further work in section 6.2. Landholder consultation should also be undertaken as part of this work to identify erosion sites and solutions.

#### Attachment B

1. Refined hydrological and hydraulic modelling have been undertaken.  
(BCD has no further recommendations)
2. Concerns regarding erosion and maximum allowable velocity thresholds have not been addressed.

#### Areas of watercourse instability and erosion risks

As discussed in response to DPIE Water and NRAR, ARTC notes that alterations to flow paths and rates can introduce instability to watercourses where there are dispersive soil types or existing eroded landforms.

ARTC has data regarding a range of watercourses where replacement culverts are required, and can provide BCD with this information. The data has been primarily captured to assist in the geotechnical design process for the culverts.

The level of detail available has concentrated on the culvert crossing locations and railway formation area, and will not necessarily provide further guidance about upstream and downstream conditions. As noted above, the preferred approach is to undertake additional review at each crossing during construction, to appropriately address in-situ conditions. As BCD are aware, sediment movement through culverts varies considerably and is influenced by not only soil types but adjacent land management practices which are beyond ARTC's control.

#### Gwydir Valley Floodplain erosion threshold guidelines

Whilst noting that the project extent is not within the area of the Floodplain Management Plan, the applicable guidance appears to relate to works in Management Zones B and C, where:

- ▶ In Zone B, the flood work must not be approved where, in the Minister's construction of the flood work is likely to:
  - (d) *increase flow velocity by an amount that, in the Minister's opinion, is likely to have more than a minimal impact on soil erodibility on adjacent landholdings and other landholdings that may be affected by the proposed flood work, taking into account the ground cover on those landholdings.*
- ▶ In Zone C, in determining whether or not to grant approval, the Minister may have regard to whether construction of the flood work would be likely to:

- (d) *increase flow velocity by an amount that, in the Minister's opinion, is likely to have more than a minimal impact on soil erodibility on adjacent landholdings and other landholdings that may be affected by the proposed flood work, taking into account the ground cover on those landholdings.*

(Refer to clauses 42 and 43 of the Floodplain Management Plan)

As such, in ARTC's view the Floodplain Management Plan does not set clear erosion threshold guidance.

#### Landholder consultations

In respect of landholder consultations, ARTC has undertaken direct engagement between September 2019 and March 2020 with interested parties and landholders in the vicinity of the railway corridor and other works areas regarding the flood impact management process. Engagement with affected landholders is on-going to finalise sharing of completed design updates and will continue through the conclusion of the design process and into construction. The engagement activities have presented the flood modelling, the railway design features and infrastructure which affects landholder interests, and the mitigation measures incorporated. The process has allowed for landholder feedback and the resolution of issues identified by landholders.

The purpose of the engagement program was to:

- ▶ Ensure community members who do not directly interface with the project have access to information on the process and outcomes of flood modelling for the N2NS project;
- ▶ Engage and consult with directly impacted landowners to confirm modelling reflects historical experiences with different flooding events; and
- ▶ Record feedback provided by landowners on modelling and identify any issues that proposed works may cause to their property and/or business.

Engagement and consultation occurred in the following stages:

- 1: Initial community engagement through seven information sessions at locations along the project alignment in September 2019. Approximately 90 persons attended;
- 2: Targeted engagement with affected landowners where the modelling indicated property impacts exceeded the FMOs. Landowners were grouped into two categories and contacted by email and/or letter:
  - (a) A group of sixty (60) where the modelled flood effects exceeded the FMOs to a minor degree, with the effects limited to small proportion of the property, or a negligible adverse afflux or duration extension. The nature and extent of impact were explained in the letter. Landholders were provided the ability to contact the project team for further information; and
  - (b) A group of thirty-two (32) landholders where the property could experience greater impact as a result of the project. The letter again explained these impacts, and landholders were offered a meeting with members of the project team. Twenty-nine meetings with individual landowners were consequently held in November and December 2019;
- 3: Subsequent follow up meetings (March 2020) with affected parties to further discuss specific issues, design features and mitigation measures. Further engagement will be undertaken as required to resolve remaining matters.

ARTC will prepare a report that outlines the outcomes of this consultation process. To that end, the Proposed Conditions of Approval (ARTC, March 2020) includes the project specific following:

- E6** *The Flood Management Objectives contained in the SPIR, as set out in Appendix C, to maintain or improve flood characteristics must be complied with for the CSSI unless*

*written agreement is obtained with the affected party for a material deviation from the relevant Flood Management Objective.*

- E7 A Flood Study Consultation Report to demonstrate the completion of consultation of the Flood Study Report SPIR, August 2019, and associated attachments, presented in the SPIR must be prepared and provided to the Secretary for information no later than 12 months after the granting of this Planning Approval. This Flood Study Consultation Report must demonstrate consultation with affected landholders, relevant councils, DPIE Water, DPI Fisheries and SES (as required) (the affected parties). The Flood Study Consultation Report must include information of any material deviations from the Flood Management Objectives as per Condition E7, the consultation undertaken and outcomes regarding material deviations with affected parties, and the implementation of any consequential actions presented to the affected parties arising as an outcome of the consultation.*

Continued implementation of this strategy is considered to adequately address the need for consultation and close out with affected landholders. ARTC will review the Department's suggested conditions in respect of these mitigation requirements and will provide separate feedback.

## **DPiE BCD – Response to Submission: 20 January 2020**

### **Biodiversity**

#### Field validation

Field validation of the desktop assessment of the amended development footprint is required

Section 2 of Appendix G states that a desktop assessment was undertaken to determine the additional impacts to native vegetation as a result of the amended development footprint. No field validation occurred.

Whilst a desktop assessment does not conform to the Framework for Biodiversity Assessment (FBA) for the additional 1000-hectare impact, it is acknowledged that the collection of field data at present is compromised due to the ongoing drought conditions. Any data collected is unlikely to represent the structure, function and composition of the plant community types (PCTs) present in “normal” climatic conditions. Similarly, it is noted in Table 5 that the existing number of plots are adequate for the increased area of each vegetation zone, as required by Table 3 in the FBA.

Despite this, it is recommended that a rapid field assessment is undertaken to validate that the “edge matching” of PCTs that has occurred via desktop assessment is an accurate representation of what is present on the ground.

1. Complete a rapid field assessment to validate the edge matching of PCTs undertaken by desktop assessment. Results to be provided should include the field data collected, number of plots, photographs, and locations of rapid plots.

ARTC agrees with this request. The requested information forms part of the 2020 BDAR.

Field validation has been completed in February and March 2020. This work has addressed the amended development footprint and has reviewed parts of previously mapped species extent for listed vegetation species, to ensure an adequate understanding of presence can be maintained.

Refer to **Attachment A – 2020 BDAR**.

#### Amended vegetation mapping

Amended vegetation mapping and related spatial files should be provided for review

The increased impact to PCTs is detailed in Table 3 and illustrated in Figures 1-7. However, the figures are not displayed at a scale that clearly shows the amended footprint, and they do not illustrate the PCTs being impacted upon. BCD is unable to provide feedback on the validity of the amended impacts to native vegetation without access to this information.

2. Develop an updated vegetation map, produced at a scale where individual PCTs are easily identified.
3. Provide BCD with updated spatial files, including the amended footprint, updated vegetation map, and location of rapid assessment plots.

ARTC agrees with this request. The requested information forms part of the 2020 BDAR.

#### Species credits

Additional information on species credit species, including amended species credit polygons, is required

Section 6 states that targeted searches for threatened flora species will be undertaken during January and February 2020. BCD supports the proponent’s proposal to assume presence for the flora species credit species that were previously recorded in the development footprint, namely finger panic grass, Belson’s panic and creeping tick-trefoil.

BCD requests that where flora species credit polygons have been expanded to incorporate PCTs associated with the threatened flora species according to the Threatened Biodiversity Data Collection, the PCTs are listed for each flora species. Additionally, it is requested that amended species credit polygons are provided for all species credit species, including in a spatial format for review by BCD.

BCD will continue to liaise with the proponent regarding the calculation of flora species credits based on area of habitat compared to individual counts. The amended calculation of flora species credits provided in Appendix G in the SPIR is likely to be conservative.

Finally, an explanation is required that details how the additional impact to the koala was determined (173.79 hectares compared to 94.84 hectares in the October 2018 BAR Addendum).

4. PCTs included in the flora species credit polygons according to the Threatened Biodiversity Data Collection not previously identified in the BAR should be listed.
5. Amended species credit polygons, including in a spatial format, should be provided for all species credit species.
6. Provide details regarding how the additional impact to the koala was determined.

#### Flora Species Credits

The requested detail is included in the 2020 BDAR.

#### Species Credit Polygons

The requested detail is included in the 2020 BDAR, with the shapefiles providing supporting information.

#### Koala impact areas

The change to the assumed impact on the koala was through the notional increase in impact on the habitat area of the species, arising through the broader development footprint. This comprised:

- ▶ A minor change to impacts on primary food tree / habitat areas, reflecting omission of the N2NS Phase 2 area from Moree to Camurra North; and
- ▶ An increase in PCT56 Poplar Box – Belah woodland (excluding the DNG portion), which is a secondary food tree / habitat area.
- ▶ Increases in impacts to Brigalow - Belah open forest, which provide for koala movement.

The approach applied conservative approach of assumed presence for koala through the Poplar Box and Brigalow – Belah communities. Through consideration of vegetation condition and habitat connectivity, along with the footprint reduction available once the Principle Contractor has established a finalised work method, the likely impact is likely to reduce.

The 2020 BDAR summarises the preferred infrastructure's impact on koala habitat.

## Aboriginal Cultural Heritage

### Registered Aboriginal Parties

Engagement with Registered Aboriginal Parties should occur

BCD notes that additional surveys are proposed for the modified footprint but understand that these have not yet been undertaken. As per the meeting between BCD and the proponent on 22 October 2019, BCD reiterate that it is important the proponent actively engage with the registered Aboriginal Parties (RAP) when designing and undertaking additional surveys. RAPs must be afforded the opportunity to determine the significance of additional harm to Aboriginal cultural heritage within the additional footprint, and consider the harm against the whole of the project area. Equally, as per the project requirements BCD recommend consulting with the RAPs when developing the Heritage Management Plan

7. The Registered Aboriginal Parties (RAPs) should be engaged when designing and undertaking additional surveys for the modified footprint.
8. The RAPs should be consulted during the development of the Heritage Management Plan.

The response to DPIE's request for additional information outlines ARTC's approach to addressing these comments.

In summary, ARTC will continue to implement a risk aware approach with the pre-construction activity to address the potential remaining impacts on areas and items of known and potential cultural heritage and archaeological. With the inclusion of additional areas within the project's actual disturbance footprint, a methodology is required to ensure there is minimal impact to items of Aboriginal cultural heritage value.

Given the RAP's previous endorsement of the methodology, the pre-construction phase will address the potential remaining impacts on areas and items of known and potential cultural heritage and archaeological value on a risk management basis aligned with the previous methodology. This will:

- ▶ Seek the RAP's feedback on the continuing applicability of this approach – commencement of this engagement is imminent but being undertaken in a sensitive way during COVID-19 restrictions;
- ▶ Undertake additional pre-clearing site investigations in:
  - ▶ the previously identified "greatest potential landform areas" for both (i) the additional project footprint areas, and (ii) the EIS phase project footprint in any locations not previously subject to physical survey; and
  - ▶ the areas around previously identified values (including IA6-13, AS1, AS5-7, Survey Units 15 and 55), whether or not within the "greatest potential landform areas"; and
- ▶ Allow for recording and salvage across these locations as guided by the CHMP.

The unexpected finds protocols set out in the EIS in all works areas would then be adopted.

This approach maintains the likelihood profiling utilised in the EIS and supported by the RAPs, provides for the RAP's involvement and feedback, and provides for levels of control to identify sites and artefacts and provide for suitable salvage and/or preservation.

The outcomes of the additional pre-clearance site investigations will form an addendum to the Aboriginal Cultural Heritage Assessment Report that accompanied the EIS. A Draft Aboriginal Cultural Heritage Management Plan has been prepared. Consultation with RAPs is noted as being necessary to finalise this reporting, in conjunction with the expanded site assessment outcomes.

Refer also to the commentary above in response to the Department's request for additional information dated 16 January 2020.



## TfNSW – Response to Submission: 28 January 2020

### Submissions and Preferred Infrastructure Report

#### 1 Introduction

##### 1.4 Key features of the proposal

###### *Comment*

The applicant advises approval is only being sought to operate 1,800 metre trains, however, components of the inland rail proposal will be designed and built to accommodate future 3,600 metres trains that will require a separate approval process.

###### *Issue*

The proposal is being designed for longer trains, however, it is not clear what the approval process is, if any, to allow longer trains to operate on inland rail. Small incremental changes in train length could have significant impacts on road traffic.

###### *TfNSW position*

It is requested that the approval process stated in section 1.4.1 be explained and the thresholds of incremental changes not needing consent/approval be clarified.

The planned Inland Rail rolling stock is 1800m in length as noted in the Project Description. As part of the rail network, trains of various lengths and configurations will use different parts of the system.

The design process for the Inland Rail Program has considered aspects of longer train lengths to allow for future flexibility in use of the network. This allows for growth in the configuration of rolling stock, but would be reliant upon various alterations such as the length of crossing loops and software upgrades to signalling systems.

As TfNSW note, the Inland Rail project description as described in the CSSI Application, EIS and SPIR is for the operation of trains up to 1800m long. The approval for Inland Rail will only allow for development consistent with that description, and does not include longer trains as approval for such lengths is not being sought.

Longer trains would require a modification to the CSSI approval in accordance with the EP&A Act, including an assessment of the environmental effects of longer trains and consideration of the impacts on road networks through changed performance of level crossings.

#### 2 Overview Of The Exhibited Proposal

##### 2.1.2 Key features of the proposal: Bellata, Gurley and Moree Railway Stations

###### *Comment*

The key features of the proposal include realigning the track at railway stations along the alignment to conform with required platform clearances for Inland Rail trains. TfNSW notes that the track will need to be realigned to fit the largest F-plate locomotive / rolling stock, which is wider than other freight and passenger trains.

###### *Issue*

Realigning the tracks adjacent to railway stations to provide the required wider clearances would cause safety issues for the public accessing passenger trains and workers (drivers, cleaners etc) accessing both passenger and smaller freight trains. The larger gap between platform and trains would be a hazard with the potential for injury to customers and/or workers.

#### *TfNSW Position*

No customer or workplace health and safety hazards are to be introduced as a result of the proposed works.

Details of appropriate design/actions to ensure the gap between platform and trains is minimised to enable customers and workers to board trains safely. This could include a separate through track for F-plate locomotives and /or restrictions on boarding from certain platforms only.

ARTC acknowledges TfNSW's concerns regarding safety. The recognition of safety risks and the resolution of those risks is a key aspect of ARTC's design process.

#### Bellata

With regard to project effects at Bellata:

- ▶ Passenger services currently stop at Bellata Station, and will be reinstated following Inland Rail construction;
- ▶ Bellata station is not standard access;
- ▶ To not impact on passenger train clearances, tracks are not being repositioned through the station, and therefore the current stepping triangle would be retained with no change to passenger hazard;
- ▶ Inland Rail has been designed for rolling stock Plate F running; and
- ▶ Under Plate F running there is a maximum 56mm infringement of rolling stock in the kinematic parameters at the platform. To address this, a track maintenance management process has been followed which reduces this impact to 2mm at a single location, with the balance of the platform no longer affected. A waiver has been agreed that adopts this approach.

#### Gurley

For Gurley station:

- ▶ Passenger services no longer stop at Gurley Station;
- ▶ The Gurley station platform and a safe work zone hut remain present, the station building has previously been removed;
- ▶ Mainline and siding tracks currently pass through Gurley station;
- ▶ Due to changes to the sidings at Gurley silos immediately north of the station, the railway will be reconfigured in the vicinity of the station to a single mainline track. This track will be repositioned away from the platform; and
- ▶ To install necessary longitudinal drainage, the Gurley platform will be demolished.

#### Moree

Moree Station is the most substantial station within the N2NS project area:

- ▶ Passenger services terminate in Moree and presently use Platform 1 (west);
- ▶ The eastern track past the station has associated curves that cannot accommodate Inland Rail design case rolling stock;
- ▶ Accordingly, the mainline movement will be maintained on the western track and passenger services will stop on at Platform 2 (east);
- ▶ To create a suitable stepping triangle for passenger trains, Platform 2 will be extended to establish a straight stopping area; and

- ▶ The western mainline track will be shifted approximately 120mm west away from the building, to ensure Plate F clearances to the heritage listed Platform 1 awning are maintained and rolling stock does not hit the awning.

The above outcomes clarify that any potential risks arising from wider stepping triangle between platforms and trains have been negated.

## 2.2 Need for Inland Rail and the exhibited proposal: Jones Avenue Bridge

### *Comment*

It is identified that Inland Rail will connect key production areas (s2.2.1) and that the exhibited proposal will facilitate safe access for vehicles across the rail corridor in Moree via the proposed Jones Avenue road overbridge (s2.2.2).

### *Issue*

TfNSW acknowledge the need for a safe, grade separated crossing of the rail corridor at Moree. However, TfNSW is of the opinion that a crossing at Jones Avenue would present both safety and security issues due to its location within the township and close proximity to existing natural walking paths utilised by the local community. These concerns have also been expressed by other stakeholders including Moree Plains Shire Council and Moree Local Aboriginal Land Council. Furthermore, the proposed Jones Avenue road overbridge would not adequately address severance issues, particularly in relation to heavy vehicles.

TfNSW and Moree Plains Shire Council have made previous representations to ARTC and the Department of Planning, Industry and Environment in relation to the potential for relocating the proposed road overbridge to the south of Moree to realise the opportunity to create a true intermodal hub and connect Inland Rail to the Moree Special Activation Precinct (SAP), which will be one of three major inland freight ports utilising Inland Rail.

The provision of a grade separated crossing of the rail corridor in the location of the Moree SAP would fulfil the objective of connecting key production areas and ensure that rail and road freight are appropriately integrated, increasing freight efficiency and reducing supply chain costs.

### *TfNSW Position*

TfNSW acknowledge that ARTC has committed to further engagement with TfNSW and Moree Plains Shire Council regarding the potential for revising crossings of the railway line in Moree (s7.8.10 and mitigation measure ID No. D2.4). Nonetheless, it is noted that the proposed road overbridge at Jones Avenue remains part of the preferred infrastructure.

TfNSW request that the proposed Jones Avenue overbridge is deferred to account for the SAP master planning development process and that the provision of a road overbridge in Moree is either developed in Separable Portion 2 of the Narrabri to North Star Project, or, the infrastructure approval includes conditions requiring the relocation of the overbridge to the alternate location in consultation with, and approval from, TfNSW and Moree Plains Shire Council.

As separately advised, ARTC undertakes to collaborate with MPSC, DPIE and TfNSW to explore the excision or relocation of the overbridge. ARTC acknowledges the view that the creation of effective infrastructure through the coordination of investment will support the resolution of this issue. Resolution of this must be undertaken as a part of the SP1 project, as the potential impact associated with crossing the railway line in Moree are spatially limited to SP1 and do not have a nexus with SP2. This will necessitate further studies that consider the implications of these two options on severance, and potentially that these studies can be coordinated between the interested stakeholders.

### 3 Environmental Impact Statement Clarifications

#### 3.2.1 Freight train movements: Freight Train Suspension between Moree and Narrabri during Construction

##### *Comment*

Section 3.2.1 discusses the suspension of freight train movements during construction and concludes the expected additional trucks on the Newell Highway will not detrimentally impact the Level of Service of the road.

##### *Issue*

The SPIR must fully consider the impacts of, and demonstrate how such impacts will be mitigated, from additional truck movements, from both freight diverted off the rail network and construction traffic on the surrounding road network, including the potential for damage to the road infrastructure. There is to be no lasting impact/s to the Newell Highway and other classified roads as a result of the construction works and the change of freight movements from rail to road.

##### *TfNSW Position*

TfNSW requests that a rail possession strategy and construction traffic management plan be prepared in consultation with TfNSW and Narrabri Shire, Gwydir Shire and Moree Plains Shire Councils to minimise transfer of rail freight impacts to the road network and construction traffic impacts on the road network.

TfNSW request that any infrastructure approval include conditions of approval requiring appropriate road condition surveys/reports to be undertaken and any damage to roads as a result of the proposal to be rectified.

A copy of road condition reports is to be provided to the relevant road authorities (including TfNSW and local councils) for review.

Preparation and implementation of a long-duration possession strategy is outlined in the SPIR and has been subject to engagement with the grain industry and the rail business units of TfNSW.

As TfNSW is aware, there is presently limited movement on the N2NS railway, being only the daily passenger services. There is no currently scheduled freight movement north of Narrabri (refer to the January 2020 Master Train Plan at <https://www.artc.com.au/customers/operations/mtp/2020-01-05/>). Freight movements presently occurs only in response to grain shipment demands.

The impact of shifting these movements onto the road network are addressed in the SPIR in light of the proposed long-duration possessions. In summary:

- ▶ With no current rail freight movement, there is no displacement onto the road network; and
- ▶ Long-duration possessions will be configured to allow grain to be transported by rail. In practical terms, this necessitates the staging of construction as outlined in the SPIR.

Finalisation of the possessions will be completed by the successful contractor and guided by ARTC as part of construction planning. This will include further engagement with the grain industry, rail business units of TfNSW and train operating companies. Due to the likely need to stage construction, the resulting outcomes would be incorporated into a staging report.

Dilapidation assessments of roads affected by construction traffic and construction phase movements will be addressed in the preparation and implementation of the Traffic and Transport CEMP Sub-Plan.

### 3.5 Hydrology and Flooding

##### *Comment*

The SPIR states that the proposal site is already used for rail infrastructure and culverts and bridges should be generally upgraded in their existing location

#### *Issue*

TfNSW is designing a suite of upgrades on the Newell Highway between Narrabri and Moree to improve the road surface and the highway's flood immunity. There are locations where the road and rail infrastructure act as a barrier to floodwaters causing flood impacts on nearby buildings. Edgeroi is an example where residences and a commercial building flood occasionally due to water being backed up by road and rail. TfNSW is seeking to resolve these flooding issues, however, as the road and rail infrastructure are in close proximity, it is only possible to resolve if both rail and road infrastructure are upgraded to accommodate floodwaters (ie not replaced with same culverts and storm water infrastructure that is incapable of managing stormwater without causing flooding impacts of nearby properties)

#### *TfNSW position*

Given the proposal will involve raising the rail and thereby increasing the barrier for floodwaters, TfNSW requests that storm and floodwater measures proposed as part of inland rail be designed to match the drainage infrastructure proposed on the Newell Highway adjacent to inland rail.

ARTC's flood management objectives seek to maintain existing flood impacts on the Newell Highway, and to not worsen flood risk. As documented in the SPIR Hydrology Report, this outcome has been achieved other than in a small number of locations, with the majority of the corridor resulting in reductions to flood levels across the highway.

ARTC understands that the proposed upgrade of the Newell Highway remains subject to funding, and as such generally considers that the highway works should reflect the Inland Rail design case. Nonetheless, resolution of mutual design outcomes in locations where TfNSW is currently proposing substantial work requires further discussion between ARTC and TfNSW to ensure the protection of assets across both portfolios.

ARTC undertakes to continue collaborating with TfNSW, and will maintain a coordination group to ensure compatibility of design actions and construction interfaces to limit impact on adjacent landholders and highway traffic.

### **3.6 Potential for Impacts on Moree Station, p3-04**

#### **Moree Railway Station**

##### *Comment*

The SPIR confirms the need for platform works at Moree Railway Station, however, the design of the required works will be subject to further refinement during the detailed design process (in consultation with key stakeholders, including TfNSW) and a subsequent Statement of Heritage Impact.

##### *Issue*

In addition to heritage impacts, any modifications to Moree Railway Station also need to consider public and workplace health and safety issues associated with track and/or platform realignment.

##### *TfNSW Position*

TfNSW require the design of any modifications to Moree Railway Station to preserve the heritage significance of the Station and comply with relevant requirements in relation to the safety of the public and workers.

TfNSW request that any infrastructure approval include conditions of approval requiring the design of any modifications to Moree Railway Station and associated Statement of Heritage Impact to be submitted to TfNSW for review and endorsement.

The SOHI prepared for Moree Station indicates that the proposed works do not adversely impact on the heritage values of the station. The SOHI and design proposals will be shared with the owners and operators of the station infrastructure.

A copy of the SOHI is provided for information at ***Prepared by Umwelt, April 2020 (ARTC Ref: 3-0000-260-ESV-00-RP-002)***

**Attachment B – Addendum Historic Heritage Assessment & Statement of Heritage Impact.**

## **7 Response to Government Agency Submissions**

### **7.1 Overview**

#### *Comment*

The SPIR states no submission on the exhibited proposal was received from Roads and Maritime Services.

#### *Issue*

TfNSW and Roads and Maritime provided a joint submission on 20 December 2017.

#### *TfNSW Position*

Please note a submission on the exhibited proposal was made by the former Roads and Maritime Services.

Noted. The SPIR summation of the comments adopted the issuing agency name.

### **7.6.2 Preferred infrastructure features and design, p7-17**

#### **Level Crossings**

#### *Comment*

It is noted that ARTC has committed for each level crossing design to address potential short stacking between the rail corridor and adjacent roads.

#### *Issue*

There is no mention of taking into consideration track realignment where there are identified short stacking issues. In areas with short stacking issues, the railway track should be realigned to take into consideration 36.5 metre long trucks turning off/on to the Newell Highway and other classified roads.

Damage is caused to rail infrastructure and long vehicles, particularly agricultural vehicles including trailers (in excess of 40 m in length), where the approach and departure grades to the road rail interface are too steep.

#### *TfNSW Position*

That no short stacking issues remain or are created as a result of the proposed works. TfNSW request that any infrastructure approval includes conditions of approval requiring consultation with TfNSW during detailed design with regards to level crossings and track realignment, and submission of crossing and track designs for review and endorsement by TfNSW.

TfNSW also requests that ARTC's review of the level crossings includes the approach and departure grades for long vehicles and trailers in excess of 40 metres and that they are able to traverse the railway track without damaging rail infrastructure. The level crossing assessment criteria must also include a review and assessment for approach and departure grades for vehicles and trailers (minimum 40 metres in length).

#### Short Stacking

ARTC notes that extensive consultation has occurred with TfNSW (previously RMS) and affected landholders regarding short stacking, with a view to resolving traffic safety issues in providing lawful property access.

There are four (4) level crossings where short-stacking onto the Newell Highway was been identified as an issue in consultation with TfNSW. Of these:

- ▶ Two are understood to have been resolved through the subsequent design development of the Newell Highway Upgrade Program, which has positioned the highway further from the railway; and
- ▶ The remaining two are resolved through the slewing of the track to the west, which provides sufficient separation between the level crossing and the highway. At these locations, the track will shift by between 5m and 10m to the west, but remain in the existing rail corridor.

Further design coordination is required with TfNSW at each of these locations. Subject to highway geometry, sight lines, the resolution of drainage and funding arrangements, the highway accesses could be further upgraded by inclusion of BAL-BAR treatments which would then provide deceleration zones for northbound (left turn) movements and shoulder passing for southbound (right turn) movements.

Endorsement of the finalised level crossing and highway interface designs is required from landholders and TfNSW before to commencement of these works. ARTC commits to continuing the engagement with these parties as a priority.

### Vertical Curve and Sightlines

At level crossings it is desirable for the road's vertical alignment to be smooth for allow for travel at up to the intended operating speed. This requires the levels of the road pavement to coincide with the level of the rails.

The railway grading will control the road level. In many cases, the reconstructed rail level is above the existing rail level, which creates a "hump" where the approach roads climb to meet the crossing level, in turn this results in a vertical crest curve over the crossing. To address this vertical crest issue, ARTC confirms that the detailed design process for all level crossings has incorporated:

- ▶ the maximum design vehicle in each instance (including unregistrable farm vehicles for private crossings);
- ▶ overall vertical geometry, including final track height and the tie into the adjacent road surfaces;
- ▶ sight distance requirements for train speeds and design vehicles;
- ▶ drainage and earthwork interfaces; and
- ▶ vehicle clearance software to check vehicle body clearances for small crest curves.

Road grading (public and private) has been determined to minimise the extent of works, while recognising that the design vehicle must pass over the level crossing either at reasonable speed (for active control crossings) or slower but without bottoming out (for passive control crossings).

The design must ensure a vehicle can start from a stop on the approach incline following a stop at a stop sign or boom control. For large vehicles, restarting from a stop on a steep grade is difficult, particularly on unsealed roads. To address this, a desirable maximum grade of 6% has been adopted, and all level crossings will include a 5m sealed approach.

## **7.6.3 Traffic, transport and access p7-17**

### **Design of Rail**

#### *Comment*

The applicant does not appear to have confirmed the setback of the Waterloo Crossing Loop from the Newell Highway.

#### *Issue*



The setback of the rail from the Newell Highway is required to understand the impacts of the new loop on the Newell Highway.

*TfNSW Position*

The applicant is to provide the requested setback of the Waterloo Crossing Loop from the Newell Highway.

The Waterloo Crossing Loop and the linked maintenance siding is located between chainages 628200 (southern extent of siding arrestor beds), 630800 (northern extend of associated drainage and earthworks). As repositioned in the preferred infrastructure arrangement, the crossing loop does not conflict with a side road or property access.

The detailed design confirms that all works for the Waterloo Crossing Loop and the linked maintenance siding fall within the existing rail corridor. The corridor generally has a 40m separation from the edge of the highway formation.

Accordingly, the works are likely to have limited impact on the current Newell Highway configuration. ARTC understands that there are no upgrades presently planned in this segment of the highway. Any future upgrade actions to the Newell Highway in this vicinity should be incorporate the railway and its ancillary infrastructure.

Refer to **Attachment C – Waterloo loop**.

## 7.8.5 Traffic, transport and access, p7-22

### Road Rail Connectivity

*Comment*

Moree Plains Shire Council identified a severance issue for the east-west movement of regional high productivity vehicles and a subsequent need for a grade separated crossing south of Moree to facilitate high productivity vehicle access, in line with the transport study funded under the Murray-Darling Regional Economic Diversification Program. Moree Plains Shire Council also identified a requirement to facilitate access to existing and proposed intermodals and industrial areas.

The response provided in the SPIR identified that localised impacts are expected as a result of increased delays at some intersections and level crossings and that a further grade separated crossing, in addition to the proposed Jones Avenue overbridge, was out of scope. A commitment was included for ARTC to work with relevant stakeholders to identify opportunities to facilitate local access between Inland Rail, Moree Gateway, and other intermodal facilities, where feasible and reasonable.

*Issue*

The response does not sufficiently address the issues raised. Severance is both a safety and freight efficiency issue which will not be fully addressed with the proposed overpass at Jones Avenue and the identified localised delays.

*TfNSW Position*

Grade separated crossings and associated connectivity to Inland Rail are a high priority, particularly in Moree where there is an opportunity for road freight movements to connect to rail in the location of the Moree Special Activation Precinct in a safe, sustainable and efficient manner via a grade separated crossing.

As discussed in this response, ARTC supports the ability for communities to develop localised land uses and infrastructure which connects to the inter-regional infrastructure provided as Inland Rail.

Following preparation of the EIS, MPSC and other organisations have commissioned a series of reports and design studies which consider how this would be best achieved in Moree, and in association with these outcomes, how existing transport and severance issues could be addressed. ARTC will continue



working collaboratively with MPSC and State agencies to address these matters through the completion of additional post-approval studies to establish an agreed road freight network and mitigation measures appropriate to the impacts of Inland Rail on the existing road networks.

#### **7.8.10 Socio- Economic Impacts, pg 7-28**

##### *Comment*

Moree Plains Shire Council in consultation with the Moree community, including the Moree Local Aboriginal Lands Council, has raised concerns that the proposed Jones Avenue Bridge will not provide practical pedestrian access between east and west Moree, across Inland Rail and the Newell Highway. Based on the evidence provided, TfNSW agrees with this position.

##### *Issue*

The SPIR does not adequately address nor provide safe and practical pedestrian access between east and west Moree.

##### *TfNSW Position*

Further work is required to address severance issues, including safe and practical pedestrian access between east and west Moree. TfNSW remains committed to work with ARTC to develop safe and practical opportunities for pedestrians to cross the Newell Highway and Inland Rail, where both corridors adjoin.

As noted, MPSC has identified changing community attitudes to grade separated pedestrian crossings following completion of the EIS. ARTC is committed to continuing to work with MPSC and TfNSW to ensure that crossing opportunities are appropriate to the community, safe and logically connected to destinations.

## **9 Preferred Infrastructure – Operational Features**

### **9.1 Design features, p9-01 – 9-09**

#### **Connectivity to sidings and loading points**

##### *Comment*

The SPIR does not address the potential for the connection of rail sidings/grain silos and/or other loading points adjacent to the rail line to Inland Rail.

##### *Issue*

It is noted that there are a number of grain silos adjacent to the rail corridor between Moree and North Star. It is understood grain from these silos is currently transported via road to Moree or North Star for transfer to rail.

There is an opportunity for these silos to connect to Inland Rail and benefit from the associated transport efficiencies, however, the visibility of the preferred infrastructure does not allow for this to be known.

##### *TfNSW Position*

TfNSW request that ARTC undertake appropriate consultation with GrainCorp and other agricultural accumulation/marketing companies in relation to the identified silos and other infrastructure (both active and inactive) to ascertain the potential for future connection to Inland Rail and appropriately future proof the preferred infrastructure for any required connections. All required load points and/or sidings along the Inland Rail route should form part of the preferred infrastructure.

The Inland Rail Program is for the establishment of the mainline to Inland Rail design specifications, including the retention of existing connections where required by current operators.

The project description at Section 9.1.1 in Table 9.1 at “Turnouts” confirms that all turnouts would be replaced at existing sidings. This maintains the current connectivity of silos and other sidings to the mainline network. Works within sidings are additional to the project scope, and are completed where necessary to reinstate facilities affected by the mainline works.

## 11 Operation Environmental Screening and Assessment

### 11.2.3 Operational impact assessment summary of findings, p11-02 – 11-03

#### Infrastructure Flooding

##### *Comment*

It is noted that the proposed flood management objectives for the preferred infrastructure allow for increases in flood levels and total flood duration on surrounding public roads and adjacent land, property and buildings.

##### *Issue*

Increases in flood levels and duration could cause damage to surrounding roads and associated infrastructure, land, buildings and property. This could result in additional costs associated with natural disasters such as flooding for the Federal and State Governments and property owners/occupiers without providing appropriate mitigation.

##### *TfNSW Position*

The detailed design process needs to aim for the preferred infrastructure to not increase flood levels on surrounding roads and private properties. A detailed Flood Impact Assessment is to be prepared during detailed design to confirm the potential impacts of the preferred infrastructure on flooding. The Flood Impact Assessment is to be prepared in consultation with TfNSW and the relevant local councils and a copy submitted to TfNSW and councils for review and endorsement.

The Flood Impact Assessment Report prepared in accompaniment of the SPIR is the detailed design case flood assessment. This report models and assesses the impacts of the project on properties and infrastructure.

ARTC has consulted with TfNSW, Councils, other agencies and private landholders regarding existing flooding extents, modelled project flooding effects, the conclusions of the Flood Impact Assessment Report and mitigation measures. Revisions to the design case flood management works and mitigation measures have been identified through this consultation process. Mitigation measures will be implemented as agreed to by the affected parties. These actions will be documented in a Flood Design Report for submission post-approval.

As preparation of the Flood Impact Assessment is an integral part of the EIS process and design phase activities, the consultation undertaken with TfNSW and the Councils is considered appropriate.

## 13 Revised Mitigation Measures and Conclusion

### 13.1.2 Construction, p13-10

#### Emergency Vehicles Access

##### *Comment*

Mitigation measure ID No. C2.3 in Table 13.2 states that “Access for emergency vehicles would be maintained along key emergency access routes throughout the construction period, with suitable alternative access arrangements provided where required.”

#### *Issue*

Access along all routes should be maintained for emergency vehicles. Furthermore, the SPIR does not clarify what is considered a key emergency access route.

#### *TfNSW Position*

ARTC should endeavour to maintain access on all routes for emergency services to ensure required response times can be met. Where this is not feasible, all emergency services and the relevant local council needs to be consulted with regards to any potential loss of access for emergency vehicles and any accesses likely to be unavailable.

The project intent is to maintain access wherever and whenever is possible. The Traffic, Transport and Access CEMP Sub-Plan will include a methodology for managing emergency service movement, which is intended to allow for regular updating of routes in consultation with emergency services, TfNSW and Councils.

The construction program will include the construction of temporary access arrangements, such as level crossings and movement options along the Newell Highway and regional routes.

**Table 13.3 Updated mitigation measures – operation, p13-16**

#### **Vegetation Management within Rail Corridor**

##### *Comment*

In relation to the handling of dangerous goods during operation, it is identified that “Operation would be undertaken in accordance with ARTC’s standard operating procedures.” However, there are no details of appropriate hazard control, particularly in relation to fuel load reduction to mitigate against the risk of fire.

##### *Issue*

Fuel load build-up has been an issue in the past along the Inland Rail route and the issue has not been managed appropriately. Having a fuel source adjacent to the road has the potential to cause a hazard for motorists and surrounding communities.

##### *TfNSW Position*

Appropriate management of the fuel load in the railway corridor should be undertaken to reduce the risk of fire and relevant management measures included in the Operational Environmental Management Plan developed for this project.

Fuel load is noted as being a management issue for transport corridors, with bushfire hazard affecting rail operations equally to road operations.

The increase in rail traffic is noted as increasing the risk of bushfire through an increase in potential fire sources, which will be mitigated through a similar increase in corridor maintenance activities to control vegetation and fire load levels.

As noted by TfNSW, it is appropriate to address this through the operational controls, as applied through ARTC’s Environmental Management System.

## **Appendix B**

### **Section 2.6.1 Access to construction work areas**

##### *Comment*

Access to construction work areas is proposed from public roads.

##### *Issue*

No assessment appears to have been undertaken to identify where access to public roads will occur and whether these locations are safe.

*TfNSW Position*

Pursuant to clause 101 of *State Environmental Planning Policy (Infrastructure) 2007*, vehicular access to construction sites should, as far as practicable, be from local roads. All vehicular access to construction sites and all road intersections that form part of construction haulage routes are to be in accordance with *Austroads Guide to Road Design*, including safe intersection sight distance.

The principle of site access from the lower order road is noted and will be applied wherever possible. Where the project site is adjacent to the Newell Highway, construction access will use existing road intersections or private site driveways to minimise the number of interfaces with highway traffic.

Detailed planning for site access points will be the responsibility of the construction contractor. The Traffic, Transport and Access CEMP Sub-Plan will include a methodology for assessing the suitability and safety of access points consistent with Austroads. Use of any access point will include consultation with the appropriate road owner (TfNSW, Council or landholder).

## **Figures 1.9 and 1.10 Crossing Loops**

*Comment*

Murgo and Cooleearlee Crossing Loops are incorrectly labelled.

*Issue*

Crossing Loop maps do not relate to labels.

**TfNSW**

Noted.

## **Appendix L**

### **PUBLIC LEVEL CROSSING TREATMENT METHODOLOGY**

**Review whether the Level crossing meets the criteria for automatic grades separation, pL-01**

#### **Level Crossing Review Criteria**

*Comment*

ARTC's policy for automatic grade separation is triggered where rail interfaces with four or more lane freeways/highways, or, where four rail tracks exist at a road interface, or, for topographical reasons.

*Issue*

The thresholds of four or more lanes or four rail tracks are significant and rare in regional NSW.

*TfNSW Position*

More appropriate triggers for automatic grade separation is required where an existing level crossing exists.

TfNSW suggests a more appropriate trigger would be roads on the National Land Transport Network or for topographical reasons.

TfNSW's position is noted.

The Office of National Rail Safety Regulator's recommendations around the use of a qualitative approach to level crossing management have been adopted by ARTC. This allows for a variety of factors, including

topography and the function of the transport network, to inform the approach to level crossings. ARTC considers that its existing policy and the level crossing risk tool are a sound approach.

### **Level Crossing Risk Tool, pL-01 – L-02**

#### *Comment*

The methodology states that all other crossings that do not meet the thresholds identified in ARTC's policy will be assessed using a formalised Level Crossing Risk Tool that identifies risk treatments and assists ARTC in being able to demonstrate that risks to safety would be managed So Far As Is Reasonably Practicable (SFAIRP) for both brownfield and greenfield interfaces.

#### *Issue*

The methodology, including ALCAM, provides a sound basis in assessing the risks associated with level crossings, from a rail perspective. ARTC have shared, and TfNSW has reviewed and provided feedback on, the methodology and calculations associated with the Tool.

The methodology can be further developed to provide a sound comparable basis applicable to all scenarios.

Further, it can be augmented to account for impacts to the road freight industry.

#### *TfNSW Position*

Level crossing collisions between trains and vehicles are a severe road safety risk. To minimise risks to the public, TfNSW has adopted two policy positions in relation to level crossings as follows:

1. Building new level crossings is to be avoided wherever possible and all other options, including grade separation and use of existing level crossings should be explored and documented before a new crossing is proposed.
2. Public and private level crossings should be closed wherever it is practical and cost effective to do so. Access can be managed by redirecting traffic via an alternate route or, dependant on the benefit, by grade separation.

TfNSW requires and welcomes a rigorous and consistent quantitative treatment methodology to address level crossings across the Inland Rail project. The methodology is to be improved in consultation with TfNSW and other stakeholders.

TfNSW supports the use of the Australian Level Crossing Assessment Model (ALCAM) database as a guiding principle to assess the level crossing risk and the closure review process, particularly as the significant road and rail investment by both State and Federal governments will see increased traffic volumes, altering the risk profile of these interfaces. TfNSW also supports and requires the use of the guideline *Railway Crossing Safety Series 2011, Plan: Establishing a Railway Crossing Safety Management Plan* (NSW Roads and Traffic Authority, 2011) and *Australian Standard 1742.7* to assess the road risks and determine appropriate control measures associated with level crossing treatments.

TfNSW request that ARTC prepare the Public Level Crossing Treatment Report for the preferred infrastructure in consultation with TfNSW and relevant local councils / road authorities and that the design of any level crossing on a public road be submitted to TfNSW and/or the relevant local council for review and endorsement.

ARTC acknowledges and welcome's TfNSW's endorsement of the methodology adopted for the project.

ARTC will prepare both Private and Public Level Crossing Treatment Reports, and will provide these reports to the relevant road owners. Condition to this effect are recommended, as follows:

### *Public Level Crossing Treatment Report*

*The Proponent must prepare a Public Level Crossing Treatment Report in consultation with Transport for NSW (formerly RMS) and relevant councils. The report must:*

- (a) illustrate the location of all public level crossings which traverse the CSSI;*
- (b) list, and identify on a figure, any public level crossings that will be closed or upgraded, including the type of treatment proposed where a level crossing is to be upgraded;*
- (c) where no work is proposed at a public crossing, provide reason for the decision; and*
- (d) provide justification for any proposed closures.*

*The assessment of level crossings must utilise the Australian Level Crossing Assessment Model (ALCAM).*

*The report must also include an assessment of the road risks, consistent with the guideline Railway Crossing Safety Series 2011, Plan: Establishing a Railway Crossing Safety Management Plan (NSW Roads and Traffic Authority, 2011).*

### *Private Level Crossing Treatment Report*

*The Proponent must prepare a Private Level Crossing Treatment Report in consultation with landowners whose access will be affected by the closure or upgrading of a private level crossing. The report must:*

- (a) illustrate the location of all private level crossings which traverse the CSSI;*
- (b) list, and identify on a figure, any private level crossings that will be closed or upgraded;*
- (c) describe the treatments that will be implemented at upgraded crossings;*
- (d) provide justification for any proposed closures and types of treatment, including decisions where no additional treatments are proposed; and*
- (e) provide details on the consultation undertaken with the landowners.*

*The treatments at private level crossings must be in accordance with AS/RISSB 7658:2012 Railway Infrastructure – Railway Level Crossing.*

ARTC will review the Department's suggested conditions in respect of these requirements and will provide separate feedback.

## **MPSC – Response to Submission: 29 January 2020**

Moree Plains Shire Council's submission reviews the SPIR in detail and provides endorsement of a range of matters. ARTC acknowledges and thanks Council for this support.

MPSC has further provided commentary on several aspects where additional negotiation and collaboration is required. Due to the comprehensive nature of Council's comments, they are not reproduced in full below, but are introduced in heading/summary form.

### **Jones Avenue Overbridge and Moree Intermodal Overpass**

MPSC has provided justification for the Council's shift in support for Jones Avenue and their strong preference for the Moree Intermodal Overpass (MIO).

As expressed above, ARTC will collaborate with MPSC, the Department, TfNSW and the Regional Development Corporation on a methodology to further investigate delivery opportunities for the MIO in preference to construction of the Jones Avenue Overbridge. The outcomes of the workshop held in Sydney on 17 March 2020 demonstrate this commitment and form the basis for these on-going negotiations. We note that the east-west bypass discussed in Council's submission and at the workshop is not germane to Inland Rail.

Further actions is required to define the scope and responsibilities within those actions, and this will be undertaken in conjunction with the Department to enable a suitably worded condition to be imposed on the Project that will achieve these outcomes through a further study process. ARTC notes that this may

- ▶ Require amendment of mitigation measure D2.4; and/or
- ▶ Result in the submission of a modification request to alter the planning approval in order to align with the agreed outcomes of the studies.

### **Sidings and turnouts**

Council's position regarding preserving turn outs is noted. ARTC has engaged with all operators of private turnouts. The detailed design retains turnouts required by operators.

Noting Council's suggested alteration to mitigation measure D12.2 regarding local access to Inland Rail, ARTC considers that:

- ▶ Revised reference to stakeholders by agency name and locations may be appropriate; and
- ▶ The economic costs and benefits of access arrangements are the purview of access proponents and must be demonstrated as part of any access undertaking.

### **Noise and vibration**

Council's comments regarding the effect of construction and operational noise on short term accommodation and caravan parks is noted.

Construction noise impacts on these facilities will be addressed as part of the construction noise management plan, through the controls over hours of activity.

Operational noise impacts on motels, hotels and transient occupiers of caravan parks may affect sleep quality, however due to the short duration of occupation, these impacts are not considered in the RING. Effects on operator's residences co-located in such premises would be addressed in the impact mitigation measures, potentially through at-premises treatments.



Operational noise impacts on caravan parks are difficult to address through physical measures other than at-source treatments such as a noise wall. Reference to the ONVR indicates that caravan parks in the vicinity of the railway corridor are not anticipated to be affected by operational noise.

Council's request for consultation with communities regarding visual relief of noise walls will be addressed in the noise mitigation engagement program (as discussed above in relation to DPIE's queries regarding operational noise).

### **Construction Water**

Council's advice regarding water access is noted. The construction water strategy discussed above provides a robust basis on which the principal contractor can commence negotiations with appropriate water licence holders.

### **Corridor security and fencing**

Prevention of unsafe corridor access is a key component for the operational management of the railway line, and as noted by Council is important for both urban and rural locations, with differing drivers.

ARTC proposes that urban corridor access control will form part of the study process into alternatives to Jones Avenue. Review of existing structures, including mounding, will form part of this analysis.

### **Workforce accommodation**

As discussed in the SPIR, workforce accommodation and movement must be managed to ensure there is no adverse impact on host communities and infrastructure. ARTC does not wish to limit the flexibility that the selected contractors may require regarding accommodation, whilst noting that project specific effects need to be managed through the environmental impact assessment process. Following completion of the construction tender submission phase, ARTC and the potential contractors will work further with stakeholders regarding accommodation requirements.

### **Biosecurity**

Council's commentary regarding vehicle and plant inspections is noted. The suggested mitigation measure will be addressed in the Construction Flora and Fauna Management Plan, a sub-plan of the CEMP.

### **Bushfire**

Council's advice that a bushfire management plan be prepared for the construction phase is noted and accepted. It is suggested that the Flood Emergency Management Plan be expanded into a broader Emergency Management Plan.