



Noise and Vibration Management Plan

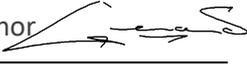
Parkes to Narromine Inland Rail Project

Project # 808 – J013

The background of the cover features a photograph of railway tracks receding into the distance. Overlaid on this is a large, semi-transparent watermark of the INLink logo. The watermark consists of a stylized sun icon above the text 'INLink' in a large, bold font. The entire cover is decorated with yellow and grey geometric shapes and dashed white lines.

Job No.: 808 - J013

Principal: Australian Rail Track Corporation, (ARTC)

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Noise and Vibration Management Plan (NVMP)

Parkes to Narromine Inland Rail Project # 808 – J013

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Attachments

Attachment A – Evidence of Consultation

Attachment B – Sensitive Receiver Location Maps

Glossary of Terms

Term	Definition
AS/NZS ISO 31000:2009	The Australian and New Zealand Standard for Risk Assessments
AS IEC 61672.1 2004	Electroacoustic – Sound Level Meters – Specifications
CEMF	Construction Environmental Management Framework
CEMP	Construction Environmental Management Plan
CNVIS	Construction Noise and Vibration Impact Statement
CoA	Conditions of Approval
CSSI	Critical State Significant Infrastructure
dB(A)	Unit used to measure 'A-weighted' sound pressure levels
DPIE	Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
EPA	Environmental Protection Authority
EPL	Environmental Protection Licence
ER	Environmental Representative
ICNG	<i>Interim Construction Noise Guideline</i> (DECC 2009)
INP	<i>Industrial Noise Policy</i> (EPA 2000)
Leq (Time)	Equivalent sound pressure level
L _w	Adopted sound power level, calculated using the loudest two items of equipment
NVMP	Noise and Vibration Management Plan
OOHW	Out of hours works
P2N	Parkes to Narromine
RBL	Rating background level
RtS	Response to Submissions
VDV	Vibration Dose Values

1. Scope

1.1 Purpose

This Noise and Vibration Management Plan (NVMP) focuses on potential noise and vibration impacts from construction activities during the construction phase of the Inland Rail Parkes to Narromine (P2N) project (the Project) which will be undertaken by INLink (the Contractor). Impacts associated with the ongoing operation of the Project are not considered in this plan. This NVMP addresses the management requirements related to noise and vibration during construction and has been prepared in consultation with the Environmental Protection Authority (EPA) and relevant Councils in accordance with the Conditions of Approval (CoA) and the Inland Rail NSW Construction Noise and Vibration Management Framework. The CoA will take precedence where there are inconsistencies between the CoA and the Inland Rail NSW Construction Noise and Vibration Management Framework.

The Environmental Management System (EMS) and Project overview are outlined in Section 1 of the Construction Environmental Management Plan (CEMP). This NVMP will be submitted to DPIE along with, or subsequent to, the submission of the CEMP.

2. Objective

2.1 Environmental Objectives

Best practice construction noise and vibration control measures, as well as relevant regulatory authorities regulations, guidelines and the CoA have been employed to minimise the impact of construction activities.

The following objectives will apply to the construction phase of the Project:

- Employ appropriate measures to comply with all relevant legislation, licences and other requirements
- Employ appropriate measures to minimise environmental or social impact due to noise or vibration
- Undertake construction activities to avoid and / or minimise impacts related to noise and vibration, including:
 - Ensuring plant and equipment are operated appropriately
 - Educate worksite personnel on noise minimising practices.
- Avoid potential risks to health or amenity from construction-generated noise or vibration
- Avoid structural damage to buildings and heritage buildings during construction
- Undertake active community engagement and complaints handling
- Ensure compliance with the CoA
- Ensure compliance with the mitigation measures in the Environmental Impact Statement (EIS) (GHD 2017), submissions report, as amended or modified by the CoA
- Ensure compliance with the Inland Rail NSW Construction Noise & Vibration Management Framework (0-9000-ENV-00-RP- 0001), as relevant to the CoA

2.2 Environmental Targets

The following environmental performance targets will be implemented throughout the NVMP:

- Compliance with CoA, EPL and relevant legislative requirements
- Controlling noise and vibration at the source, on the source to receiver transmission path and the receiver
- Meeting the specific noise levels and vibration criteria, as specified in the CoA and EPL
- Minimise community and stakeholder complaints

3. References

3.1 Key Legislative Requirements

Legislation applicable to the Project regarding noise and vibration, include but is not limited to the following:

- *Environmental Planning and Assessment Act 1979 (NSW)*
- *Protection of the Environment Operations Act 1997 (NSW).*

3.2 Standards and Guidelines

Standards and guidelines applicable to the Project relating to noise and vibration, include but are not limited to the following:

- Inland Rail NSW Construction Noise & Vibration Management Framework (0-9000-ENV-00-RP-0001) (ARTC 2018)
- Environmental Noise Management Manual (RTA 2001)
- NSW Industrial Noise Policy (EPA 2000)
- AS 1055.1-1997 Acoustics – Description and measurement of environmental noise
- AS 2436–2010 Guide to noise and vibration control on construction, demolition and maintenance sites
- AS IEC 61672.1 2004 'Electroacoustic - Sound Level Meters – Specifications
- Transit noise and vibration impact assessment (USA Federal Transit Administration 2006)
- NSW Road Noise Policy (RNP) (DECCW 2011)
- Interim Construction Noise Guideline (DECC 2009)
- Assessing Vibration: A Technical Guideline (DEC 2006) (for human exposure)
- British Standard (BS) 6472-1992, Guide to Evaluation of Human Exposure to Vibration in Buildings (1 Hz to 80 Hz)
- BS 5228.2-2009, Code of Practice Part 2 Vibration for noise and Vibration on Construction and Open Sites – Part 2: Vibration
- BS 7385 Part 2-1993 - Evaluation and measurement for vibration in buildings Part 2
- German Standard DIN 4150-3: 1999-02 Structural Vibration – Part 3: Effects of Vibration on Structures.

3.3 State and Commonwealth Approval Requirements

Under Part 5.1 of the NSW Environmental Planning and Assessment Act, a declared Critical State Significant Infrastructure (CSSI) project is assessed and must be approved by the Minister for Planning. Table 3-1 outlines the Conditions of Approval (CoA) (June 2018) for the Project from the NSW Department of Planning, Industry and Environment (DPIE) related to noise and vibration during the Project.

The Protection of Environment Operations (POEO) Act 1997 outlines requirements to prevent noise and vibration impacts and stipulates offences and penalties applicable to those identified. These conditions form the Environment Protection Licence (EPL) No. 21138 and those related to the preparation of an NVMP are outlined in Table 3-2 below.

Table 3-1 – Conditions of Approval

CoA	Details	Where addressed	How addressed
A5	Where the terms of this approval require a document to be prepared or a review to be undertaken in consultation with identified parties, consultation must be carried out in accordance with the Communications Strategy required by Condition B1. Evidence of the consultation undertaken must be submitted to the Secretary with the document.	Section 3.6 Attachment A	Consultation has been carried out with Parkes Shire Council, Environment Protection Authority (EPA), Narromine Shire Council and the ER. Attachment A contains the evidence of consultation.
A5a)	The evidence must include: Documentation of the engagement with the party (ies) identified in the condition for approval that has occurred prior to submitting the document for approval.	Section 3.6 Attachment A	Consultation has been carried out with Parkes Shire Council, EPA, Narromine Shire Council and the ER. Attachment A contains the evidence of consultation.
A5b)	The evidence must include: A log of the points of engagement or attempted engagement with the identified party (ies) and a summary of the issues raised by them.	Section 3.6 Attachment A	The log of comments from Parkes Shire Council, EPA, Narromine Shire Council and the ER is identified within Table 3-5. Attachment A contains the evidence of consultation.
A5c)	The evidence must include: Documentation of the follow-up with the identified party (ies) where feedback has not been provided to confirm that they have none or have failed to provide feedback after repeated requests.	Section 3.6 Attachment A	Feedback from Parkes Shire Council, EPA, Narromine Shire Council and the ER is identified within Table 3-5. Attachment A contains the evidence of consultation.

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CoA	Details	Where addressed	How addressed
A5d)	<p>The evidence must include:</p> <p>An outline of the issues raised by the identified party(ies) and how they have been addressed.</p>	<p>Section 3.6</p> <p>Attachment A</p>	<p>Issues raised from Parkes Shire Council, EPA, Narromine Shire Council and the ER is addressed within Table 3-5.</p> <p>Attachment A contains the evidence of consultation.</p>
A5e)	<p>The evidence must include:</p> <p>A description of the outstanding issues raised by the identified party(ies) and the reasons why they have not been addressed.</p>	<p>Section 3.6</p> <p>Attachment A</p>	<p>Issues raised from Parkes Shire Council, EPA, Narromine Shire Council and the ER is addressed within Table 3-5.</p> <p>Attachment A contains the evidence of consultation.</p>
A19d)	<p>For the duration of the works until the completion of construction, the approved ER must:</p> <p>Review documents identified in Conditions C1, C4, and C13 and any other documents that are identified by the Secretary, to ensure they are consistent with requirements in or under this approval and if so:</p> <p>make a written statement to this effect before submission of such documents to the Secretary (if those documents are required to be approved by the Secretary); or</p> <p>make a written statement to this effect before the implementation of such documents (if those documents are required to be submitted to the Secretary / Department for information or are not required to be submitted to the Secretary / Department)</p>	<p>Section 5.10</p>	<p>The ER has reviewed the identified documents.</p> <p>The works as described in this NVMP did not commence until approval was received from DPIE.</p>
A19e)	<p>For the duration of the works until the completion of construction, the approved ER must:</p> <p>Regularly monitor the implementation of the document listed in Conditions C1, C4 and C13 to ensure implementation is being carried out in accordance with the document and the terms of this approval.</p>	<p>Section 5.7</p>	<p>Inspections and audits have and are being undertaken in accordance with this condition, as outlined in Section 5.7.</p>

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CoA	Details	Where addressed	How addressed
E1	<p>Works must be undertaken during the following hours:</p> <p>(a) 7:00 am to 6:00 pm Mondays to Fridays.</p> <p>(b) 8:00 am to 1:00 pm Saturdays.</p> <p>(c) at no time on Sundays or public holidays.</p>	Section 5.1.1	Construction activities will be undertaken during the approved construction hours as outlined in Section 5.1.1.
E2	<p>Notwithstanding Condition E1, works affecting any one receiver may be undertaken during the hours of 6.00 am to 6.00 pm each day over a three (3) month period provided that there is no work between the hours of 1:00 pm on a Saturday and 7:00 am on a Monday every alternate week.</p>	Section 5.1.1	Works affecting any one receiver may be undertaken during the specified hours in Section 5.1.1.
E3	<p>Notwithstanding Conditions E1 and E2, works associated with the CSSI may be undertaken outside the hours specified under those conditions in the following circumstances:</p> <p>(a) for the delivery of materials required by the NSW Police Force or other authority for safety reasons; or</p> <p>(b) where it is required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm; or</p> <p>(c) where different construction hours are permitted under an Environmental Protection Licence (EPL) in force in respect of the CSSI; or</p> <p>(d) where a negotiated agreement is in force, in accordance with Condition E4 and E5; or</p> <p>(e) construction that causes LAeq (15 minute) noise levels:</p> <p>i) no more than 5 dB(A) above the rating background level at the façade of any residence in accordance with the Interim Construction Noise Guideline (DECC, 2009) or if between the hours of 10:00 pm and 7:00 am no more than 52 dB(A) LA (Max) or more than 15 dB(A)LA(Max) above the rating background level whichever is the higher, and</p> <p>ii) no more than the noise management levels specified in Table 3 of the Interim Construction Noise Guideline (DECC, 2009) at other sensitive land uses, and</p> <p>iii) continuous or impulsive vibration values, measured at the most affected residence are no more than those for human</p>	Section 5.1.2	Works may be undertaken outside the hours specified under the circumstances outlined in Section 5.1.2.

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CoA	Details	Where addressed	How addressed
	<p>exposure to vibration, specified in Table 2.2 of Assessing Vibration: a technical guideline (DEC 2006), and</p> <p>iv) intermittent vibration values measured at the most affected residence are no more than those for human exposure to vibration, specified in Table 2.4 of Assessing Vibration: a technical guideline (DEC 2006).</p>		
E4	The Proponent may reach negotiated agreements with sensitive receivers (owners and occupiers) to carry out works in accordance with the hours and noise limits specified in the negotiated agreements	Section 5.1.1	Negotiated agreements have an will be allowed to carry out works in accordance with the hours and noise limits specified in the negotiated agreements, as outlined in Section 5.1.1
E5	All negotiated agreements must be in writing and finalised before the commencement of works.	Section 5.1.1	Negotiated agreements will be recorded with the ARTC Community and Stakeholder Consultation System, as outlined in Section 5.1.1.
E6	<p>On becoming aware of the need for emergency works in accordance with Condition E3(b), the Proponent must notify the Department in writing to compliance@planning.nsw.gov.au, ER and the EPA of the need for that work.</p> <p>The Proponent must use best endeavours to notify all affected sensitive receivers of the likely impact and duration of those works</p>	Section 5.9	Appropriate departments and regulators will be notified of any emergency works occurring as outlined in Section 5.9.
E7	<p>Except as permitted by an EPL, activities resulting in impulsive or tonal noise emissions must only be undertaken:</p> <p>(a) between the hours of 8:00 am to 6:00 pm Monday to Friday.</p> <p>(b) between the hours of 8:00 am to 1:00 pm Saturday.</p> <p>(c) in continuous blocks not exceeding three hours each with a minimum respite from those activities and works of not less than one hour between each block.</p> <p>For the purpose of this condition, 'continuous' includes any period during which there is less than a 1-hour respite between ceasing and recommencing any works that are the subject of this condition.</p>	Section 5.1.1	Activities resulting in impulsive or tonal noise emissions have and will continue to be undertaken during the hours as outlined in Section 5.1.1.

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CoA	Details	Where addressed	How addressed
E8	<p>Mitigation measures must be implemented with the aim of achieving the following construction noise management levels and vibration criteria:</p> <p>(a) construction 'Noise affected' noise management levels established using the Interim Construction Noise Guideline (DECC, 2009).</p> <p>(b) vibration criteria established using the Assessing Vibration: A Technical Guideline (DEC 2006) (for human exposure).</p> <p>(c) Australian Standard AS 2187.2 - 2006 "Explosives - Storage and Use - Use of Explosives".</p> <p>(d) BS 7385 Part 2-1993 "Evaluation and measurement for vibration in buildings Part 2" as they are "applicable to Australian conditions".</p> <p>(e) the vibration limits set out in the German Standard DIN 4150-3: Structural Vibration- effects of vibration on structures (for structural damage).</p> <p>Any works identified as exceeding the noise management levels and/or vibration criteria must be managed in accordance with the Construction Noise and Vibration Management Sub-plan required by Condition C4(b).</p> <p>Note: The Interim Construction Noise Guideline identifies 'particularly annoying' activities that require the addition of 5 dB(A) to the predicted level before comparing to the construction Noise Management Level.</p>	<p>Section 3.2</p> <p>Section 4.5</p> <p>Section 5.1 (5.1.3)</p>	<p>The relevant noise and vibration standards and guidelines are listed in Section 3.2.</p> <p>Section 4.5 outlines the noise levels and the vibration criteria in accordance with this CoA.</p>
E9	<p>Owners and occupiers of properties at risk of exceeding the screening criteria for cosmetic damage must be notified before construction that generates vibration commences in the vicinity of those properties. If the potential exceedance is to occur more than once or extend over a period of 24 hours, owner and occupiers are to be provided a schedule of potential exceedances for the duration of the potential exceedances, unless otherwise agreed by the owner and occupier. These properties must be identified and considered in the Construction Noise and Vibration Management Sub-plan required by Condition C4(b).</p>	<p>Section 5.2</p>	<p>Owners and occupiers of properties at risk of exceeding the screening criteria for cosmetic damage have been notified before construction that generates vibration commences in the vicinity of those properties, as outlined in Section 5.2.</p>
E10	<p>This approval does not permit blasting.</p>	<p>Section 5.1</p>	<p>Mitigation measure, NV21, in Section 5.1 states the following:</p> <p>"Blasting will not be undertaken at any time."</p>

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CoA	Details	Where addressed	How addressed
E65	The Proponent must undertake dilapidation surveys on the current condition of surface and sub-surface structures owned by third parties and identified at risk from vibration. The dilapidation surveys must be prepared by a suitably qualified and experienced person(s).	Section 5.4.2.1	Prior to commencing activities, dilapidation surveys were undertaken on the current condition of surface and sub-surface structures owned by third parties and identified as being at risk of structural damage from vibration causing activities during the construction phase of the Project, as outlined in Section 5.4.2.1.
E66	The results of the dilapidation surveys must be provided to the relevant owners of surface and sub-surface structure for review prior to the commencement of potentially impacting works.	Section 5.4.2.1	Results of the dilapidation surveys have been provided to the relevant owners for review prior to the commencement of potentially impacting works, as outlined in Section 5.4.2.1.
E67	Subsequent dilapidation surveys must be undertaken to assess damage to the surface and sub-surface structures that may have resulted from the construction of the CSSI within three months of the completion of construction, unless otherwise agreed by the Secretary.	Section 5.4.2.1	Subsequent dilapidation surveys have and will continue to be undertaken, as outlined in Section 5.4.2.1.
E68	The results of the subsequent dilapidation surveys for each surface and sub-surface structure surveyed must be provided to the relevant owners of the structures within one (1) month of undertaking the surveys.	Section 5.4.2.1	The results of the subsequent dilapidation surveys have and will continue to be provided to the relevant owners of the structures as, outlined in Section 5.4.2.1.

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CoA	Details	Where addressed	How addressed
E69	The Proponent must carry out rectification at its expense and to the reasonable requirements of the surface and sub-surface structure owner(s) within three (3) months of completion of the post-dilapidation surveys unless otherwise agreed with the owner of the affected surface and sub-surface structure.	Section 5.4.2.1	Assessments will be undertaken by the Environmental Manager and suitably qualified and experienced person(s) to determine whether rectifications are to be carried out, as outlined in Section 5.4.2.1.
C4	The following CEMP Sub-plans must be prepared in consultation with the relevant government agencies and relevant councils identified for each CEMP Sub-plan and be consistent with the CEMP referred to in the EIS.	Section 3.6	This NVMP has been developed in consultation with the EPA and the relevant Councils, as outlined in Section 3.6.
C5 a)	The CEMP Sub-plans must state how the environmental performance outcomes identified in the EIS and Submissions Report, as modified by these conditions will be achieved.	Section 2.2 Section 5	The environmental performance outcomes and targets are outlined in Section 2.2 and will be achieved through the measures presented in Section 5.
C5 b)	The mitigation measures identified in the EIS and Submissions Report, as modified by these conditions will be implemented.	Section 5.1	The mitigation measures relevant to noise and vibration are outlined in Section 5.1.
C5 c)	The relevant terms of this approval will be complied with.	This plan	This condition will be demonstrated through the implementation and preparation of this NVMP.

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CoA	Details	Where addressed	How addressed
C5 d)	Issues requiring management during construction, as identified through ongoing environmental risk analysis, will be managed.	Section 4.2	<p>The environmental risk assessment process is outlined in Section 4.2 and the ongoing risk assessment within Section 4.4. Section 4.2 also describes the construction activities and predicted sound levels for each task.</p> <p>The on-going risk assessment for the Project is outlined in the CEMP and includes a risk register for the construction activities associated with the Project.</p>
C6	The CEMP Sub-plans must be endorsed by the ER and then submitted to the Secretary for approval no later than one (1) month before the commencement of the construction activities to which they apply.	Section 3.6 CEMP	<p>This NVMP has been approved by DPIE in accordance with this condition before the commencement of construction activities, as outlined in Section 3.6.</p> <p>This NVMP has been endorsed by the ER. Refer to CEMP for the ER endorsement letter.</p>
C7	Any of the CEMP Sub-plans may be submitted to the Secretary along with, or subsequent to, the submission of the CEMP.	Section 3.6	This NVMP has been submitted to DPIE along with, or subsequent to, the submission of the CEMP.
C12	Construction must not commence until the CEMP and all CEMP Sub-plans have been approved by the Secretary. The CEMP and CEMP Sub-plans, as approved by the Secretary, including any minor amendments approved by the ER, must be implemented for the duration of construction. Where the CSSI is being staged, construction of that stage is not to commence until the relevant CEMP and sub-plans have been endorsed by the ER and approved by the Secretary.	Section 3.6	<p>As outlined in Section 3.6, construction did not commence until this NVMP has been approved by DPIE.</p> <p>This NVMP, as approved by DPIE, including any minor amendments approved by the ER, will be implemented for the duration of construction.</p>

CoA	Details	Where addressed	How addressed						
C13	<p>The following Construction Monitoring Program must be prepared in consultation with the relevant government agencies and relevant councils identified for the Construction Monitoring Programs to compare actual performance of construction of the CSSI against performance predicted performance.</p> <table border="1"> <thead> <tr> <th></th> <th>Required Construction Monitoring Programs</th> <th>Relevant government authorities to be consulted for each Construction Monitoring Program</th> </tr> </thead> <tbody> <tr> <td></td> <td>Noise and vibration</td> <td>EPA and relevant councils</td> </tr> </tbody> </table>		Required Construction Monitoring Programs	Relevant government authorities to be consulted for each Construction Monitoring Program		Noise and vibration	EPA and relevant councils	Section 3.6	The Construction Monitoring Program has been prepared in consultation with the EPA and relevant Councils, as outlined in Section 3.6.
	Required Construction Monitoring Programs	Relevant government authorities to be consulted for each Construction Monitoring Program							
	Noise and vibration	EPA and relevant councils							
C14 a)	<p>Each Construction Monitoring Program must provide:</p> <p>Details of baseline data available;</p>	Section 4.1 Section 4.5.1	<p>As stated in Section 4.1 and 4.5.1, both attended and unattended noise monitoring was undertaken at various locations during the EIS.</p> <p>As stated in Section 4.1 and 4.5.2, unattended vibration monitoring was undertaken during the EIS with a vibration logger set up approximately 15m from the existing rail line.</p>						
C14 b)	Details of baseline data to be obtained and when;	Section 5.4	Baseline data is to be obtained for noise and vibration in the Construction Monitoring Program.						
C14 c)	Details of all monitoring of the project to be undertaken	Section 5.4	The details of the noise and vibration monitoring to be undertaken during construction is outlined in Section 5.4.						
C14 d)	The parameters of the project to be monitored;	Section 4.5 Section 5.4	Section 4.5 sets out the noise levels and vibration criteria for the Project during construction.						

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CoA	Details	Where addressed	How addressed
C14 e)	The frequency of monitoring to be undertaken;	Section 5.4	Noise and vibration monitoring will occur at each of the specified locations, as outlined in Section 5.4.
C14 f)	The location of monitoring;	Table 4-1 Section 5.4	The locations of monitoring will be consistent with the monitoring conducted in the EIS. Any changes to the monitoring locations to be endorsed by the ER and approved by DPIE.
C14 g)	The reporting or monitoring and analysis results against relevant criteria;	Section 5.4	The reporting of the results against relevant criteria will occur as outlined in Section 5.4
C14 h)	Procedures to identify and implement additional mitigation measures where results of monitoring are unsatisfactory and;	Section 5.4.3	Section 5.6 outlines the procedure in the event of a noise level and vibration criteria exceedances.
C14 i)	Any consultation to be undertaken in relation to the monitoring programs.	Section 3.6. Section 5.4	A Construction Monitoring Program for noise and vibration has been developed and consultation has been undertaken with the EPA and relevant Councils.
C15	The Construction Monitoring Program must be endorsed by the ER and then submitted to the Secretary for approval at least one (1) month before commencement of construction.	Section 5.4 Section 7.4 -CEMP	The Construction Monitoring Program was endorsed by the ER. Refer to the CEMP for the ER Endorsement Letter. The Construction Monitoring Program was submitted to DPIE before commencement of construction.

CoA	Details	Where addressed	How addressed
C16	A construction activity must not commence until the Secretary has approved all of the required Construction Monitoring Programs relevant to that activity, and all the necessary baseline data for the monitoring program has been collected.	Section 5.4	Construction activities, involving noise and vibration, did not commence until DPIE has approved the Construction Monitoring Program relevant noise and vibration, and all the necessary baseline data for the monitoring program was been collected.
C17	The Construction Monitoring Programs, as approved by the Secretary including any minor amendments approved by the ER, must be implemented for the duration of construction and for any longer period set out in the monitoring program or specified by the Secretary, whichever is the greater.	Section 5.4	The Construction Monitoring Program will be implemented for the duration of the Project, as outlined in Section 5.4.
C18	The results of the Construction Monitoring Programs must be submitted to the Secretary, and relevant government agencies and councils, for information in the form of a Construction Monitoring Report at the frequency identified in the relevant Construction Monitoring Program.	Section 5.4 Section 7.4 - CEMP	The results of the Construction Monitoring Program will be incorporated into the Six Month Compliance Report.
C19	Where a relevant CEMP Sub-plan exists, the relevant Construction Monitoring Program may be incorporated into that CEMP Sub-plan.	Section 5.4	The relevant Construction Monitoring Program for noise and vibration is incorporated into this NVMP in Section 5.4.

Table 3-2 – Environment Protection Licence

Ref ID	Details	Where addressed
A3.1	Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.	CEMP and Sub Plans
L3.1	Works must be undertaken during the following hours: <ul style="list-style-type: none"> a) 7:00 am to 6:00 pm Mondays to Fridays b) 8:00 am to 1: 00 pm Saturdays; and c) at no time on Sundays or public holidays 	Section 5.1.1

Ref ID	Details	Where addressed												
L3.2	Notwithstanding Condition L3.1 works affecting any one receiver may be undertaken during the hours of 6:00 am to 6:00 pm each day over a 3 month period provided that there is no work between the hours of 1:00 pm on a Saturday and 7:00 am on a Monday every alternate week.	Section 5.1.1												
L3.3	Notwithstanding Condition L3.1 and L3.2, works associated with the Critical State Significant Infrastructure (CSSI) may be undertaken outside the hours specified under those conditions in the following circumstances; <ul style="list-style-type: none"> a) for the delivery of materials required by the NSW Police Force or other authority for safety reasons; or b) where it is required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm; or c) where different construction hours are permitted under an EPL in force in respect of the CSSI; or d) where a negotiated agreement is in force, in accordance with Condition L3.5 and L3.6; or e) construction that causes LAeq(15 min) noise levels no more than the noise management levels specified in Table 3 of the 'Interim Construction Noise Guideline (DECC 2009) at other sensitive land uses; or f) construction that causes continuous or impulsive vibration values, measured at the most affected residence are no more than those for human exposure to vibration, specified in Table 2.2 of 'Assessing Vibration: a technical guideline (DEC 2006); or g) construction that causes intermittent vibration values measured at the most affected residence are no more than those for human exposure to vibration, specified in Table 2.4 of 'Assessing Vibration: a technical guideline (DEC 2006). 	Section 5.1.2												
L3.4	Hours of operation and noise limits: <table border="1" data-bbox="416 1444 1115 2018"> <thead> <tr> <th>Period</th> <th>Land Use</th> <th>Noise Limit</th> </tr> </thead> <tbody> <tr> <td>6:00 pm to 7:00 am Monday to Friday 1:00 pm to 8:00 am Saturday</td> <td>Classrooms at schools and other educational institutions</td> <td>Internal noise level 45 dB (A)</td> </tr> <tr> <td></td> <td>Active recreation areas (characterised by sporting activities and activities which generate their own noise of focus for participants, making them less sensitive to external noise intrusion)</td> <td>External noise level 65 dB (A)</td> </tr> <tr> <td></td> <td>Passive recreation areas (characterised</td> <td>External noise level</td> </tr> </tbody> </table>	Period	Land Use	Noise Limit	6:00 pm to 7:00 am Monday to Friday 1:00 pm to 8:00 am Saturday	Classrooms at schools and other educational institutions	Internal noise level 45 dB (A)		Active recreation areas (characterised by sporting activities and activities which generate their own noise of focus for participants, making them less sensitive to external noise intrusion)	External noise level 65 dB (A)		Passive recreation areas (characterised	External noise level	Section 4.5.1
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	Active recreation areas (characterised by sporting activities and activities which generate their own noise of focus for participants, making them less sensitive to external noise intrusion)	External noise level 65 dB (A)												
	Passive recreation areas (characterised	External noise level												

Ref ID	Details			Where addressed
		by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example, reading, meditation)	60 dB (A)	
		Community centres	Depends on the intended use of the centre. Refer to the recommended 'maximum' internal levels in AS2107 for specific uses.	
	06:00 pm to 10:00 am On any other day	All other receivers (defined as those receivers not listed above)	LAeq(15 min) noise levels not greater than 5 dB(A) above the rating background level at the façade of any residence in accordance with the Interim Construction Noise Guidelines (DECC 2009).	
	10:00 pm to 07:00 am On any other day	All other receivers (defined as those receivers not listed above)	LAeq(15 min) noise levels not greater than 5 dB(A) above the rating background level at the façade of any residence in accordance with the Interim Construction Noise Guidelines (DECC 2009) or if between the hours of 10:00pm and 07:00am no more than 52 dB (A) LA (MAX) or the prevailing RBL plus 15 dB (A) L A (MAX), whichever is the higher.	
L3.5	<p>The licensee may undertake works outside of standard construction hours if agreement between the licensee and a substantial majority of potentially affected sensitive receivers has been reached.</p> <p>Any agreement (s) between the licensee and the potentially affected noise sensitive receivers must be recorded in writing and a copy of the agreement (s) kept on the premises by the licensee for the duration of this licence.</p>			Section 5.1.1
L3.6	All negotiated agreements must be in writing and finalised before the commencement of works.			Section 5.1.1
L3.7	Except as permitted by this licence, activities resulting in impulsive or tonal noise emissions must only be undertaken			Section 5.1.1

Noise and Vibration Management Plan

Parkes to Narromine Inland Rail Project



Ref ID	Details	Where addressed
	<ul style="list-style-type: none"> a) between the hours of 8:00 am to 6:00 pm Monday to Friday. b) between the hours of 8:00 am to 1:00 pm Saturday. c) in continuous blocks not exceeding three hours each with a minimum respite from those activities and works of not less than one hour between each block. <p>For the purpose of this condition, 'continuous' include any period during which there is less than a one hour respite between ceasing and recommencing any works that are the subject of this condition.</p> <p>Note: The Interim Construction Noise Guideline identifies 'particularly annoying' activities that require the addition of 5 dB (A) to the predicted level before comparing to the construction Noise Management Level.</p>	
L3.8	<p>All works and activities must be undertaken in a manner that will minimise noise and vibration impacts on sensitive receivers. The licensee must implement all feasible and reasonable noise and vibration abatement measures at the premises to minimise noise and vibration impacts on noise sensitive receivers, in accordance with the Interim Construction Noise Guideline.</p>	Section 5.1
O5.2	<p>Unless otherwise specified by another condition of this licence, high noise impact works and activities must only be undertaken:</p> <ul style="list-style-type: none"> a) between the hours of 8:00 am to 6:00 pm Monday to Friday. b) between the hours of 8:00 am to 1:00 pm Saturday. c) in continuous blocks not exceeding three hours each with a minimum respite from those activities and works of not less than one hour between each block. <p>For the purpose of this condition, 'continuous' include any period during which there is less than a one hour respite between ceasing and recommencing any works that are the subject of this condition.</p>	Section 5.1.1
O5.3a	<p>The licensee must notify affected noise sensitive receivers of works approved outside of standard construction hours not less than 5 days and not more than 14 days before those works are to be undertaken.</p>	Section 5.2

Noise and Vibration Management Plan

Parkes to Narromine Inland Rail Project



Ref ID	Details	Where addressed
O5.3b	<p>The notification must be:</p> <ul style="list-style-type: none">• by letterbox drop or email• be detailed on the project website. <p>The notification required by paragraphs (a) and (b) of this condition must:</p> <ul style="list-style-type: none">• clearly outline the reason that the work is required to be undertaken outside the hours specified in Condition L3.1• include a diagram that clearly identified the location of the proposed works in relation to nearby cross streets and local landmarks• include details of relevant time restrictions that apply to the proposed works• clearly outline, in plain English, the location, nature, scope and duration of the proposed works• detail the expected noise impact of the sensitive receivers• clearly state how complaints may be made and additional information obtained• include the number of the telephone complaints line require by Condition M3.1, an after hours contact phone number specific to the works undertaken outside the hours specified in Condition L3.1, and the project website address.	Section 5.2
M1.1	<p>The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.</p>	Section 5.4

3.4 Response to Submissions Mitigation Measures

Mitigation measures from the RtS that are relevant to the management of noise and vibration are outlined in Table 3-3 below.

Table 3-3 – Response to Submissions Mitigation Measures

Ref ID	Details	Where addressed
D4.2	<ul style="list-style-type: none"> - Where vibration levels are predicted to exceed the screening criteria, a more detailed assessment of the structure and vibration monitoring would be carried out in accordance with the Inland Rail NSW Construction Noise and Vibration Management Framework, to ensure vibration levels remain below appropriate limits for that structure. 	Section 5.4
C4.1	<ul style="list-style-type: none"> - The Inland Rail NSW Construction Noise and Vibration Management Framework (provided in Appendix E) would be implemented, and the proposal would be constructed with the aim of achieving the construction noise management levels and vibration criteria identified by the noise and vibration assessment. - All feasible and reasonable noise and vibration mitigation measures would be implemented - Any activities that could exceed the construction noise management levels and vibration criteria would be identified and managed in accordance with the Inland Rail NSW Construction Noise and Vibration Management Framework and the CEMP. - Notification of impacts would be undertaken in accordance with the communication management plan. 	Section 1.1 Section 5.1 Section 5.2

3.5 Construction Environmental Management Framework

The Construction Environmental Management Framework (CEMF) sets out the environmental management requirements for construction. The CEMF provides a link between the planning approval phase, detailed design and the construction environmental management documentation. Relevant construction environmental framework items requiring the preparation of a NVMP are outlined in Table 3-4.

Table 3-4 – Construction Environmental Management Framework

Ref ID	Details	Where addressed
12.3 a)	The construction contractor must develop and implement a Construction Noise and Vibration Management Plan consistent with the Inland Rail NSW Construction Noise & Vibration Management Framework (0-9000-ENV-00-RP- 0001) which must, include as a minimum: The construction noise and vibration mitigation measures as detailed in the Project approval documentation and Project conditions of approval;	This plan Section 5.1
12.3 b)	The requirement of the EPL;	Section 3.3
12.3 c)	The responsibilities of key project personnel as relevant with respect to the implementation of the plan;	Section 5.5
12.3 d)	Details of construction activities and an indicative schedule for construction works, including the identification of key noise and/or vibration generating construction activities (based on representative construction scenarios) that have the potential to generate noise or vibration impacts on surrounding sensitive receivers, in particular residential areas;	Section 1 - CEMP
12.3 e)	Pre-construction compliance requirements and hold points;	Quality Management Plan and Inspection Test Plan
12.3 f)	Records of any noise or vibration monitoring completed as triggered by these plans (including field observations, calibration records, field measurements and laboratory results);	Section 5.4
12.3 g)	Any environmental incidents, hazards or near-misses documented in relation to noise or vibration management;	Section 5.6
12.3 h)	Identification and documentation of any competencies, training, experience or qualification of personnel undertaking works under this plan; and,	Section 5.10 Section 5.8
12.3 i)	Compliance record generation and management.	Section 5.12 Section 5.6 Section 5.7

3.6 Stakeholder Consultation and Approval

In accordance with the CoA, this NVMP and associated Construction Monitoring Program has been developed in consultation with the EPA and relevant Councils. Details and evidence of consultation is found in Attachment A.

This NVMP as a Sub-plan to the CEMP is required to be approved by the DPIE no later than one month before the commencement of construction activities. This NVMP has been endorsed by the Environmental Representative (ER) prior to the commencement of construction as required by the CoA. Construction will not commence until this NVMP has been approved by DPIE. This NVMP as approved by the DPIE, including any minor amendments approved by the ER, will be implemented for the duration of construction.

This consultation is intended to assist in development and finalisation of this NVMP. Table 3-5 summarises relevant stakeholder reviews and response to review.

Table 3-5 – Summary of Consultation

Agency	Requirement	Status	Response	Date
EPA	Consultation	Completed	<ul style="list-style-type: none">Email with CommentsNo comments required to be included in NVMP	26 October 2018
Parkes Shire Council	Consultation	Completed	<ul style="list-style-type: none">Comments SheetComments included in Revision E of NVMP	26 September 2018
Narromine Shire Council	Consultation	Completed	<ul style="list-style-type: none">Comments SheetComments included in Revision E of NVMP	8 October 2018
DPIE	Approval	Completed	<ul style="list-style-type: none">Letter with Comments	14 February 2019
ER	Endorsement	Completed	<ul style="list-style-type: none">Endorsed	2 November 2018

4. Key Risks

4.1 Existing Environment

Most of the Project site passes through rural land. Sensitive receivers are concentrated in the main towns (Parkes, Peak Hill, and Narromine), with scattered residential receivers located on rural properties surrounding the Project corridor.

Non-residential noise receivers include two places of worship, three educational facilities, one medical facility, six active and two passive recreation areas. Several commercial and industrial facilities are also located near the Project corridor.

Both attended and unattended noise monitoring was undertaken at various locations during the EIS. The objective of the monitoring was to measure the existing background noise levels in the area surrounding the Project corridor and to measure existing rail noise impact on sensitive receivers.

Baseline noise monitoring took place at nine residential locations and eight uninhabited locations between 2 September 2015 and 6 April 2016 in accordance with procedures outlined in the NSW Industrial Noise Policy (INP) Guideline. The data logger locations used for the assessment were representative of the existing background and ambient noise environment in the study area. The locations from the monitoring undertaken during the EIS have been summarised in Table 4-1.

Table 4-1 – Noise Monitoring Locations

Logger ID	Approximate chainage	Location description
L01P2N	555.4 km	80 Backwater Rd, Narromine
L02P2N	554.5 km	53 Wright St, Narromine
L03P2N	546.6 km	-
L04P2N	553.1 km	380 Tullamore Rd, Narromine
L05P2N	528.5 km	-
L06P2N	515.6 km	-
L07P2N	498.3 km	37 Station Lane, Peak Hill
L08P2N	497.4 km	1 Jackson St, Peak Hill
L09P2N	490.8 km	60 Trewilga Rd, Peak Hill
L010P2N	486 km	Off Mickibri Rd
L011P2N	478.15 km	-
L012P2N	468.5 km	-
L013P2N	457.7 km	503 Nanardine Ln, Parkes
L014P2N	452.5 km	Candobolin Rd, Parkes

Logger ID	Approximate chainage	Location description
L015P2N	454.7 km	-
L016P2N	449 km	Goobang Junction, Parkes
L017P2N	457 km	-

Table 4-2 below is a summary of the calculated rating background level (RBL) noise monitoring results as per EIS.

Table 4-2 – Noise Monitoring Results

Location	L _{A90} (period) RBL noise levels			L _{Aeq} ambient noise levels		
	Day	Evening	Night	Day	Evening	Night
L01P2N	27	29	25	53	49	49
L02P2N	29	27	27	48	44	43
L03P2N	26	30	20	53	49	51
L04P2N	29	30	32	51	52	45
L05P2N	20	20	19	53	47	48
L06P2N	22	19	18	56	44	53
L07P2N	26	26	21	58	45	42
L08P2N	27	24	20	49	44	42
L09P2N	28	23	20	47	48	46
L010P2N	22	22	21	56	56	54
L011P2N	24	21	18	52	51	52
L012P2N	25	27	20	57	50	51
L013P2N	25	19	18	53	49	50
L014P2N	27	18	18	48	49	46
L015P2N	23	20	20	59	54	50
L016P2N	30	31	28	53	54	55
L017P2N	25	20	20	59	56	55

Unattended vibration monitoring was undertaken during the EIS with a vibration logger set up approximately 15 m from the existing rail line. Comparison with identified vibration causing activities

(existing train impact) indicated that elevated vibration levels occurred with the vibration levels being 1.0 to 1.3 mm/s at the monitoring locations.

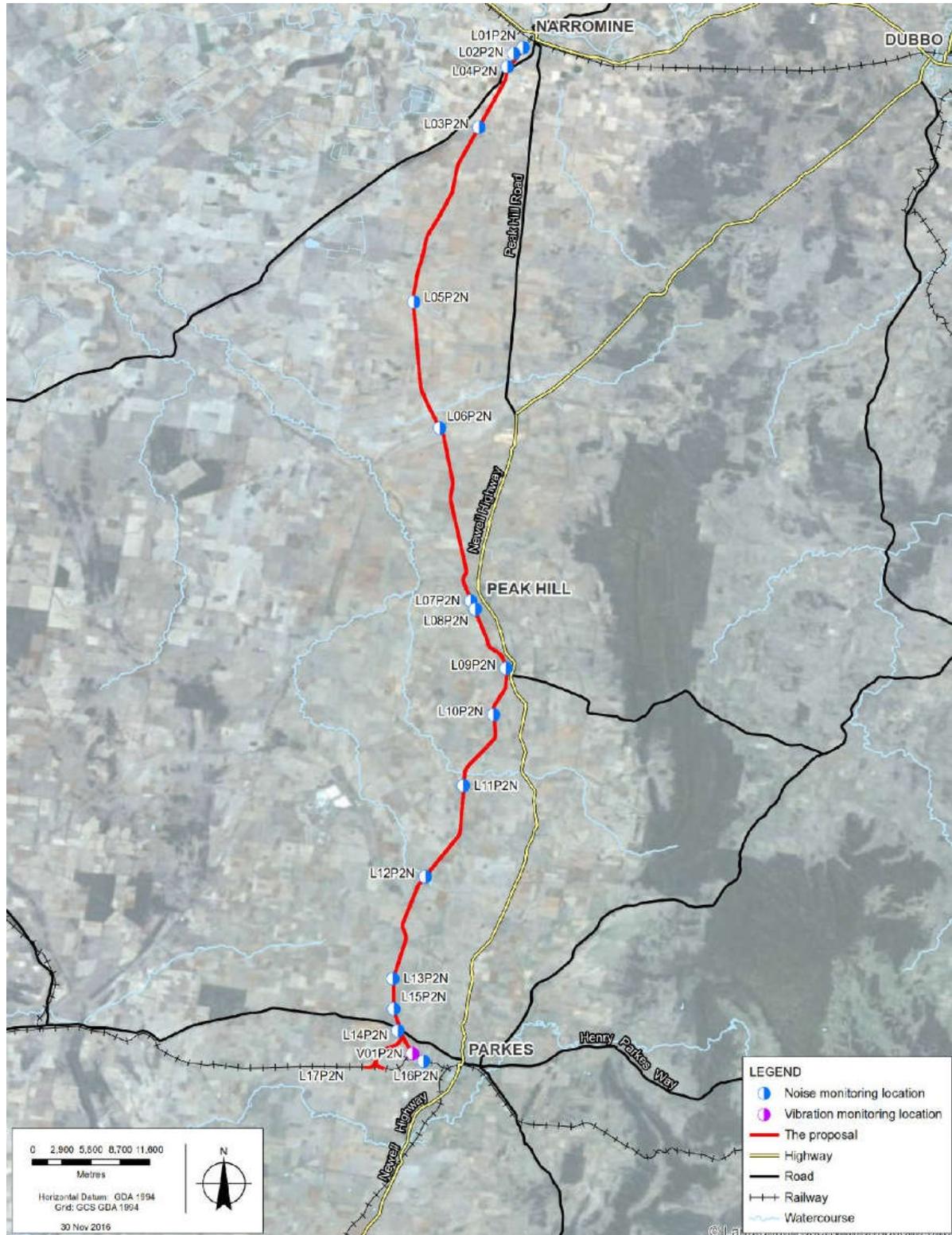


Figure 1 – Noise and vibration monitoring locations (source: EIS, GHD 2017)

4.2 Environmental Risk Assessment

Construction Noise and Vibration Impact Statements (CNVIS) will be developed during the construction to address the different phases of construction, for EPL Variations and working outside of approved hours. A complete description of the planned construction activities is listed within Table 4-3 with expected equipment and associated noise emissions for each activity. In addition, infield risk assessments (prestarts, JHAs etc) are undertaken regularly prior to work commencing works to determine if additional mitigations need to be applied for the current environment.

Table 4-3 – Construction Activities and Predicted Sound Levels for worse case scenario

Tasks	Equipment	Sound Power Level for Task (L _w dBA)	Location
Refuelling	Refuelling truck	92	Full alignment
Site establishment	Hand tools, excavator, grader, water truck, truck and dog		
Rail Demolition	Hand tools, excavators, front end loaders, tipper truck, rail saws	109	Brownfields
Earthworks	Excavators, graders, scrapers, tipper, dozer, moxy, compactor, roller, ruck and dogs, water truck,	118	Full alignment
Fencing Installation	Hand tools, air driven hammers, bobcat	108	Full alignment
Culvert Installation	Excavators, truck and dogs, tipper truck, moxy, concrete agi trucks, concrete vibrators, concrete boom, crane, flatbed truck, roller,	115	Full alignment
Capping	Grader, roller, water truck	113	Full alignment
Level crossing	Excavator, grader, dozer, roller, backhoe, water truck, moxy	119	Full alignment
Crossing loop and sidings	Dozer, roller, truck and dog, moxy, water truck, excavator, hand tools, skidsteer, front end loader, fast clip machine, hi-rail work train, regulator, Rail tensioners, rail grinders, rail clipping machine, tamper	119	Full alignment
Track Construction	Dozer, roller, truck and dog, moxy, water truck, excavator, hand tools, skidsteer, front end loader, fast clip machine, hi-rail work train, regulator, Rail tensioners, rail grinders, rail clipping machine, tamper, drott	118	Full alignment
Signalling installation	Crane, Franna, concrete agi, concrete boom, concrete vibrator, drilling auger, excavator, trenching machine	114	Full alignment

4.3 Risk Assessment Undertaken in EIS

Construction will result in noise and vibration impacts within and around the footprint of the Project. A risk assessment was undertaken in the EIS that resulted in an assessed level of medium or above for the following:

- Noise impacts on residents and local receivers from construction activities
- Noise impacts on residents and sensitive receivers from construction traffic.

4.4 On-Going Risk Management

A risk management approach will be used to determine the severity and likelihood of an activity's impact on the environment and to prioritise its significance. This process considers potential regulatory and legal risks, as well as taking into consideration the concerns of community and other key stakeholders.

A risk register has been developed (J013_HSEQ_MGP_EMPS_CEMP) and includes a list of activities associated with the Project, related aspects and corresponding risks.

On-going risk assessment for noise and vibration will be implemented via activity bases Construction Noise and Vibration Impact Statements (CNVIS).

Each CNVIS assesses the noise and vibration impact for all stages of construction by providing:

- A detailed understanding of surrounding receivers;
- Application of appropriate noise and vibration criteria for each receiver type;
- Assessment of the potential noise and vibration impacts as a result of construction activities;
- Minimum requirements in relation to:
 - standard noise and vibration mitigation measures;
 - additional management measures;
 - communication;
 - respite;
 - alternate accommodation;
- Complaint handling and community engagement
- Noise and vibration monitoring and auditing requirements;
- Additional mitigation measures as necessary

The CNVIS are regularly updated when a new task is going to be undertaken or the environment has changed.

4.5 Impact Identification

4.5.1 Noise Impacts and Limits

As a result of the modelling during the EIS process, applicable sound levels were determined and are listed in Table 4-3. The applicable sound levels range from 109 dB(A) for level crossing works, to 120 dB(A) for earthworks. Most of the construction activities will generate an estimated sound power level of around 115 to 119 dB(A).

The noise assessment and findings of the EIS have been adopted for this NVMP, as it is considered that the concept design and proposed construction methodology is still valid and will be in general accordance with the EIS.

Table 4-4 below sets out the OOHW noise limits as outlined in the EPL. Table 4-5 sets out the standard working hours noise criteria as outlined in the *Interim Construction Noise Guideline*.

Table 4-4 – Noise Limits

Period	Land Use	Noise Limit
6:00 pm to 7:00 am - Monday to Friday	Classrooms at schools and other educational institutions, Hospital wards and operating theatres, Place of worship.	Internal noise level 45 dB(A)
6:00 pm Friday to 8:00 am Saturday	Active recreation areas (characterised by sporting activities and activities which generate their own noise of focus for participants, making them less sensitive to external noise intrusion)	External noise level 65 dB(A)
1:00 pm Saturday to 7:00 am Monday		
Any time on public holidays	Passive recreation areas (characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example, reading, meditation)	External noise level 60 dB(A)
	Community centres	Depends on the intended use of the centre. Refer to the recommended 'maximum' internal levels in AS2107 for specific uses.
06:00 pm to 10:00 am On any other day	All other receivers (defined as those receivers not listed above)	LAeq(15 min) noise levels not greater than 5 dB(A) above the rating background level at the façade of any residence in accordance with the Interim Construction Noise Guidelines (DECC 2009).
10:00 pm to 07:00 am On any other day	All other receivers (defined as those receivers not listed above)	LAeq(15 min) noise levels not greater than 5 dB(A) above the rating background level at the façade of any residence in accordance with the Interim Construction Noise Guidelines (DECC 2009) or if between the hours of 10:00pm and 07:00am no more than 52 dB (A) LA (MAX) or the prevailing RBL plus 15 dB (A) L A (MAX), whichever is the higher.

Table 4-5 – ICNG standard construction hours noise criteria

Period	Land Use	Noise Limit
7:00 am to 6:00 pm - Monday to Friday 8:00am to 1:00 pm – Saturday No work on Sundays or public holidays	Residences	LAeq(15 min) noise levels greater than RBL + 10 dB(A) represents the point above which there may be some community reaction to noise. LAeq(15 min) noise levels greater than 75 dB(A) represents the point above which there may be strong community reaction. In accordance with the Interim Construction Noise Guidelines (DECC 2009).
	Classrooms at schools and other educational institutions, Hospital wards and operating theatres, Place of worship.	Internal noise level 45 dB(A)
	Active recreation areas (characterised by sporting activities and activities which generate their own noise of focus for participants, making them less sensitive to external noise intrusion)	External noise level 65 dB(A)
	Passive recreation areas (characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example, reading, meditation)	External noise level 60 dB(A)
	Community centres	Depends on the intended use of the centre. Refer to the recommended 'maximum' internal levels in AS2107 for specific uses.

4.5.2 Vibration Impacts and Limits

Structural Impacts

Vibration impacts have the potential to be generated from general construction activities, such as vibrational rollers and rail tamping. With the appropriate distance applied (> 18 m for general construction activities from standard residential buildings and 35m or greater is nominated for heritage buildings / structures), the structural impacts are not anticipated to cause structural damage or a risk of damage to buildings.

If sensitive receivers fall inside the distances (18m for standard residential dwellings and 35m for heritage buildings / structures), then dilapidation surveys of buildings and structures will be undertaken prior to the commencement of construction by a suitably qualified and experienced person(s) (refer to Section 5.5.2 for further detail).

The vibration assessment and findings of the EIS have been adopted for this NVMP, as it is considered that the concept design and proposed construction methodology is still valid and will be in general accordance with the EIS.

Safe working distances as identified within the CNVIS are presented in Table 4-6 and are indicative, depending on the item of plant and local geotechnical conditions. Where works are outside these distances, vibration impacts on structures are not likely to occur. The cosmetic damage thresholds apply to typical buildings under typical geotechnical conditions. Where structures are more sensitive, such as heritage items, more stringent conditions are applicable and should be considered individually.

Guidance for the consideration of potential building damage (including heritage structures) as a result of construction vibration is in line with the German Standard DIN 4150: Part 3 – 1999: Structural Vibration in Buildings: Effects on Structures), as summarised in Table 4-7.

Table 4-6 Structural Damage Vibration Impact Distances

Activity	Structure	Distance from sensitive receiver (m)
General construction activities	Standard residential building	18
	Heritage building	35
Impact piling	Standard residential building	100
	Heritage building	180
Vibratory piling	Standard residential building	30
	Heritage building	50
Bored piling	Standard residential building	17
	Heritage building	35

Table 4-7 – Guideline Values for Short Term Vibration on Structures (DIN 4150-3)

Type of Structure	Guideline Values for Velocity $v_i(t)^*$ [mm/s]		
	1 Hz to 10 Hz	10 Hz to 50 Hz	50 Hz to 100 Hz
Buildings used for commercial purposes, industrial buildings, and buildings of similar design.	20	20 – 40	40 – 50
Dwellings and buildings of similar design and / or occupancy.	5	5 – 15	15 – 20
Structures that, because of their particular sensitivity to vibration, cannot be classified under above types and are of great intrinsic value (such as heritage listed buildings under preservation order).	3	3 – 8	8 – 10

*The term v_i refers to vibration level in any of the x, y, or z axes ** At frequencies above 100 Hz the values given in this column may be used as minimum values

Human Comfort Impacts

Table 4-8 and Table 4-9 outlines the human comfort criteria based on the vibration dose value and weighted acceleration. For construction related vibration, it is considered more appropriate to provide guidance in terms of a peak value, since this parameter is likely to be more routinely measured based on the more usual concern over potential building damage.

Humans can detect vibration at levels below those causing risk of damage to buildings. Based on a conservative assessment, it is possible that construction vibration for general construction activities may be felt up to 140 m from the works. There are 20 sensitive receivers that are located within 140 m from the works that have the potential to be impacted by vibration. Mitigation measures are outlined in Section 5.1 to manage the vibration impacts.

Table 4-8 – Human Comfort Intermittent Vibration Limits (BS 6472-1992)

Receiver Type	Period *	Intermittent Vibration Dose Value ($m/s^{1.75}$)	
		Preferred Value	Maximum Value
Critical Areas (e.g. hospitals)	Day	0.1	0.2
	Night	0.1	0.2
Residential	Day	0.2	0.4
	Night	0.13	0.26
Offices, Schools, Educational Institutes, and Places of Worship	Day and Night	0.4	0.8

*Note: Day is between 07:00am and 10:00pm and night is between 10:00pm and 07:00am

Table 4-9 – Guidance on Effects of Vibration Levels for Human Comfort (BS5228.2-2009)

Vibration Level mm/s	Effect
0.14	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction.
0.3	Vibration might be just perceptible in residential environments.
1.0	It is likely that vibration at this level in residential environments will cause complaints but can be tolerated if warning and explanation has been given to residents.
10	Vibration is likely to be intolerable for any more than a very brief exposure.

Table 4-10 sets out the preferred and maximum weighted rms values for continuous and impulsive vibration acceleration as outlined in the *Assessing Vibration: A technical guideline*.

Table 4-10 – Preferred and maximum weighted rms values for continuous and impulsive vibration acceleration (m/s²) 1-80 Hz

Location	Assessment period ¹	Preferred values		Maximum values	
		z-axis	x and y-axis	z-axis	x and y-axis
Continuous vibration					
Critical areas ²	Day – or night-time	0.005	0.0036	0.01	0.0072
Residences	Daytime	0.01	0.0071	0.02	0.014
	Night-time	0.007	0.005	0.014	0.01
Offices, schools, educational institutions and places of worship	Day – or night-time	0.02	0.014	0.04	0.028
Workshops	Day – or night-time	0.04	0.029	0.08	0.058
Impulsive vibration					
Critical areas ²	Day – or night-time	0.005	0.0036	0.01	0.0072
Residences	Daytime	0.3	0.21	0.6	0.42
	Night-time	0.1	0.071	0.2	0.14
Offices, schools, educational institutions and places of worship	Day – or night-time	0.64	0.46	1.28	0.92
Workshops	Day – or night-time	0.64	0.46	1.28	0.92

¹Daytime is 7:00 am to 10:00 pm and nighttime is 10:00 pm to 7:00 am

²Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring. There may be cases where sensitive equipment or delicate tasks require more stringent criteria than the human comfort criteria specified above. Stipulation of such criteria is outside the scope of this policy, and other guidance documents (e.g. relevant standards) should be referred to. Source BS 6472-1992

Table 4-11 sets out the acceptable vibration dose values for intermittent vibrations as outlined in *Assessing Vibration: A technical guideline*.

Table 4-11 – Acceptable vibration dose values for intermittent vibrations ($m/s^{1.75}$)

Location	Daytime ¹		Night-time ¹	
	Preferred value	Maximum value	Preferred value	Maximum value
Critical areas ²	0.1	0.2	0.1	0.2
Residences	0.2	0.4	0.13	0.26
Office, schools, educational institutions and places of worship	0.4	0.8	0.4	0.8
Workshops	0.8	1.6	0.8	1.6

5. Management

5.1 Mitigation and Management Measures

A range of environmental requirements and mitigation measures are identified in various environmental documents including the EIS and the CoA. Location/work areas specific mitigation measures will be identified within the CNVIS based on proposed activities.

5.1.1 Construction Hours

Works affecting any one receiver will be undertaken during the hours of 6:00 am to 6:00 pm each day over a three-month period if there is no work between the hours of 1:00 pm on a Saturday and 7:00 am on a Monday every alternate week.

Activities resulting in impulsive or tonal noise emissions will only be undertaken according to the EPL which includes the following:

- Between the hours of 8:00 am to 6:00 pm Monday to Friday
- Between the hours of 8:00 am to 1:00 pm Saturday
- In continuous blocks (i.e. period during which there is less than a 1-hour respite between ceasing and recommencing any works) not exceeding three hours each with a minimum respite from those activities and works of not less than one hour between each block.

Negotiated agreements may be reached with sensitive receivers (owners and occupiers) to carry out works in accordance with the hours and noise limits specified in the negotiated agreements. All negotiated agreements will be recorded with the ARTC Community and Stakeholder Consultation System be in writing and finalised before the commencement of works.

5.1.2 Out of Hours

Notwithstanding the approved construction hours, works associated with the CSSI may be undertaken outside the hours specified under those conditions in the following circumstances:

- a) for the delivery of materials required by the NSW Police Force or other authority for safety reasons; or
- b) where it is required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm; or
- c) where different construction hours are permitted under an EPL in force in respect of the CSSI; or
- d) where a negotiated agreement is in force, in accordance with Condition E4 and E5; or
- e) construction that causes LAeq (15 minute) noise levels:
 - i) no more than 5 dB(A) above the rating background level at the façade of any residence in accordance with the Interim Construction Noise Guideline (DECC, 2009) or if between the hours of 10:00 pm and 7:00 am no more than 52 dB(A) or more than 15 dB(A)LA(Max) above the rating background level whichever is the higher, and
 - ii) no more than the noise management levels specified in Table 3 of the Interim Construction Noise Guideline (DECC, 2009) at other sensitive land uses, and

iii) continuous or impulsive vibration values, measured at the most affected residence are no more than those for human exposure to vibration, specified in Table 2.2 of Assessing Vibration: a technical guideline (DEC 2006), and

iv) intermittent vibration values measured at the most affected residence are no more than those for human exposure to vibration, specified in Table 2.4 of Assessing Vibration: a technical guideline (DEC 2006).

5.1.3 Additional Measures

Additional mitigation and management measures to address any impacts that may be identified during the construction phase of the Project are outlined in Table 5-1.

Table 5-1 – Mitigation and Management Measures

Ref ID	Details	Responsibility	Source
NV1	All construction vehicles and machinery will be fitted with manufacturer supplied noise suppression devices if required and maintained as per manufacturer specifications.	Supervisors	EIS N&V Technical Report No. 1.1
NV2	All site workers will be informed of the potential for noise and vibration impacts upon sensitive receivers and will take practical and reasonable measures to minimise noise during activities.	Environmental Manager	EIS N&V Technical Report No. 1.2
NV3	A community liaison phone number and permanent site contact will be provided so that noise and / or vibration related complaints, if any, can be received and addressed in a timely manner.	Communications Manager	EIS N&V Technical Report No. 1.4
NV4	For any work that will take place outside the approved construction hours the Out of Hours Works (OOHW) process in Section 5.1.2 will be followed	Environmental Manager	Good practice
NV5	Work methods will be reviewed with a preference for quieter and non-vibration generating methods, wherever possible.	Environmental Manager	EIS N&V Technical Report technical report No. 1.6
NV6	Material stockpiles including loading and unloading areas will be located as far as possible from the nearest sensitive receivers. Loading and unloading of materials will occur preferably during standard construction hours	Supervisors	EIS N&V Technical Report No. 1.7 CEMF
NV7	Where possible, materials dropped from heights into or out of trucks will be minimised.	Supervisors	EIS N&V Technical Report No. 1.8 CEMF
NV8	Stationary noise sources (pumps, generators, compressors) will be located as far as possible from the nearest sensitive receivers. Stationary noise sources if practicable would be enclosed or shielded while ensuring that the health and safety of workers is maintained.	Supervisors	EIS N&V Technical Report No. 1.9 CEMF

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Ref ID	Details	Responsibility	Source
NV9	Where possible, no plant or equipment will be left idling when operating near sensitive receivers.	Supervisors	EIS N&V Technical Report No. 1.10
NV10	All vehicular movements to and from the site will comply with the requirements of the appropriate regulatory authority requirements for such activities and the Transport, Traffic and Access Management Plan.	Environmental Manager	EIS N&V Technical Report No 1.11
NV11	Any noise and vibration monitoring will be undertaken by a suitably qualified person and with consideration to the relevant standards and guidelines.	Environmental Manager	EIS N&V Technical Report No. 1.13
NV12	If vibration-generating activities are conducted within proximities outlined in Table 4-2 (Safe Working Distances) alternative work methods will be implemented so the vibration impacts are reduced to acceptable levels.	Environmental Manager	EIS N&V Technical Report No 1.15 / 1.16
NV13	Specific consultation will be undertaken with potentially impacted sensitive receivers prior to commencement of vibration generating activities, and throughout the construction phase, with regards to potential detectable vibration levels. Where required, specific work practices or scheduling arrangements will be considered to minimise potential impacts on the sensitive receivers.	Environmental Manager	EIS N&V Technical Report No. 1.18
NV14	In cases where noise or vibration levels are identified as likely exceeding applicable criteria, refer to Section 5.4.3. Modification or substitution of work methods will be undertaken wherever possible, including but not limited to: <ul style="list-style-type: none"> • Works programming assessments • Selective use of enhanced equipment/plant • Noise barriers or earthen bunds • Equipment/plant substitution. 	Environmental Manager	Good Practice
NV15	Use of horns, bells, beepers and other audible signals will be minimised as much as practicable.	Supervisors	Good Practice
NV16	Ancillary facilities to be located at least 1 km from sensitive receivers, where feasible and reasonable.	Environmental Manager	CEMF
NV17	Construction works will only be undertaken during approved working hours, unless otherwise permitted by the EPL.	Environmental Manager	CoA E1 CEMF EIS N&V Technical Report technical report No. 1.12
NV18	Activities resulting in impulsive or tonal noise emissions will only be undertaken within the specified hours as permitted by the EPL.	Environmental Manager	CoA E7

Noise and Vibration Management Plan

Parkes to Narromine Inland Rail Project



Ref ID	Details	Responsibility	Source
NV19	Owners and occupiers of properties at risk of exceeding the screening criteria for cosmetic damage will be notified before construction that generates vibration commences near those properties.	Environmental Manager	CoA E9
NV20	Blasting will not be undertaken at any time.	Environmental Manager	CoA E10
NV21	Plant and equipment will not exceed the applicable noise levels and vibration criteria as outlined in Section 4.5.	Environmental Manager	CoA E8
NV22	Simultaneous operation of noisy plant within range of sensitive receivers will be avoided.	Supervisors	EIS Appendix K: CEMP Outline - Table K.1
NV23	The offset distance between noisy plant and adjacent sensitive receivers will be maximised.	Supervisors	EIS Appendix K: CEMP Outline - Table K.1
NV24	Site topography will be considered when situating plant and use structures (such as site shed placement, earth bunds, fencing, noise barriers) and shielding will be used where appropriate.	Supervisors	EIS Appendix K: CEMP Outline - Table K.1
NV25	Noise-emitting plant will be directed away from sensitive receivers.	Supervisors	EIS Appendix K: CEMP Outline - Table K.1
NV26	Plant used intermittently will be throttled down or shut down.	Supervisors	EIS Appendix K: CEMP Outline - Table K.1
NV27	For construction sites located near sensitive receivers, reversing movements within the site will be minimised to reduce noise emissions from reversing beepers.	Environmental Manager	EIS Appendix K: CEMP Outline - Table K.1
NV28	Any additional access roads and access points will be selected to minimise impacts on sensitive receivers.	Environmental Manager	EIS Appendix K: CEMP Outline - Table K.1
NV29	Where practicable, delivery vehicles will be fitted with straps rather than chains for unloading.	Supervisors	EIS Appendix K: CEMP Outline - Table K.1
NV30	Vibration monitoring and testing is to be undertaken throughout the Project.	Environmental Manager	Good Practice

5.2 Community Consultation and Engagement

In accordance with CoA B1, a Communication Strategy will be implemented to inform residents of proposed construction activities. The Communication Strategy will be initiated prior to the commencement of construction to ensure that the community are aware of proposed construction activities and potential noise and vibration impacts. The Communication Strategy will establish communication protocols for community feedback on noise and vibration issues.

Owners and occupiers of properties at risk of exceeding the screening criteria for cosmetic damage will be notified before construction that generates vibration commences near those properties. If the potential exceedance is to occur more than once or extend over a period of 24 hours, owner and occupiers are to be provided a schedule of potential exceedances for the duration of the potential exceedances, unless otherwise agreed by the owner and occupier.

Notification to the affected noise sensitive receivers of works approved outside of standard construction hours will occur not less than 5 days and not more than 14 days before those works are to be undertaken. The notification will include:

- By letterbox drop or email
- Be detailed on the project website.

The notification required will include the following:

- Clearly outline the reason that the work is required to be undertaken outside the hours
- Include a diagram that clearly identified the location of the proposed works in relation to nearby cross streets and local landmarks
- Include details of relevant time restrictions that apply to the proposed works
- Clearly outline, in plain English, the location, nature, scope and duration of the proposed works
- Detail the expected noise impact of the sensitive receivers
- Clearly state how complaints may be made and additional information obtained
- Include the number of the telephone complaints line, an after-hours contact phone number specific to the works undertaken outside the hours and the project website address.

5.3 Construction Noise and Vibration Impact Statements (CNVIS)

Construction Noise and Vibration Impact Statements (CNVIS) will be prepared and are applicable to all hours of work (standard and out-of hours). CNVIS will support EPL variation applications to the EPA for out-of-hours works proposals, as well as ensure construction activities are in accordance with the EPL Condition L3 Noise Limits and SSI 7475 CoA Part E Noise and Vibration.

The CNVIS will include the following:

- Details of the nature and scope of each activity and work, including details of times, vehicles, plant and equipment to be used to undertake that activity or work
- Detailed analysis to justify use of the selected construction and work methods, plant and equipment compared to alternatives taking into consideration noise, vibration and traffic noise impacts
- Details of the predicted noise levels for standard hours and out of hours activities (model)

- Table showing details of the noise and vibration mitigation measures for each activity and work, including respite periods, proposed to be adopted to minimise noise and vibration impacts on surrounding noise sensitive receivers in each locality
- Address of each of the most affected sensitive receivers
- Diagram showing the location of noise and vibration monitoring locations in relation to each of the most affected noise and vibration sensitive receivers for each activity
- Maps showing noise catchment areas and sensitive receivers
- Excel format of the sensitive receivers and the predicted noise levels
- Noise and vibration monitoring requirements
- Additional mitigation measures as necessary.

The CNVIS will be used to manage noise so to meet the EPL noise criteria as well as to provide mitigation and management measures to be implemented where the criteria cannot be met. in accordance the requirements of the EPL.

Construction Noise and Vibration Impact Statements (CNVIS) will be developed during the construction to address the difference phases of construction, for EPL Variations and working outside of approved hours. Site specific CNVIS will be prepared to address:

- Inland Rail – Parkes To Narromine North West Connection;
- Inland Rail – Parkes To Narromine Section A1.1 Goonumbla to Mickibri
- Inland Rail – Parkes To Narromine Section A1.2 Mickibri to Peak Hill South
- Inland Rail – Parkes To Narromine Section A3.1 Peak Hill South to Tomingley West
- Inland Rail – Parkes To Narromine Section A3.2 Tomingley West to Narromine
- Inland Rail – Parkes To Narromine Section B1/B2 Parkes to Goonumbla

5.4 Construction Monitoring Program

A Construction Monitoring Program for noise and vibration has been developed and consultation has been undertaken with the EPA and relevant Councils (refer to Section 3.6). The results of monitoring undertaken as part of this Construction Monitoring Program will be reported to DPIE, the ER, the EPA and relevant Councils, as per Section 7.4 of the CEMP through construction monthly reports, six-monthly construction compliance report and EPA annual return report. The results will be reported against the relevant criteria. This submission will be in the form of a Construction Monitoring Report and will be provided at the frequency required by the Construction Monitoring Program.

The Construction Monitoring Program will be endorsed by the ER and submitted to DPIE for approval at least one month before commencement of construction. The Construction Monitoring Program will be implemented for the duration of the Project. A suitably qualified person will undertake the actions in the Construction Monitoring Program.

5.4.1 Noise Monitoring

. Unattended noise testing will be conducted in the same locations that was conducted for the EIS to verify the accuracy of the EIS (locations listed within Table 4-1). The EIS locations used for the assessment are considered to be representative of the existing background and ambient noise environment. Noise monitoring locations may be modified to locations, if access is identified to be restricted.

Attended noise monitoring will be undertaken throughout the construction phase of the Project in accordance with the following requirements:

- To verify the EIS locations (Table 4-1)
- As required by the EPL and/or CoA
- When noise impacts are predicted to be above a certain level (>75dB(A))
- Upon commencement of a new activity (to verify the accuracy of prediction)
- Performed at least on a monthly basis at the specified locations
- As required within a CNVIS (associated with Out of Hours Works)

Monitoring shall be undertaken at the potentially most exposed receivers in proximity to construction activities as identified within the CNVIS. Noise monitoring locations should be consistent (where possible) with the distances/locations identified within the CNVIS and will consider factors including:

- The location of previous monitoring sites;
- The proximity of the receiver to a worksite;
- The sensitivity of the receiver to noise; background noise levels; and
- The expected duration of the impact.

Monitoring may also be undertaken in response to a complaint where this is considered an appropriate response in accordance with the EPL. The attended measurements will need to be carried out by an appropriately trained person in the measurement and assessment of construction noise, who is familiar with the requirements of the relevant standards and procedures.

All noise monitoring equipment used will be at least Type 2 instruments as described in AS IEC 61672.1 2004 'Electroacoustic – Sound Level Meters – Specifications' and calibrated to standards that are traceable to Australian Physical Standards held by the National Measurement Laboratory (CSIRO Division of Applied Physics). The calibration of the monitoring equipment will be checked in the field before and after the noise measurement period in accordance with Standards Australia AS/IEC 60942:2004/IEC 60942:2003–Electroacoustic – Sound Calibrators. The noise testing procedures will be followed by personnel suitably qualified and experienced in undertaking acoustic measurements.

All environmental noise measurements will be taken with the following meter settings:

- Time Constant - FAST (i.e. 125 milliseconds)
- Frequency Weightings - A-weighting
- Sample Period - 15 minutes.

The noise loggers will be programmed to accumulate L_{A90} , L_{A10} , L_{Aeq} and L_{Amax} data and will be assessed against applicable noise levels. Measurements of noise will be disregarded when it is raining and / or the wind speed is greater than 5m/s (18km/HR).

Outdoor noise monitoring is to be undertaken at least 3.5 m from any reflecting structure other than the ground. The preferred measurement height is 1.2 to 1.5m above the ground. Where the noise monitors are placed within 3.5 m of building facades, walls or cliffs, then a reflection correction of up to -2.5dB(A) shall be applied to remove the effect of increased noise due to sound reflections from such structures. Measurements inside buildings will be at least 1 m from the walls or other major reflecting surfaces, 1.2 to 1.5 m above the floor, and about 1.5 m from windows.

The following information will be recorded within the noise monitoring record template:

- Date and time of measurements
- Type and model number of instrumentation
- Results of field calibration checks before and after measurements
- Description of the time aspects of each measurement (i.e. sample times, measurement time intervals and time of day)
- Monitoring will be undertaken at the nearest sensitive receiver
- Sketch map of area
- Measurement location details and number of measurements at each location
- Weather conditions during measurements
- Operation and load conditions of the noise sources under investigation
- Any adjustment made for presence or absence of nearby reflecting surfaces
- Noise due to other sources (e.g. traffic, aircraft, trains, dogs barking, insects etc.).

5.4.2 Vibration Monitoring

Attended vibration monitoring is to be undertaken throughout the Project in accordance with the following requirements:

- Attended vibration measurements will be undertaken at the commencement of vibration generating activities located in close proximity to sensitive receivers to confirm that vibration levels are within the acceptable range to prevent cosmetic building damage.
- Trial vibration testing will be undertaken as required, prior to undertaking any high vibration activities. Trials would be undertaken in non-sensitive areas and at a range of distances from the source. The results of the trial monitoring would be compared against predicted vibration levels and the potential for impact refined, if deemed appropriate.
- Testing for both structural damage and human comfort where either the 'safe working distances' cannot be complied with or vibration levels are predicted to be greater than the maximum values for human comfort as a result of works
- As required by a CNVIS
- As required by the CoA and/or EPL.
- In response to complaints in accordance with the requirements of the CoA and/or EPL.

Vibration monitoring will be undertaken in accordance with the vibration measurement requirements stipulated in the legislative standards and guidelines, and will include the following:

- Vibration monitoring equipment will be placed outside at the footings or foundations of the building of interest, closest to the vibrating plant
- Surface will be solid and rigid in order to best represent the vibration entering the structure of the building under investigation
- Vibration sensor or transducer shall not be mounted on loose tiles, loose gravel or other resilient surfaces
- Vibration sensor or transducer shall be directly mounted to the vibrating surface using either bees wax or a magnetic mounting plate onto a steel washer, plate or bracket which shall be secured to the surface of interest

Vibration monitoring will be undertaken at monitoring locations consistent with the baseline monitoring locations as shown in the EIS (Table 4-1). Vibration monitoring will occur once a month at each of the specified locations.

The following procedure is to be followed by personnel suitably qualified and experienced in undertaking vibration measurements. Data that is collected will be compared against applicable criteria and baseline data. All vibration monitoring equipment is to be calibrated at least once every two years to standards that are traceable to Australian Physical Standards held by the National Measurement Laboratory (CSIRO Division of Applied Physics). The monitoring system will also have a measurement frequency range down to 1 Hz.

All short-term vibration monitoring will be recorded over 15-minute sample intervals. The magnitude of vibration is to be recorded at a minimum rate of 10 samples per second. The following minimum range of vibration metrics will be stored in memory and reported:

- Vibration Dose Values (VDVs)
- Root-mean-square (rms) – maximums and statistical levels
- Peak-particle velocity (ppv) – maximums and statistical levels.

In addition to measuring and reporting overall vibration, statistical vibration will also be measured and reported in third-octave band frequencies from 1Hz to 250Hz.

The following information will be recorded within the vibration monitoring record template:

- Date and time of measurements
- Type and model number of instrumentation
- Description of the time aspects of each measurement (i.e. sample times, measurement time intervals and time of day)
- Sketch map of area
- Measurement location details and number of measurements at each location
- Operation and load conditions of the vibrating plant under investigation
- Possible vibration influences from other sources (e.g. domestic vibrations, other mechanical plant, traffic, etc.).

5.4.2.1 Dilapidation Surveys

Prior to commencing activities, dilapidation surveys will be undertaken on the current condition of surface and sub-surface structures owned by third parties and identified as being at risk of structural damage from vibration causing activities during the construction phase of the Project. The dilapidation surveys are to be prepared by a suitably qualified and experienced person(s). The results of the dilapidation surveys will be provided to the relevant owners of surface and sub-surface structures for review prior to the commencement of potentially impacting works at each location.

Post-dilapidation surveys will be undertaken by a suitably qualified person to determine whether damage has occurred to the surface and sub-surface structures as a result of the construction phase of the Project (up to three months post construction or as agreed by DPIE). The results of the subsequent dilapidation surveys will be provided to the relevant owners of the structures and sub-surface structures within one month of undertaking the surveys.

Rectifications to the reasonable requirements of the surface and sub-surface structure owner(s) are to be carried out within three months of completion of the post-dilapidation surveys unless otherwise agreed with the owner of the affected surface and sub-surface structure.

5.4.3 Exceedance of Noise and Vibration Levels

In the event of an exceedance of noise levels and vibration criteria, works will cease or be modified at the direction of the Environmental Manager or delegate. Modification or substitution of work methods will be undertaken wherever possible, including but not limited to, with additional measures to undertake monitoring as required:

- Equipment / plant substitution.
- Selective use of enhanced equipment / plant
- Noise barriers or earthen bunds.

5.5 Roles and Responsibilities

All site personnel will ensure that environmental nuisance or harm is minimised by adherence to all CEMP, Sub-plans and other documentation. Site personnel are also responsible for ensuring they do not act in contravention of any conditions of the CoA or EPL.

Supervisors are responsible for implementation and maintenance of noise and vibration mitigation measures for all activities and work areas.

The Environmental Manager is responsible for routine surveillance and monitoring, communication of requirements of this Sub-plan, coordination of visual monitoring, and all other responsibilities related to noise, and vibration identified within this sub-plan and overall CEMP. The Environmental Manager is also responsible for the immediate notification of State and/or Commonwealth Regulatory Authorities as per conditions of the CoA and EPL. The Environmental Manager is responsible for the immediate notification to ARTC for all other impacts that have mandatory reporting requirements.

The Project Manager is responsible for overseeing implementation of this NVMP and the CEMP.

5.6 Environmental Incidents, Non-Compliance and Complaints

General environmental incidents, non-compliances and complaints will be undertaken in accordance with Section 6 of the CEMP.

In the event of a complaint, non-compliance or incident, an investigation will be undertaken to determine the cause of the problem lead by the Environmental Manager. Any identified impacts on noise and vibration, the identified source and corrective actions are to be documented and managed in accordance with this NVMP and in accordance with Section 6.1 of the CEMP and recorded in the Corrective and Improvement Action Database. Complaints will be handled in accordance with Section 6.3 of the CEMP.

In the event of any non-compliance (an occurrence, set of circumstances or development that is a breach of the approval conditions [CoA or EPL] but is not an incident), the non-compliance will be managed by the Environmental Manager and if required corrective action/s will be raised. All corrective actions and improvements will be entered into the Corrective or Improvement Actions Database and will be closed out as soon as practical (to be reviewed during the using the Weekly Environmental Checklist).

In response to complaints from noise and vibration, the source of noise or vibration will be investigated. Monitoring will be undertaken during such activities to confirm if levels are within applicable criteria. If levels are found to be above applicable criteria the activity will be ceased until mitigation measures can be implemented ensuring levels remain below applicable assessment criteria for the duration of the activity. The following mitigation will be undertaken:

- Environmental Team consultation with Construction Team
- The Community Team will undertake personalised consultation with the potentially impacted receivers
- Determination of appropriate environmental controls
- Potential relocation of affected resident member and / or change to the construction methodology.
- As identified within the CNVIS, depending on the noise exceedances respite can also be offered to impacted receivers in the following forms:
 - Provide residents with respite from an ongoing impact and may comprise of pre-purchased movie tickets, dinner vouchers or similar. Respite offers are not applicable to non-residential receivers.
 - Limiting high noise generating works and allowing at least a one-hour respite period between blocks of work. Where possible, the timing of this respite should be discussed with the impacted community

5.7 Inspections and Auditing

General inspections and auditing will be undertaken in accordance with Section 7 of the CEMP.

The Environmental Team will undertake environmental inspections, audits and reporting to develop and evaluate the effectiveness of environmental controls and will include the following:

- Daily visual inspections
- Weekly inspections using the Weekly Environmental Checklist

- Monthly reporting to the Client on this aspect will be recorded through Project Monthly Reports
- Annual independent audits
- ER regular monitoring of the implementation of the documents listed in the CoA.

5.8 Training and Awareness

General training and awareness will be undertaken in accordance with Section 8 and 9 of the CEMP.

All employees and contractors working on site will undergo site induction training related to noise and vibration. The general site induction will address elements including:

- Noise and vibration mitigation techniques and measures to be implemented during construction of the Project
- Working within approved hours
- Working with noisy equipment away from sensitive receivers
- Using noise screens and temporary barriers
- Operating and maintaining plant and equipment to minimise noise
- Use of compression braking not being permitted near the site
- Turning off machinery when not in use
- Limiting the "clustering" of noisy plant / processes
- Out-of-hours works and its approval process
- Sensitive receivers.

Training will also include toolbox talks and pre-start meetings in which the topics of the site induction will be revisited.

5.9 Emergency Planning and Response

Emergency planning and response will be undertaken in accordance with Section 10 of the CEMP.

Where any unauthorised impact on sensitive receivers within the Project is identified, construction activities resulting in impacts will be ceased immediately and appropriate mitigation measures identified and implemented.

All such impacts, the identified source and corrective actions are to be documented and managed in accordance with the NVMP, the CEMP and Sub-plans and recorded in the Corrective and Improvement Action Database.

On becoming aware of the need for emergency works in accordance with Condition E3(b) of the CoA, notifications will occur in writing to DPIE (compliance@planning.nsw.gov.au), the ER and the EPA of the need for that work. The use best endeavours to notify all affected sensitive receivers of the likely impact and duration of those works must be undertaken.

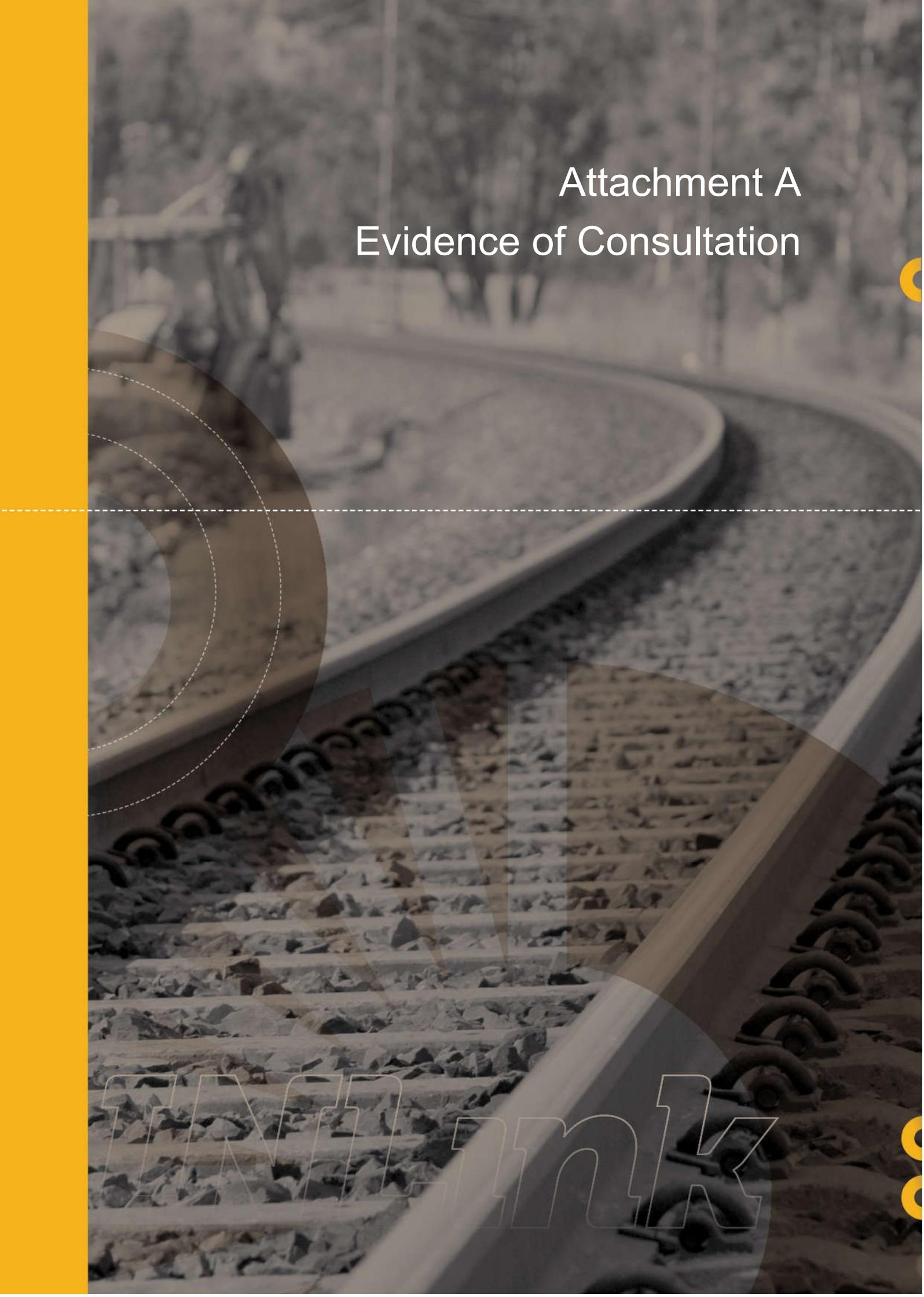
5.10 Document Review

General document review will be undertaken in accordance with Section 11 of the CEMP.

This NVMP will be reviewed utilising the Corrective and Improvement Action Database simultaneously to reviews of the overarching CEMP and any amendments cited and cross checked against each plan.

For the duration of the works until the completion of construction, the approved ER must:

- Review documents identified in the CEMP, Sub-plans, Construction Monitoring Programs and any other documents that are identified by the Secretary, to ensure they are consistent with requirements in or under this approval and if so:
 - Make a written statement to this effect before submission of such documents to the Secretary (if those documents are required to be approved by the Secretary) or
 - Make a written statement to this effect before the implementation of such documents (if those documents are required to be submitted to the Secretary / Department for information or are not required to be submitted to the Secretary / Department).



Attachment A Evidence of Consultation

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Stakeholder Comment				INLink Response		
Management Plan	Date	Comment	Stakeholder	Date	Response	Where addressed in Document
Noise and Vibration Management Plan	26/09/2018	Document should aim to ensure dwellings near the railway at construction phase are not subjected to noise exceedances as per the NSW Interim Construction Noise Guideline 2009.	Parkes Council	12/10/2018	In cases where noise or vibration levels are identified as likely exceeding applicable criteria, modification or substitution of work methods will be undertaken wherever possible, including but not limited to: <ul style="list-style-type: none"> • Works programming assessments • Selective use of enhanced equipment/plant • Noise barriers or earthen bunds • Equipment/plant substitution 	Table 5-1 NV 19
Noise and Vibration Management Plan	26/09/2018	Document should aim to ensure dwellings near the railway at operational phase are not subjected to noise exceedances as defined under the NSW Noise Policy for Industry 2017.	Parkes Council	12/10/2018	In cases where noise or vibration levels are identified as likely exceeding applicable criteria, modification or substitution of work methods will be undertaken wherever possible, including but not limited to: <ul style="list-style-type: none"> • Works programming assessments • Selective use of enhanced equipment/plant • Noise barriers or earthen bunds • Equipment/plant substitution 	Table 5-1 NV 19
Noise and Vibration Management Plan	26/09/2018	The construction of the new rail link to the Broken Hill Railway Line is located in close proximity to dwellings, and noise issues should thoroughly investigated at this location. It is understood Pacific National is currently undertaking similar studies at their site adjoining the Goobang Junction.	Parkes Council	12/10/2018	Construction Noise and Vibration Impact Statements (CNVIS) would be prepared prior to specific construction activities, in accordance with the NSW Construction Noise and Vibration Management Framework. These would be based on more detailed understanding of the construction methods, including size of construction, equipment, duration and timing of works.	Section 5.5
Noise and Vibration Management Plan	26/09/2018	Council would appreciate being informed of the outcome of any noise mitigation measures / negotiated settlements involving residents in the Parkes Shire.	Parkes Council	12/10/2018	INLink can provide information upon request.	Na.
Noise and Vibration Management Plan	26/09/2018	Comments above may change subject to further consideration of Plan.	Parkes Council	12/10/2018	Agreed.	Na.
Noise and Vibration Management Plan	18/10/2018	The Noise and Vibration Management Plan should be headed 'Noise and Vibration Management Plan – Construction Phase'.	Parkes Council	5/11/2018	Plan ties into the overarching Construction Environmental Management Plan. Sub-plan title doesn't need to be changed to include the relevant phase of the project as an operational environmental management plan will need to be deployed in the future.	N/A
Noise and Vibration Management Plan	18/10/2018	The Noise and Vibration Management Plan – Construction Phase should clearly document EPA's roles as Appropriate Regulatory Authority as per the relevant EPL and explain the EPA's role in regulating noise and vibration impacts during construction phase.	Parkes Council	5/11/2018	This information is covered in Section 3.6 of the NVMP	Section 3.6
Noise and Vibration Management Plan	18/10/2018	Construction noise controls should apply to the Parkes and Peak Hill Major Construction Ancillary Facilities, including controls on road traffic noise.	Parkes Council	5/11/2018	Mitigation measures will be applied as per those listed in section 5 of the NVMP.	Section 5
Noise and Vibration Management Plan	18/10/2018	The sensitive receiver map shows a 'green dot' directly south of the Parkes north-west connection which is an old dwelling ruin that has not been occupied for many years and is not a sensitive receiver. Recent noise and vibration studies undertaken by WSP for Pacific National dated March 2018 and May 2018 should be reviewed to ensure consistent approach to noise and vibration management of the Parkes north-west connection.	Parkes Council	5/11/2018	Information referred to was taken from the P2N EIS. Appropriate mitigation measures will be deployed to manage actual risks incurred during the project. Refer to Section 5 of NVMP for mitigation measures.	Section 5
Noise and Vibration Management Plan	8/10/2018	Section 2.1 update CoA date to June 2018	Narromine Council	12/10/2018	Updated.	Section 2.1
Noise and Vibration Management Plan	8/10/2018	Section 3.3 update formatting error and remove ref to Draft CoA	Narromine Council	12/10/2018	Updated.	Section 3.3
Noise and Vibration Management Plan	8/10/2018	Table 3-1 update formatting errors	Narromine Council	12/10/2018	Formatting issues have been rectified.	All document.
Noise and Vibration Management Plan	8/10/2018	Table 3-3 ref ID 12.3b) ensure that the NVMP is updated to reflect any changes required under the EPL	Narromine Council	12/10/2018	Updated with draft EPL conditions.	Section 3.3 Table 3-3
Noise and Vibration Management Plan	8/10/2018	Section 5.2 Ensure Council is consulted and complaints are forwarded to Council for records where follow up action is required	Narromine Council	12/10/2018	Section 5.2 A community information and awareness strategy will be initiated prior to the commencement of construction to ensure that the community are aware of proposed construction activities and potential noise and vibration impacts. Section 5.7 the Environmental Manager is responsible for the immediate notification of State and/or Commonwealth government agencies as per conditions under the EPL. The Environment Manager is responsible for the immediate notification to ARTC for all other impacts that have mandatory reporting requirements	Section 5.2 and Section 5.7

Stakeholder Comment				INLink Response		
Management Plan	Date	Comment	Stakeholder	Date	Response	Where addressed in Document
Noise and Vibration Management Plan	8/10/2018	Section 5.6.2 update formatting error	Narromine Council	12/10/2018	Formatting issues have been rectified.	All document.
Noise and Vibration Management Plan Attachment A - Out of Hours Works Protocol	8/10/2018	Section 3 Project Requirements - remove draft from CoA.	Narromine Council	12/10/2018	Updated to remove 'draft'.	Section 3
Noise and Vibration Management Plan	26/10/2018	<p>The Environment Protection Authority (EPA) is aware that ARTC is required by the Department of Planning and Environment to prepare Plans of Management in consultation with the EPA. The EPA encourages the development of Environmental Management Plans/Programs to ensure that proponents have determined how they will meet their statutory obligations and environmental objectives as specified by any project/development approval and/or the conditions as specified by any project/development approval and/or conditions of an environment protection licence (EPL).</p> <p>Please note that the EPA does not approve or endorse management plans as the role of the EPA is to set conditions/criteria for environment protection and management, and not to be directly involved in the development of strategies to comply with such conditions/criteria. However, in this instance the EPA has provided comment to Inlink regarding the Air Quality Management Plan (AQMP) with reference to the use and placement of dust monitoring instruments as now included in the Environment Protection Licence (EPL 21138) for the Inland Rail – Parkes to Narromine project.</p>	EPA	30/11/2018	Noted.	N/A

EVIDENCE OF CONSULTATION

Inland Rail Parkes to Narromine Project – Noise and Vibration Management Plan

Initial Engagement with Stakeholder

From: Nelson Wallis
Sent: Wednesday, 26 September 2018 7:43 PM
To: Anna Wyllie
Cc: Sam Blanco; council@parkes.nsw.gov.au; Ben Howard; Andrew Francis
Subject: RE: ARTC Inland Rail Traffic, Transport and Access Management Plan
Attachments: 5-0012-240-EEC-00-PR-0001_OOHWP_D.pdf; 5-0012-240-EEC-00-PJ-0002_NVMP_D.pdf; Letter to Parkes Council - Noise and Vibration Management Plan.pdf

Categories: Blue Category

Hi Anna

Please find attached our Noise and Vibration Management Plan and Cover Letter for Parkes Shire Council's review.

As part of the Noise and Vibration Management Plan there is also an Out of Hours Work Protocol which is attached.

This is the final plan Parkes Shire Council will receive for review.

If there are any questions or you would like to meet to discuss this plan further please let me know.

Regards
Nelson

Nelson Wallis
Stakeholder Engagement Lead NSW, Parkes to Narromine
Inland Rail

ARTC

M. 0447 817 142
E. NWallis@ARTC.com.au

Australian Rail Track Corporation
Level 15, 60 Carrington Street
Sydney NSW 2000

artc.com.au

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Anna Wyllie
Economic & Business Development Manager
Parkes Shire Council
2 Cecile Street
PARKES NSW 2870

Email: Anna.Wyllie@parkes.nsw.gov.au

26 September 2018

RE: Parkes to Narromine – Noise and Vibration Management Plan

Dear Anna,

Following my email on 29 August, ARTC is planning to engage INLink, a joint venture between Fulton Hogan and BMD Constructions to start construction on the Parkes to Narromine (P2N) Project. In accordance with our Environmental Impact Statement, Condition of Approval (CoA) C4 a Noise and Vibration Management Plan (NVMP) is to be developed in consultation with relevant councils, as part of the preparation and endorsement of the P2N Project Construction Environmental Management Plan.

INLink has prepared a draft NVMP for construction of the P2N Project and we invite Parkes Shire Council to provide feedback on this plan. We would also like to offer a meeting with INLink, ARTC and the relevant Council officers to discuss this and other upcoming plans related to our work on the P2N project.

Could Parkes Shire Council please provide feedback on the plan attached on or before close of business on 11 October 2018. In the event that this timeframe is not achievable please contact myself or Sam Blanco on 0409 510 555 as soon as practicable.

We look forward to your feedback. If you have any queries or would like to discuss further, please do not hesitate to contact me.

Yours sincerely,



Nelson Wallis
Parkes to Narromine Stakeholder Lead
Inland Rail

From: Nelson Wallis
Sent: Wednesday, 26 September 2018 7:54 PM
To: Mick Bell
Cc: Sam Blanco; Jane Redden; Sarah Masonwells; Jordan Richardson; Kayla Robson
Subject: RE: Parkes to Narromine Inland Rail
Attachments: Letter to Narromine Council - Noise and Vibration Management Plan.pdf; 5-0012-240-EEC-00-PJ-0002_NVMP_D.pdf; 5-0012-240-EEC-00-PR-0001_OOHWP_D.pdf

Categories: Blue Category

Hi Mick

Please find attached our Noise and Vibration Management Plan and Cover Letter for Narromine Shire Council's review.

As part of the Noise and Vibration Management Plan there is also an Out of Hours Work Protocol which is attached.

This is the final plan Narromine Shire Council will receive for review.

If there are any questions or you would like to meet to discuss this plan further please let me know.

See you tomorrow.

Regards
Nelson

Nelson Wallis
Stakeholder Engagement Lead NSW, Parkes to Narromine
Inland Rail

ARTC

M. 0447 817 142
E. NWallis@ARTC.com.au

Australian Rail Track Corporation
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Sydney NSW 2000

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Mick Bell
Acting Director Infrastructure & Engineering Services
Narromine Shire Council
124 Dandaloo Street
Narromine NSW 2821

Email: mbell@narromine.nsw.gov.au

26 September 2018

RE: Parkes to Narromine – Noise and Vibration Management Plan

Dear Mick

Following on from our meeting on 6 September 2018, ARTC are planning to engage INLink, a joint venture between Fulton Hogan and BMD Constructions to start construction on the Parkes to Narromine (P2N) Project.

In accordance with our Environmental Impact Statement, Condition of Approval (CoA) C4 a Noise and Vibration Management Plan (NVMP) is to be developed in consultation with relevant councils, as part of the preparation and endorsement of the P2N Project Construction Environmental Management Plan.

INLink has prepared a draft NVMP for construction of the P2N Project and we invite Narromine Shire Council to provide feedback on this plan. We would also like to offer a meeting with INLink, ARTC and the relevant Council officers to discuss this and other upcoming plans related to our work on the P2N project.

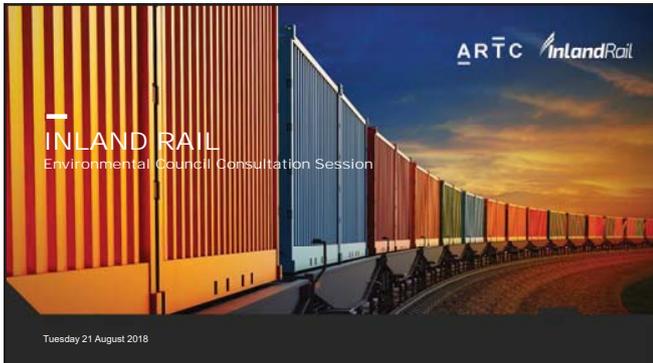
Could Narromine Shire Council please provide feedback on the plan attached on or before close of business on 11 October 2018. In the event that this timeframe is not achievable please contact myself or Sam Blanco on 0409 510 555 as soon as practicable.

We look forward to your feedback. If you have any queries or would like to discuss further, please do not hesitate to contact me.

Yours sincerely,



Nelson Wallis
Parkes to Narromine Stakeholder Lead
Inland Rail



PRESENTATION OUTLINE

- Project approval update - ARTC
- Relevance of today's discussion to the Project Conditions of Approval - ARTC
- Management plan development process – ARTC
- Discuss management plans - INLink
- Next Step - ARTC
- Council feedback - Council

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PROJECT APPROVAL UPDATE

- State and Federal Governments have given consent for the Inland Rail - Parkes to Narromine Project (the Project) to go ahead
- State and Federal Conditions of Approval (CoA) have been provided outlining requirements with which the Project must comply
- The CoA include several post approval deliverables that must be addressed before site works can commence
- ARTC is now working towards fulfilling the relevant CoA



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CoA FOR DISCUSSION – CEMP Sub-plans

- Construction Environmental Sub-plans (CEMP Sub-plans)
- Condition C4: "...construction environmental management sub-plans (CEMP Sub-plans) must be prepared in consultation with the relevant government agencies and councils..."

Required Plan	Stakeholder to be engaged
CEMP Sub-plan: Traffic, transport and access	RMS and relevant councils (as appropriate)
CEMP Sub-plan: Noise and Vibration	EPA and relevant councils
CEMP Sub-plan: Flora and Fauna	OEH and relevant councils
CEMP Sub-plan: Air quality	Relevant Councils
CEMP Sub-plan: Soil and Water	Relevant councils and Crown Lands & Water
Site establishment management plan	Relevant Councils

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CoA FOR DISCUSSION - CEMP Sub-plans

- Under C5 in the CoA, CEMP Sub-plans must state how:
 - The environmental performance outcomes identified in the EIS and Submissions Report, as modified by the CoA, will be achieved;
 - The mitigation measures identified in the EIS and Submissions Report, as modified by the CoA will be implemented;
 - The relevant terms of the CoA will be complied with; and
 - Issues requiring management during construction, as identified through ongoing environment risk analysis will be managed.



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POST APPROVAL DELIVERABLE PROCESS

Document Development

- INLink develop plans in line with CoA
- Documents reviewed by ARTC Environmental Representative (ER)
- INLink address feedback identified by review process to update plans

Consult with Councils

- Share and discuss plans with stakeholders listed for consultation
- Receive feedback from stakeholders
- Display how plans address feedback (or amend accordingly)
- Capture evidence of consultation in plans

Env. Rep. Review

- Submit plans to Environmental Representative (ER) as necessary
- ER completes final review
- Address feedback provided by ER

Approve Plans

- Share and discuss plans with DPE
- Receive feedback from DPE
- Address feedback provided by DPE
- Re-submit plans to DPE for approval
- DPE approve plans

Steps

- INLink develop plans in line with CoA
- Documents reviewed by ARTC Environmental Representative (ER)
- INLink address feedback identified by review process to update plans
- Share and discuss plans with stakeholders listed for consultation
- Receive feedback from stakeholders
- Display how plans address feedback (or amend accordingly)
- Capture evidence of consultation in plans
- Submit plans to Environmental Representative (ER) as necessary
- ER completes final review
- Address feedback provided by ER
- Share and discuss plans with DPE
- Receive feedback from DPE
- Address feedback provided by DPE
- Re-submit plans to DPE for approval
- DPE approve plans

COMPLETED

IN PROGRESS

TO BE COMPLETED

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CONSULTATION OUTCOMES

- Deliver the project in compliance with the CoA
- Gain regionally valuable feedback to support successful implementation of the Project
- Provide transparency around how environmental impacts potentially associated with the Project will be managed
- Continue building effective and valuable relationships with councils associated with the Project
- To following deliverables will support the Project being able to exemplify compliance with the CoA:
 - A list of comments/queries from councils supplied to ARTC to which ARTC will respond
 - Meeting minutes drafted by ARTC and shared councils

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Environmental Council Consultation Session

PARKES TO NARROMINE - INLAND RAIL PROGRAMME

NARROMINE 20 September 2018
PARKES 21 September 2018

 **INLink**
IN your region. IN it for you.

Environmental Council Consultation Session
PARKES TO NARROMINE - INLAND RAIL PROGRAMME



Who are we?

- INLink is a joint venture between BMD Constructions and Fulton Hogan.
- This JV has been selected as the preferred Contractor for the P2N contract and will deliver the first section of the Inland Rail programme.
- Construction is expected to start in mid-September and continue until mid-2020.

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Environmental Management Overview

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Environmental Council Consultation Session
PARKES TO NARROMINE - INLAND RAIL PROGRAMME



INLink's Commitment

INLink is committed to minimising the environmental and community impact of the Inland Rail – Parkes to Narromine Project through understanding the complex surroundings and utilising new and best practice techniques for management.

INLink have a suite of management plans covering the environmental requirements for the Project. The plans are set out by environmental aspect:

- **Flora and Fauna**
- **Pest and Weed**
- **Heritage**
- **Air Quality**
- **Noise and Vibration**
- **Soil and Water**
- **Primary Erosion and Sediment Control**
- **Waste**
- **Pollution and Incident Response**
- **Flood**
- **Hazardous and Contaminated Materials**
- **Landscape and Visual Amenity**
- **Traffic Transport and Access**

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PARKES TO NARROMINE - INLAND RAIL PROGRAMME



Structure of Plans

The plans are structured in the following manner:

- Purpose and Objectives
- Existing Environment
- Mitigation Measures
- Inspection Training Audits Monitoring
- Reporting Records Review

INLink welcome local knowledge about the existing conditions and proven mitigation measures.

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PARKES TO NARROMINE – INLAND RAIL PROGRAMME

Traffic Transport and Access Management Plan

Traffic Transport & Access

The objective of the management plan is to minimise disruption to the local community and ensure safe access through/past/around the work site during the construction. Reviews of interactions with external stakeholders will be completed in detail however some of the typical methods to reduce the impact on the local road network are:

- Reduction of construction vehicles
- Utilising assigned routes
- Working inside the Project corridor
- Providing alternative access to local stakeholders

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PARKES TO NARROMINE – INLAND RAIL PROGRAMME

Noise Vibration & Air Quality Management Plan

Management

During the construction of the Project impacts will occur to the surrounding community in the form of noise, dust and vibration.

Mitigation measures have been used to ensure that this impact is minimised:

- Comply with the conditions of the Project approvals
- Noise, vibration and dust monitoring in sensitive areas and in response to complaints

Investigations will occur in relation to exceedance of noise, vibration and dust limits or in response to a community complaint.

Environmental Council Consultation Session
PARKES TO NARROMINE – INLAND RAIL PROGRAMME

Noise Vibration & Air Quality Management Plan

Hours of Work

All construction activities must be undertaken between 7:00 am and 6:00 pm Monday to Friday and between 8:00 am and 1:00 pm on Saturday.

Out of Hours Works including Sundays, public holidays and nightshift must be approved by ARTC with the appropriate notification to sensitive receivers undertaken by the INLink Community Relations Team.

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PARKES TO NARROMINE – INLAND RAIL PROGRAMME

Flora and Fauna Management Plan

Flora & Fauna

Flora and fauna is managed by identifying areas of significance that are listed under the State and Federal legislation.

This is undertaken through the EIS process and built in to the design of the Project.

In some locations the corridor can be minimised or changed to reduce the impact on Threatened habitat.

During the construction of the Project all clearing will be reviewed by the Environmental Team to prior to works being undertaken. Fauna spotters will be present to undertake pre clearance surveys and relocate any fauna that is present in the clearing locations.

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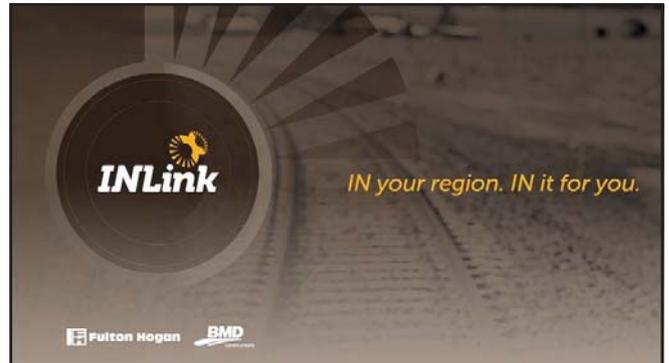
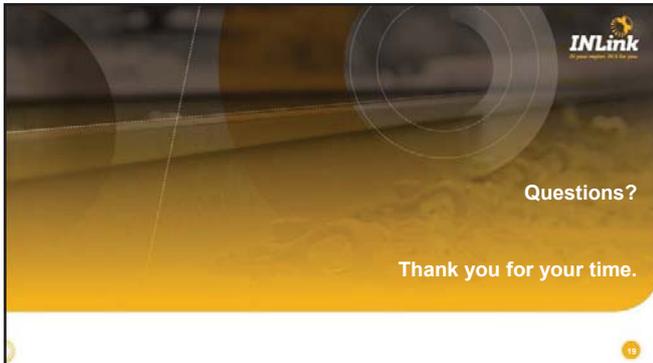
Soil and Water Management Plan

Soil and Water

During the construction of the Project material is required to be moved and replaced in different locations within the Project boundaries. When material is excavated it will be inspected to ensure that no contaminated material is present. Contaminated material will be treated or disposed of in accordance with relevant legislation and guidelines.

Soil and water will be managed for the duration of the Project by the use of designed erosion and sediment controls. These controls will be designed by a Certified Professional in Erosion and Sediment Control.

Erosion and sediment controls must be managed before and after every rain event to ensure that are operating correctly. This will be done by undertaking inspections and if required rectification works.



NEXT STEPS

Step	Action	Responsible	Ideal Completion Timeframe
1	Compile and submit minutes to councils	ARTC	2 days
2	Compile comments on plans if desired and submit to ARTC	Councils	2 weeks from receiving plan
3	Assess comments and prepare responses	ARTC	2 days
4	Update plans as necessary	INLink	5 days
5	Submit response to council's comments	ARTC	1 day

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PARKES TO NARRMINE – INLAND RAIL PROGRAMME

Cultural Heritage Management Plan

Indigenous Heritage

Key risks include impact to places or items of cultural heritage significance. The Wiradjuri people have undertaken a review of the Project corridor and provided input on the key management measures and include:

- Archaeological excavations at key locations
- Surface collection at key locations
- Protection of scarred trees

European Heritage

The Project corridor includes a significant area of European heritage. Heritage listed on the rail corridor includes the potential for damage or loss of heritage items. Some of these items include:

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Environmental Council Consultation Session
PARKES TO NARRMINE – INLAND RAIL PROGRAMME

Flood and Emergency Management Plan

Natural Event Management

INLink have a process which is enacted off the back of forecasted serious natural events. The process ensures the following:

- Risk to all stake holders are minimised (Internal & External)
- Sites are prepared for the imminent weather forecast
- All workers are briefed and prepared
- All workers are equipped with appropriate PPE
- All workers are trained in the correct use of PPE
- All workers are trained in the correct use of the Project team site specific plans

24

From: Sam Blanco
Sent: Thursday, 27 September 2018 5:08 PM
To: Jacinta.Hanemann@epa.nsw.gov.au
Cc: Sarah Connelly; Stephanie Mifsud
Subject: Request for Feedback - Inland Rail Parkes to Narromine Construction Management Plans
Attachments: FW: Inland Rail and EPA Consultation; 5-0012-240-EEC-00-PJ-0011_Haz and Contam_B.pdf; 5-0012-240-EEC-00-PJ-0002_NVMP_D.pdf; 5-0000-240-EAP-00-LT-0019 Letter to EPA - NVMP and HCMMP - 270918.pdf

Hello Jacinta,

Your details were given to me by Stephanie Mifsud in relation to the liaising with the Environment Protection Authority concerning the development of two construction environmental management sub-plans as mandated by the Inland Rail - Parkes to Narromine Project (the Project) Conditions of Approval (refer to attached correspondence). The plans I am referring to are the Nosie and Vibration Construction Environmental Management Sub-plan and the Hazardous and Contaminated Materials Construction Environmental Management Sub-plan. These plans have been developed by the Project Principal Contractor (INLink).

Therefore, please refer to the attached cover letter outlining the current status of the Project as well as INLink's Nosie and Vibration and Hazardous and Contaminated Materials Construction Environmental Management sub-plans.

If you have any questions or would like to discuss further, please feel free to contact me on the undersigned.

Sam Blanco
Project Environmental Advisor - NSW
Inland Rail

ARTC

P. 07-3727 3437
M. 0409 510 555
E. SBlanco@ARTC.com.au

Australian Rail Track Corporation
Level 9, 40 Creek Street
Brisbane QLD 4000

artc.com.au

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Jacinta Hanemann
NSW Environment Protection Authority
Level 14, 59 – 61 Goulburn Street
SYDNEY NSW 2000

Email: Jacinta.Hanemann@epa.nsw.gov.au

27 September 2018

RE: Inland Rail - Parkes to Narromine – Noise and Vibration and Hazardous and Contaminated Materials Construction Environmental Management Sub-plans

Dear Jacinta,

ARTC has engaged INLink, a joint venture between Fulton Hogan and BMD Constructions to start construction on the Inland Rail - Parkes to Narromine (P2N) project. In accordance with our Environmental Impact Statement, Condition of Approval (CoA) C4 a Noise and Vibration Construction Environmental Management Sub-plan (NVMP) and a Hazardous and Contaminated Materials Construction Environmental Management Sub-plan (HCMMP) are to be developed in consultation with the relevant government agencies identified, to support development of the P2N project Construction Environmental Management Plan.

INLink has prepared a draft NVMP and HCMMP for construction of the P2N project and we invite the Environment Protection Authority to provide feedback on these plans. We would also like to offer a meeting with INLink, ARTC and the relevant EPA officers to discuss this and other upcoming plans related to our work on the P2N project.

Please provide your feedback on the plans attached on or before close of business on 05 October 2018. In the event that this timeframe is not achievable please contact myself or Stephanie Mifsud on 0429 146 814 as soon as practicable.

We look forward to your feedback. If you have any queries or would like to discuss further, please do not hesitate to contact me.

Yours sincerely,



Sam Blanco
P2N Environmental Advisor
Inland Rail

Correspondence from Stakeholder

From: Katrina Dwyer <Katrina.Dwyer@parkes.nsw.gov.au>

Sent: Thursday, 18 October 2018 5:16 PM

To: Nelson Wallis <NWallis@ARTC.com.au>

Cc: Michael Carter <Michael.Carter@parkes.nsw.gov.au>; Ben Howard <Ben.Howard@parkes.nsw.gov.au>; Andrew Francis <Andrew.Francis@parkes.nsw.gov.au>; Howard Orr <Howard.Orr@parkes.nsw.gov.au>; Kent Boyd <Kent.Boyd@parkes.nsw.gov.au>; Anna Wyllie <Anna.Wyllie@parkes.nsw.gov.au>

Subject: [EXT] FW: Document review for Inland Rail, Parkes to Narromine

Hi Nelson,

As per our meeting yesterday, our team has reviewed consent conditions and ARTC documents relating to noise.

Our comments are outlined below:

- Noise and Vibration Management Plan
 - Noise and Vibration Management Plan for Operational Phase not yet received.
 - The Noise and Vibration Management Plan should be headed 'Noise and Vibration Management Plan – Construction Phase'.
 - The Noise and Vibration Management Plan – Construction Phase should aim to ensure dwellings near the railway during construction phase are not subjected to noise exceedances as per the NSW Interim Construction Noise Guideline 2009.
 - The Noise and Vibration Management Plan – Construction Phase should clearly document EPA's roles as Appropriate Regulatory Authority as per the relevant EPL and explain the EPA's role in regulating noise and vibration impacts during construction phase.
 - Construction noise controls should apply to the Parkes and Peak Hill Major Construction Ancillary Facilities, including controls on road traffic noise.
 - The sensitive receiver map shows a 'green dot' directly south of the Parkes north-west connection which is an old dwelling ruin that has not been occupied for many years and is not a sensitive receiver. Recent noise and vibration studies undertaken by WSP for Pacific National dated March 2018 and May 2018 should be reviewed to ensure consistent approach to noise and vibration management of the Parkes north-west connection.
 - Council would appreciate being informed of the outcome of any noise mitigation measures / negotiated settlements involving residents in the Parkes Shire.

- Out of Hours Work Protocol
 - The Protocol should clearly document EPA's roles as Appropriate Regulatory Authority as per the relevant EPL and explain the EPA's role in regulating noise and vibration impacts during construction phase.

If you have any questions or require any further clarification, just let us know

Many Thanks,

Katrina Dwyer

Brand and Marketing Manager | Parkes Shire Council

P 02 6861 2333 **M** 0427 462 428 **F** 02 6862 3946

E katrina.dwyer@parkes.nsw.gov.au

W parkes.nsw.gov.au

2 Cecile Street Parkes NSW 2870

From: Kayla Robson <krobson@narromine.nsw.gov.au>

Sent: Monday, 8 October 2018 3:37 PM

To: Nelson Wallis <NWallis@ARTC.com.au>

Cc: Jane Redden <jredde@narromine.nsw.gov.au>; Mick Bell <mbell@narromine.nsw.gov.au>; Jordan Richardson <jrichardson@narromine.nsw.gov.au>

Subject: [EXT] Construction Management Plans: Narromine Shire Council Response

Hi Nelson

I refer to your previous emails and the P2N construction management plans provided to date.

Please find attached our response to each management plan noting that whilst we are not required by the CoA to be consulted on the Flood Emergency Management Plan, we felt it was critical to ensure that all flood impacts are identified and have subsequently provided specific comments on this plan. If there is anything within the attachment that is unclear, please do not hesitate to contact me directly and we can discuss further.

Please also let me know as soon as possible when your design team can meet with us to discuss the level crossing designs provided to ensure that we are able to have all relevant staff available.

Thank you.

Kind regards

Kayla Robson
Executive Manager Planning

Narromine Shire Council
124 Dandaloo Street
(PO Box 115)
NARROMINE NSW 2821
Ph: 6889 9954
Fax: 6889 9998
Mob: 0437 680 623
Email: krobson@narromine.nsw.gov.au
Web: www.narromine.nsw.gov.au



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From: Allan Adams <Allan.Adams@epa.nsw.gov.au>
Sent: Friday, 26 October 2018 3:42 PM
To: Sam Blanco
Cc: Valerie Donat
Subject: [EXT] RE: ARTC Management Plans follow-up

Categories: Red Category

Dear Sam

The Environment Protection Authority (EPA) is aware that ARTC is required by the Department of Planning and Environment to prepare Plans of Management in consultation with the EPA. The EPA encourages the development of Environmental Management Plans/Programs to ensure that proponents have determined how they will meet their statutory obligations and environmental objectives as specified by any project/development approval and/or the conditions as specified by any project/development approval and/or conditions of an environment protection licence (EPL).

Please note that the EPA does not approve or endorse management plans as the role of the EPA is to set conditions/criteria for environment protection and management, and not to be directly involved in the development of strategies to comply with such conditions/criteria. However, in this instance the EPA has provided comment to Inlink regarding the Air Quality Management Plan (AQMP) with reference to the use and placement of dust monitoring instruments as now included in the Environment Protection Licence (EPL 21138) for the Inland Rail – Parkes to Narromine project.

Thanks

Allan

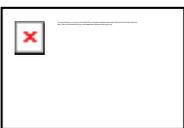
Allan Adams

A/Head Regional Operations Unit – Central West

South Branch, NSW Environment Protection Authority
(02) 6333 3804 - 0438 598 680

allan.adams@epa.nsw.gov.au www.epa.nsw.gov.au central.west@epa.nsw.gov.au

Report pollution and environmental incidents 131 555 (NSW only) or +61 2 9995 5555



Please send official electronic correspondence to central.west@epa.nsw.gov.au

From: Valerie Donat <VDonat@ARTC.com.au>
Sent: Tuesday, 23 October 2018 5:28 PM
To: Allan Adams <Allan.Adams@epa.nsw.gov.au>
Subject: RE: ARTC Management Plans follow-up

Thanks Allan! As previously mentioned, please send to Sam Blanco (SBlanco@ARTC.com.au) as I will be on leave.

Kind regards,

Valerie Donat
Environment Officer
Inland Rail



P. (02) 8259 0524
M. 0409 092 406
E. VDonat@ARTC.com.au

Australian Rail Track Corporation
Level 15, 60 Carrington Street
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From: Allan Adams <Allan.Adams@epa.nsw.gov.au>
Sent: Tuesday, 23 October 2018 16:29
To: Valerie Donat <VDonat@ARTC.com.au>
Cc: Sam Blanco <SBlanco@ARTC.com.au>
Subject: [EXT] RE: ARTC Management Plans follow-up

Hi Valeria

I will try to have a response to you by tomorrow.

Thanks

Allan

Allan Adams

A/Senior Regional Operations Officer – Central West

South Branch, NSW Environment Protection Authority
(02) 6333 3804 - 0438 598 680

allan.adams@epa.nsw.gov.au www.epa.nsw.gov.au [Facebook](https://www.facebook.com/epa.nsw) [Instagram](https://www.instagram.com/epa.nsw) [YouTube](https://www.youtube.com/epa.nsw) [LinkedIn](https://www.linkedin.com/company/epa.nsw) [Twitter](https://www.twitter.com/epa.nsw) [YouTube](https://www.youtube.com/epa.nsw) [Facebook](https://www.facebook.com/epa.nsw) [Instagram](https://www.instagram.com/epa.nsw) [YouTube](https://www.youtube.com/epa.nsw) [LinkedIn](https://www.linkedin.com/company/epa.nsw) [Twitter](https://www.twitter.com/epa.nsw)

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Please send official electronic correspondence to central.west@epa.nsw.gov.au

From: Valerie Donat <VDonat@ARTC.com.au>
Sent: Tuesday, 23 October 2018 4:26 PM
To: Allan Adams <Allan.Adams@epa.nsw.gov.au>
Cc: Sam Blanco <SBlanco@ARTC.com.au>
Subject: RE: ARTC Management Plans follow-up

Good afternoon Allan,

This is a courtesy email to follow up on our request for a letter of evidence of consultation, as per our discussion yesterday. I know you are busy with the P2N EPL, so could you please advise when you think you would be able to provide that letter to ARTC via Sam Blanco?

Kind regards,

Valerie Donat
Environment Officer
Inland Rail



P. (02) 8259 0524
M. 0409 092 406
E. VDonat@ARTC.com.au

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From: Valerie Donat
Sent: Monday, 22 October 2018 15:11
To: 'allan.adams@epa.nsw.gov.au' <allan.adams@epa.nsw.gov.au>
Cc: Sam Blanco <SBlanco@ARTC.com.au>
Subject: ARTC Management Plans follow-up

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Please send the document to Sam Blanco (he has been copied into the email) as he is compiling the agency feedback for the draft management plans.

Kind regards,

Valerie Donat
Environment Officer
Inland Rail



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Correspondence back to Stakeholder

From: Nelson Wallis
Sent: Tuesday, 6 November 2018 10:59 AM
To: Anna Wyllie
Cc: Sam Blanco; Katrina Dwyer
Subject: RE: Document review for Inland Rail, Parkes to Narromine
Attachments: 5-0012-240-EEC-00-CS-0014_C.xlsx

Hi Anna

I hope everything is going well.

Please find attached the updated response to comments received by Parkes Shire Council on our construction management plans.

This has been updated to include comments about the Noise and Vibration Management Plan.

If you would like to discuss further please let me know.

Regards
Nelson

Nelson Wallis
Stakeholder Engagement Lead NSW, Parkes to Narromine
Inland Rail

ARTC

M. 0447 817 142
E. NWallis@ARTC.com.au

Australian Rail Track Corporation
Level 15, 60 Carrington Street
Sydney NSW 2000

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From: Nelson Wallis
Sent: Friday, 2 November 2018 3:29 PM
To: Kayla Robson
Cc: Andre Pretorius; Jordan Richardson; Sam Blanco
Subject: Inland Rail Construction Management Plan comments
Attachments: 5-0012-240-EEC-00-CS-0015 (1).xlsx

Hi Kayla

Thanks again for spending the time in reviewing our construction management plans.

Please find attached our responses to Narromine Shire Council's comments. We would be more than happy to discuss anything further. Once our plans are approved by DPE we will provide you a copy for your records. If there is anything else you would like to discuss please let me know.

Once our work starts, we would like to offer Monthly Construction Briefings to provide you an update on our work. At these meetings we could also brief you on the relevant information Narromine Council has requested such as details about complaints received etc.

As you are aware, our work will start in Parkes. We would be more than happy to provide a tour of our construction site to share with you how Inland Rail will be built early next year.

If you would like to discuss anything further, please don't hesitate to give me a call.

Regards
Nelson

Nelson Wallis
Stakeholder Engagement Lead NSW, Parkes to Narromine
Inland Rail

ARTC

M. 0447 817 142
E. NWallis@ARTC.com.au

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Evidence of Correspondence with Environment Protection Authority

From: Valerie Donat
Sent: Tuesday, 23 October 2018 4:32 PM
To: Sam Blanco
Subject: Evidence of consultation with EPA
Attachments: FW: Request for Feedback - Inland Rail Parkes to Narromine Construction Management Plans;
RE: Request for Feedback - Inland Rail Parkes to Narromine Construction Management Plans;
[EXT] RE: Details for Bathurst team; [EXT] RE: ARTC Management Plans follow-up

Categories: Red Category

Hi Sam,

Attached are the emails between myself and both Mike Sharpin and Allan Adams.

This is the call register:

- Friday October 12: I rang Jacinta at EPA – she was on leave so I spoke to Mike Sharpin (email was sent with ARTC request for feedback and a copy of the plans)
- Thursday 18 October: I rang Mike – left a message and sent an email.
- Friday 19 October: I rang Mike again, he advised it was being assessed out of the Bathurst team and he would provide contact details. He didn't, so I emailed on Monday 22nd Oct for the details.
- Monday 22 October: I rang Allan Adams (Bathurst) re: feedback and sent an email following our conversation to formalise the request and what we had agreed on.
- Tuesday 23 October: I sent a follow up email to Allan to check on status of requested letter, he responded.

That's everything between myself and EPA.

Valerie Donat
Environment Officer
Inland Rail

ARTC

P. (02) 8259 0524
M. 0409 092 406
E. VDonat@ARTC.com.au

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Sam Blanco

From: Allan Adams <Allan.Adams@epa.nsw.gov.au>
Sent: Tuesday, 23 October 2018 3:29 PM
To: Valerie Donat
Cc: Sam Blanco
Subject: [EXT] RE: ARTC Management Plans follow-up

Hi Valeria

I will try to have a response to you by tomorrow.

Thanks

Allan

Allan Adams

A/Senior Regional Operations Officer – Central West

South Branch, NSW Environment Protection Authority

(02) 6333 3804 - 0438 598 680

allan.adams@epa.nsw.gov.au www.epa.nsw.gov.au [@EPA_NSW](https://www.facebook.com/EPA_NSW)

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Subject: RE: ARTC Management Plans follow-up

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Kind regards,

Valerie Donat
Environment Officer
Inland Rail

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Cc: Sam Blanco <SBlanco@ARTC.com.au>
Subject: ARTC Management Plans follow-up

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Please send the document to Sam Blanco (he has been copied into the email) as he is compiling the agency feedback for the draft management plans.

Kind regards,

Valerie Donat
Environment Officer
Inland Rail



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Sam Blanco

From: Mike Sharpin <Mike.Sharpin@epa.nsw.gov.au>
Sent: Monday, 22 October 2018 8:42 AM
To: Valerie Donat
Subject: [EXT] RE: Details for Bathurst team

Follow Up Flag: Follow up
Flag Status: Completed

Hi Valerie

The contact details for the Bathurst contact person are:

Allan Adams
(02) 6333 3804

Allan.Adams@epa.nsw.gov.au

Regards

Mike

Mike Sharpin

A/Manager Regional Operations - Metropolitan Infrastructure

Metropolitan Branch, NSW Environment Protection Authority

+61 2 9995 6953 +61 428 692 462

mike.sharpin@epa.nsw.gov.au www.epa.nsw.gov.au [@EPA NSW](#)

Report pollution and environmental incidents 131 555 (NSW only) or +61 2 9995 5555



From: Valerie Donat <VDonat@ARTC.com.au>
Sent: Monday, 22 October 2018 9:38 AM
To: Mike Sharpin <Mike.Sharpin@epa.nsw.gov.au>
Subject: Details for Bathurst team

Good morning Mike,

I hope this email finds you well. Following up from our conversation on Friday, would you be able to please forward me the best contact details for the team in Bathurst so I can communicate with them regarding the management plans?

Kind regards,

Valerie Donat
Environment Officer
Inland Rail

ARTC

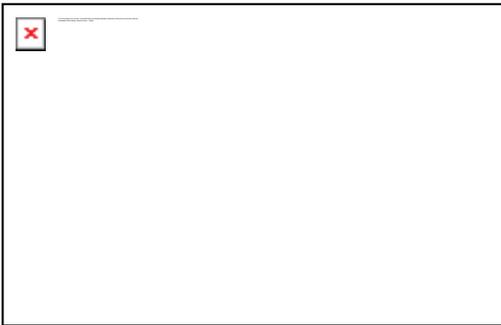
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Sam Blanco

From: Valerie Donat
Sent: Thursday, 18 October 2018 1:28 PM
To: mike.sharpin@epa.nsw.gov.au
Subject: RE: Request for Feedback - Inland Rail Parkes to Narromine Construction Management Plans

Good afternoon Mike,

I hope this email finds you well. I'm following up our call and email I sent last Friday regarding the request for EPA feedback on Inland Rail Management Plans.

Does EPA have any feedback they'd like to submit to ARTC?

Looking forward to speaking to you soon.

Kind regards,

Valerie Donat
Environment Officer
Inland Rail

ARTC

P. (02) 8259 0524
M. 0409 092 406
E. VDonat@ARTC.com.au

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From: Valerie Donat
Sent: Friday, 12 October 2018 17:05
To: 'mike.sharpin@epa.nsw.gov.au' <mike.sharpin@epa.nsw.gov.au>
Cc: Sam Blanco <SBlanco@ARTC.com.au>
Subject: FW: Request for Feedback - Inland Rail Parkes to Narromine Construction Management Plans
Importance: High

Hi Mike,

We spoke earlier this afternoon regarding feedback for the Inland Rail Management Plans.

Please see below for the email sent to Jacinta on the 27th of September and the relevant plans. Please provide any feedback on these plans to ARTC by **COB Monday 15 October 2018**.

Thanks again for chasing this up for us, looking forward to speaking soon. If you have any questions, please feel free to contact myself or the Project Environment Advisor Sam Blanco on 0409 510 555.

Kind regards,

Valerie Donat
Environment Officer
Environment team

ARTC

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M. 0409 092 406
E. VDonat@ARTC.com.au

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From: Sam Blanco
Sent: Thursday, 27 September 2018 17:08
To: 'Jacinta.Hanemann@epa.nsw.gov.au' <Jacinta.Hanemann@epa.nsw.gov.au>
Cc: Sarah Connelly <SConnelly@ARTC.com.au>; Stephanie Mifsud <SMifsud@ARTC.com.au>
Subject: Request for Feedback - Inland Rail Parkes to Narromine Construction Management Plans

Hello Jacinta,

Your details were given to me by Stephanie Mifsud in relation to the liaising with the Environment Protection Authority concerning the development of two construction environmental management sub-plans as mandated by the Inland Rail - Parkes to Narromine Project (the Project) Conditions of Approval (refer to attached correspondence). The plans I am referring to are the Noise and Vibration Construction Environmental Management Sub-plan and the Hazardous and Contaminated Materials Construction Environmental Management Sub-plan. These plans have been developed by the Project Principal Contractor (INLink).

Therefore, please refer to the attached cover letter outlining the current status of the Project as well as INLink's Noise and Vibration and Hazardous and Contaminated Materials Construction Environmental Management sub-plans.

If you have any questions or would like to discuss further, please feel free to contact me on the undersigned.

Sam Blanco
Project Environmental Advisor - NSW
Inland Rail



P. 07-3727 3437
M. 0409 510 555
E. SBlanco@ARTC.com.au

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Sam Blanco

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Sent: Friday, 12 October 2018 4:05 PM
To: mike.sharpin@epa.nsw.gov.au
Cc: Sam Blanco
Subject: FW: Request for Feedback - Inland Rail Parkes to Narromine Construction Management Plans
Attachments: FW: Inland Rail and EPA Consultation; 5-0012-240-EEC-00-PJ-0011_Haz and Contam_B.pdf; 5-0012-240-EEC-00-PJ-0002_NVMP_D.pdf; 5-0000-240-EAP-00-LT-0019 Letter to EPA - NVMP and HCMMP - 270918.pdf

Importance: High

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Valerie Donat
Environment Officer
Environment team

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If you have any questions or would like to discuss further, please feel free to contact me on the undersigned.

Sam Blanco
Project Environmental Advisor - NSW
Inland Rail

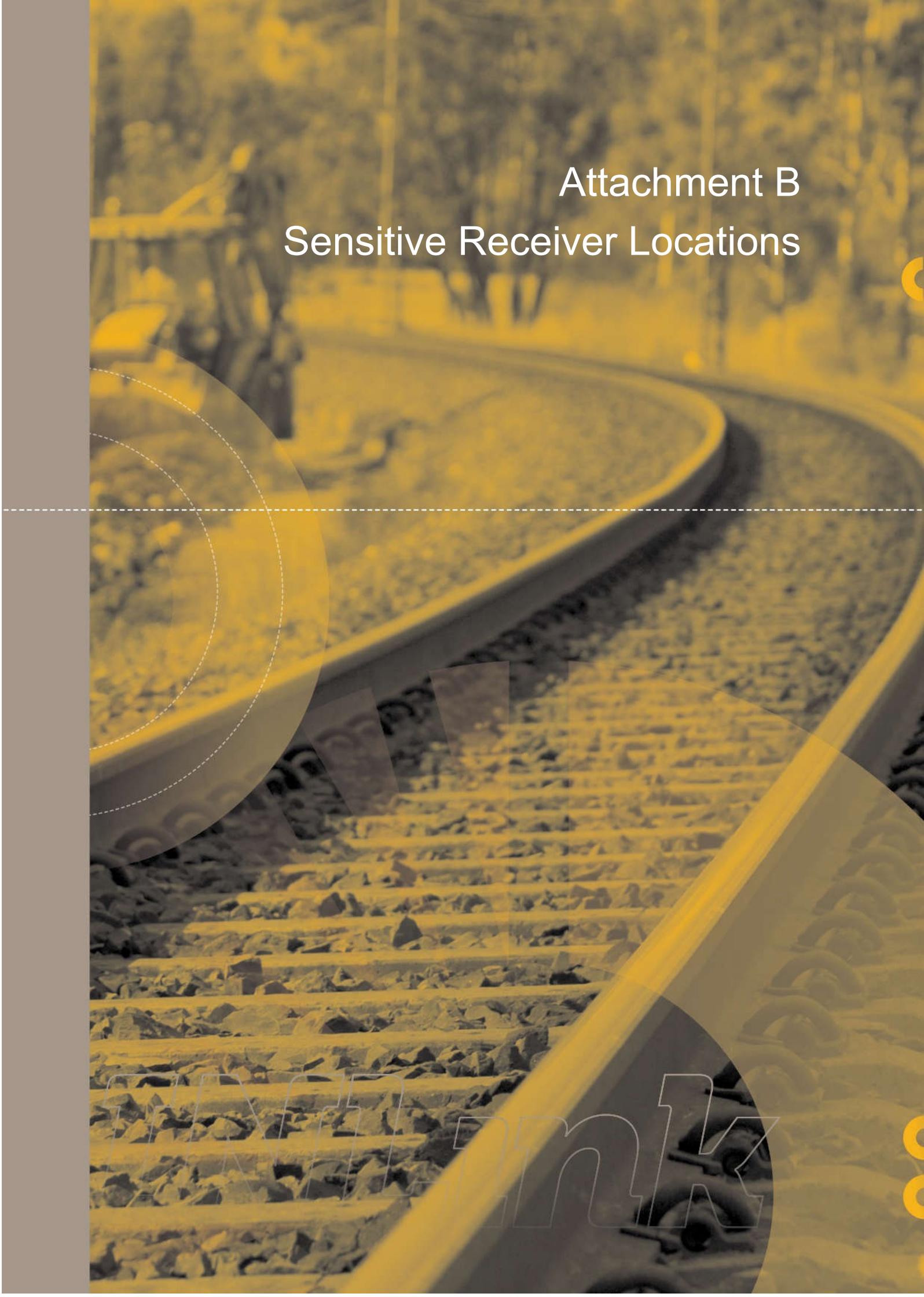


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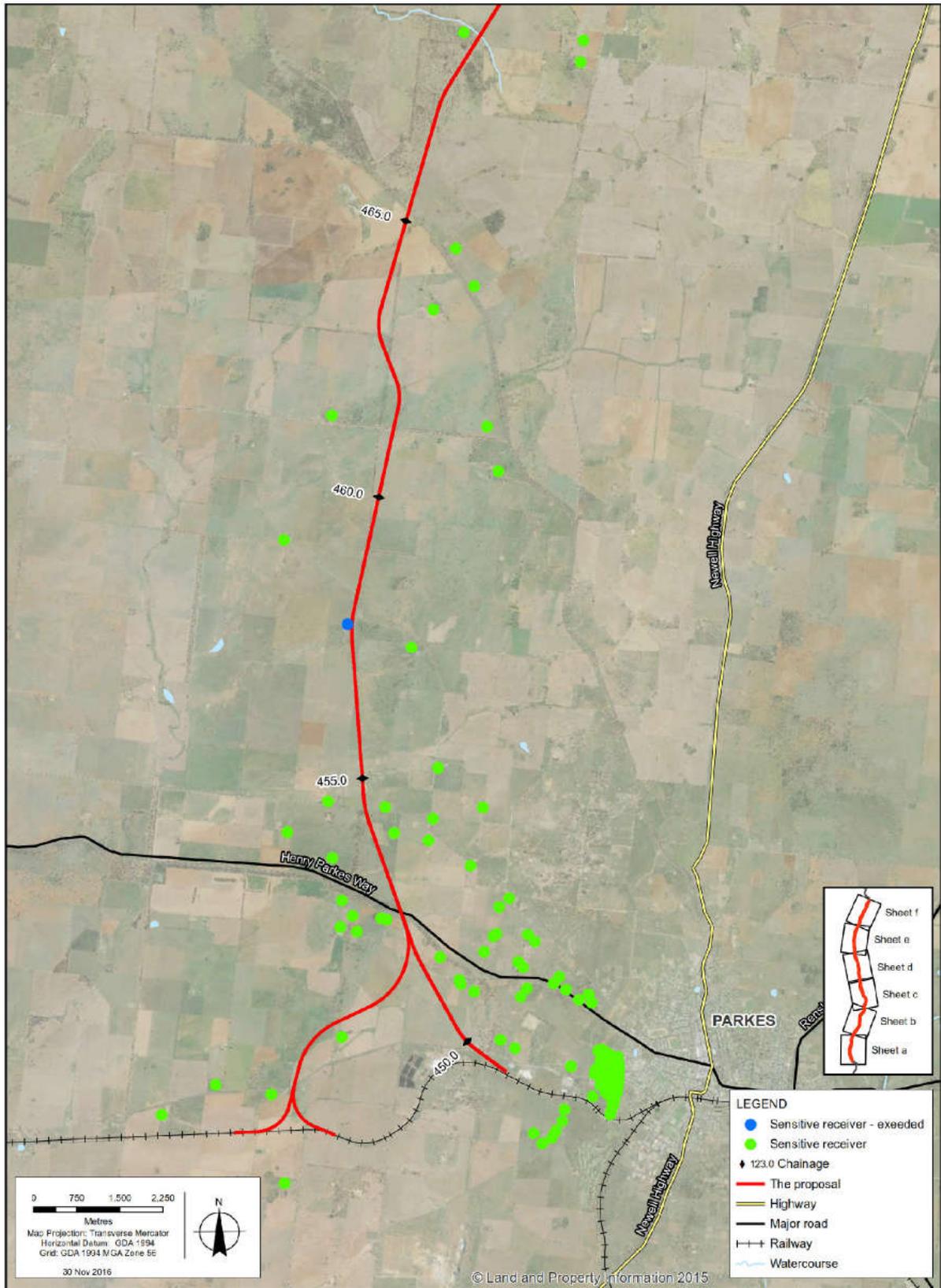


Attachment B
Sensitive Receiver Locations

AMT
ink

Noise and Vibration Management Plan

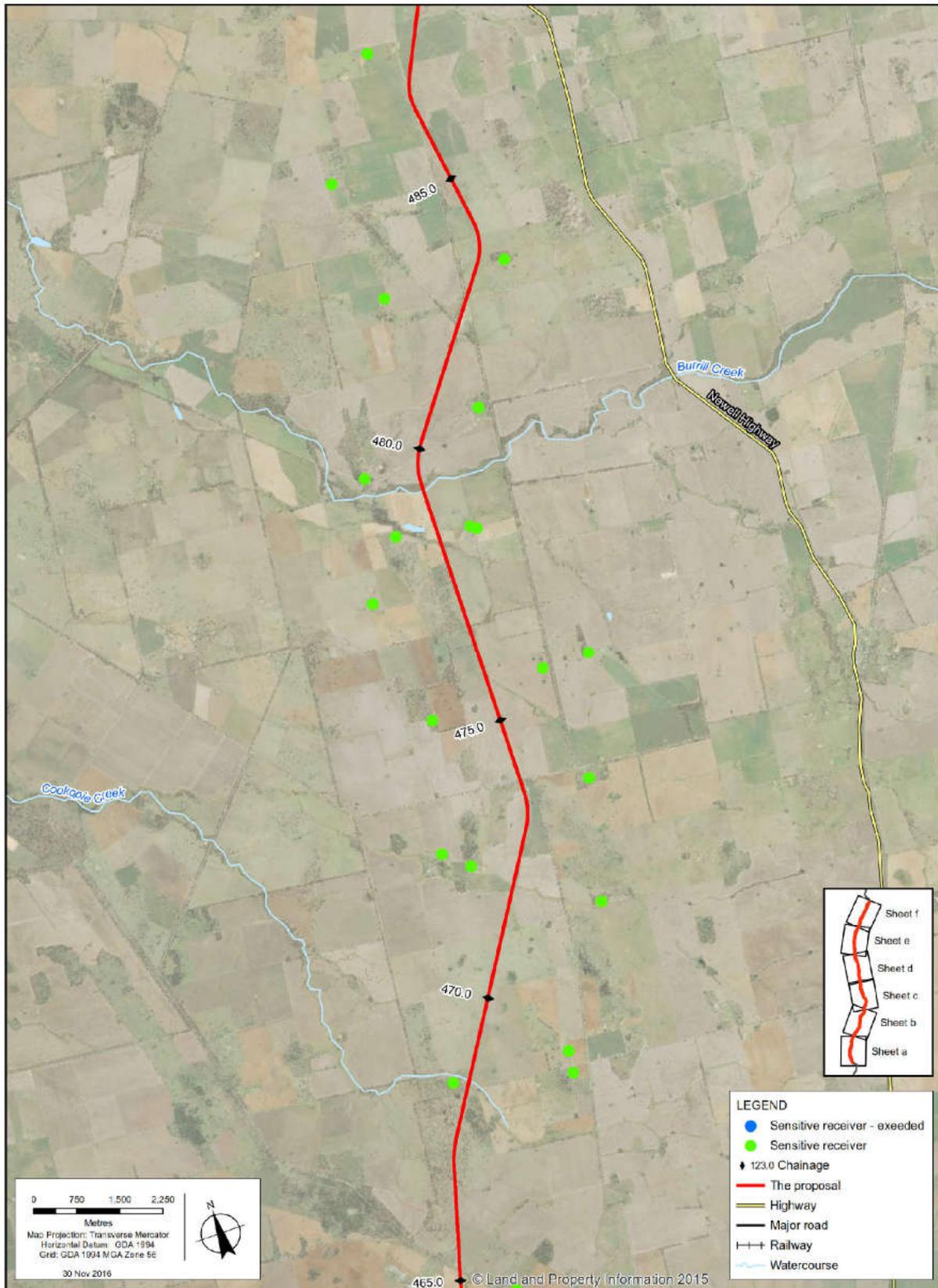
Parkes to Narromine Inland Rail Project



Sensitive Receiver Locations – Map 1

Noise and Vibration Management Plan

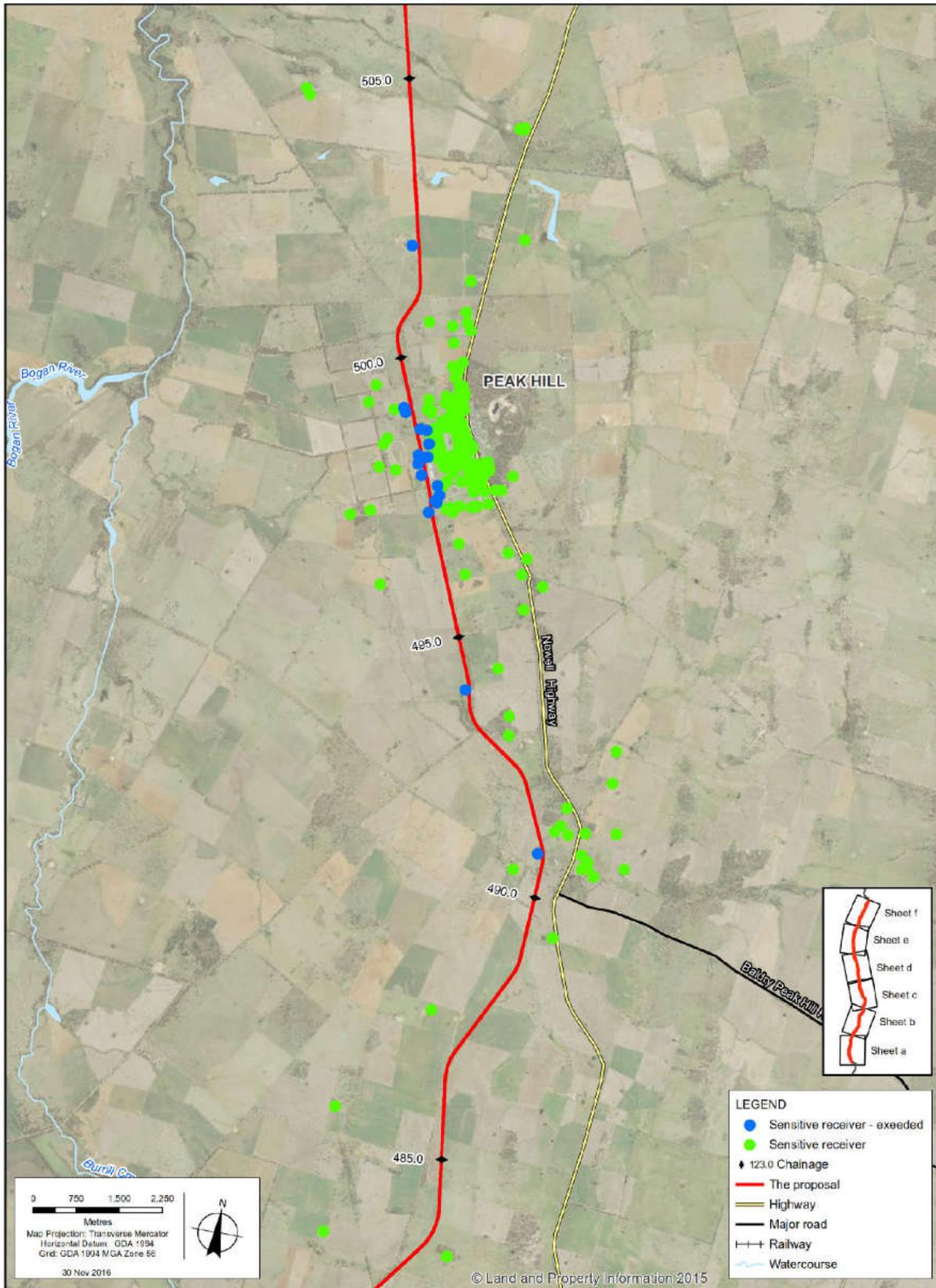
Parkes to Narromine Inland Rail Project



Sensitive Receiver Locations – Map 2

Noise and Vibration Management Plan

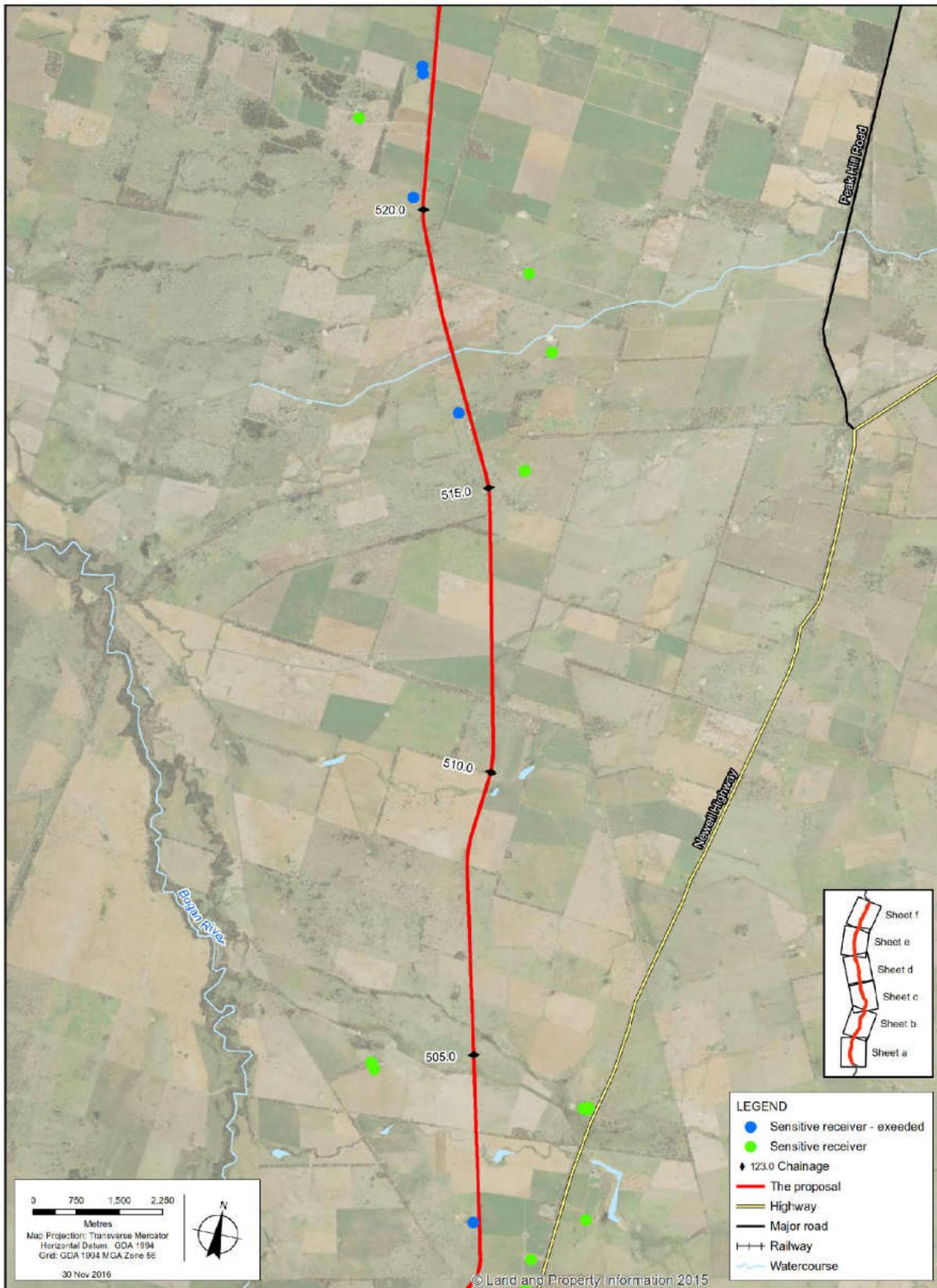
Parkes to Narromine Inland Rail Project



Sensitive Receiver Locations – Map 3

Noise and Vibration Management Plan

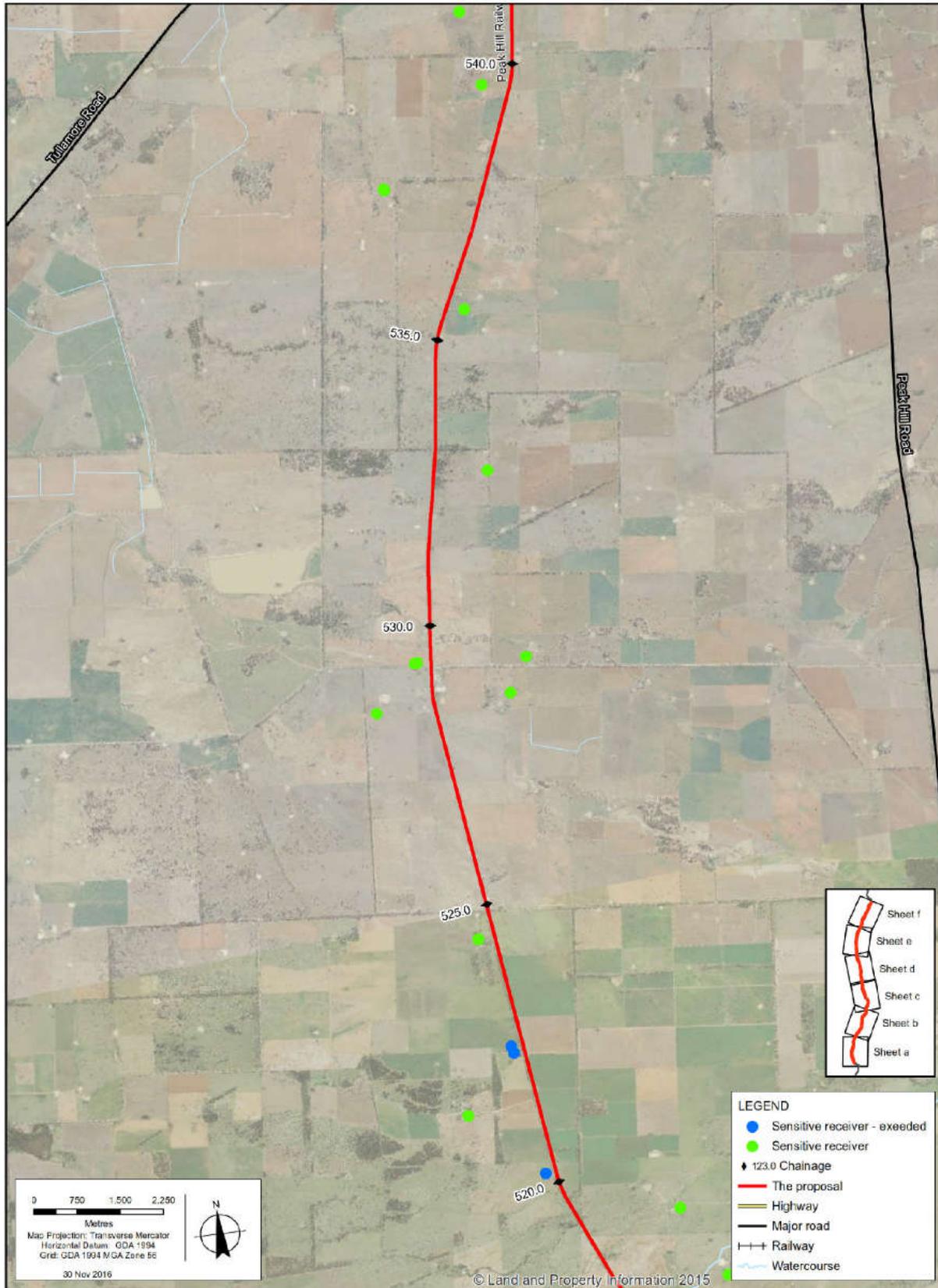
Parkes to Narromine Inland Rail Project



Sensitive Receiver Locations – Map 4

Noise and Vibration Management Plan

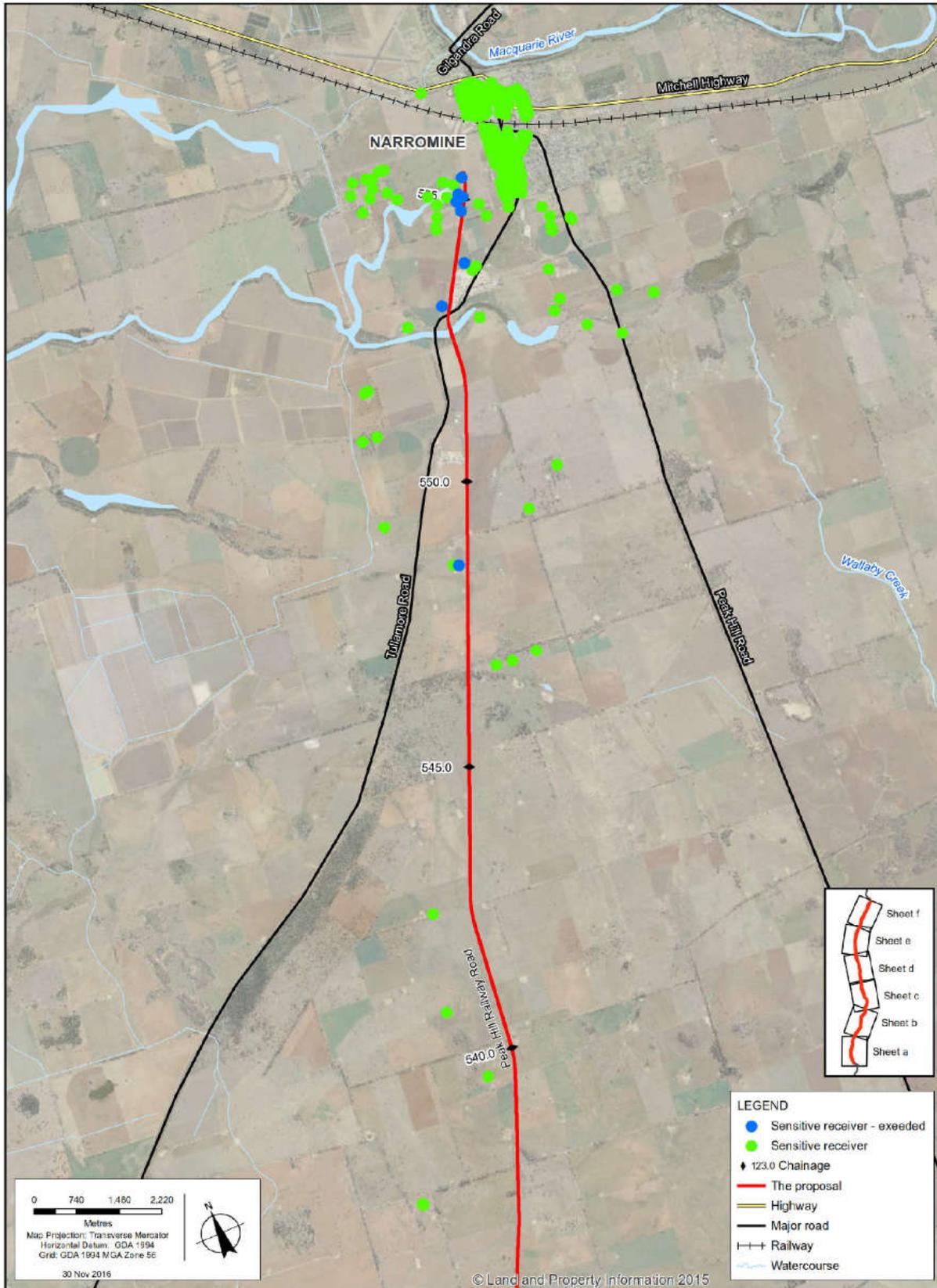
Parkes to Narromine Inland Rail Project



Sensitive Receiver Locations – Map 5

Noise and Vibration Management Plan

Parkes to Narromine Inland Rail Project



Sensitive Receiver Locations – Map 6



INLink

IN your region. IN it for you.