Operational Rail Noise
EHTM Attachment 7B

[EPA: Guidelines for the Assessment of Noise from Rail Infrastructure]
Document Amendment Record

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## Contents

**Abbreviations**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Introduction</td>
<td>1</td>
</tr>
<tr>
<td>2 Performance outcomes</td>
<td>1</td>
</tr>
<tr>
<td>3 Process for Assessing Noise from Rail Infrastructure</td>
<td>1</td>
</tr>
<tr>
<td>3.1 Determining the Application of the GARNI</td>
<td></td>
</tr>
<tr>
<td>3.2 Noise Mitigation</td>
<td>1</td>
</tr>
<tr>
<td>4 Verification and Validation</td>
<td>1</td>
</tr>
<tr>
<td>5 Reporting and Deliverables</td>
<td>2</td>
</tr>
<tr>
<td>5.1 Planning and Concept Design</td>
<td>Error! Bookmark not defined.</td>
</tr>
<tr>
<td>5.2 Detailed design</td>
<td>Error! Bookmark not defined.</td>
</tr>
<tr>
<td>5.3 Operation and handover</td>
<td>3</td>
</tr>
</tbody>
</table>
## Abbreviations

<table>
<thead>
<tr>
<th>Term / Acronym</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract Documentation</td>
<td>Contract Scope and Technical Requirements; Functional and Operational Requirements; Contract or Project Scope</td>
</tr>
<tr>
<td>DIT – the Department</td>
<td>Department for Infrastructure and Transport</td>
</tr>
<tr>
<td>EHIA</td>
<td>Environment and Heritage Impact Assessment</td>
</tr>
<tr>
<td>EHIA</td>
<td>Environment and Heritage Impact Assessment Report</td>
</tr>
<tr>
<td>EHTM</td>
<td>Environment and Heritage Technical Manual</td>
</tr>
<tr>
<td>FTS</td>
<td>Façade Treatment Scope</td>
</tr>
<tr>
<td>GARNI</td>
<td>SA EPA Guidelines for the Assessment of Noise from Rail Infrastructure</td>
</tr>
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<td>IFC</td>
<td>Issued for Construction</td>
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<tr>
<td>SA EPA</td>
<td>South Australia Environment Protection Authority</td>
</tr>
</tbody>
</table>
1 Introduction

The South Australian Environment Protection Agency (SA EPA) released the Guidelines for the Assessment of Noise from Rail Infrastructure (GARNI). The GARNI include approaches for the assessment of noise and vibration from new or upgraded railways as well as for new noise sensitive developments near railway lines.

The Department for Infrastructure and Transport (the Department) is responsible for applying the GARNI to the delivery of rail infrastructure projects for the Adelaide Metropolitan Rail Passenger Network and the Light Rail Network when within the scope of the Guidelines.

This Guideline forms Attachment 7B of the Environment and Heritage Technical Manual (EHTM).

2 Performance outcomes

In order to meet the performance requirements under this Section, unless specified otherwise in the Contract Documentation, the following shall be achieved:

- Completion of a rail noise assessments that demonstrates compliance with applicable legislation and the GARNI; and
- Identification of noise mitigation to be provided in accordance with the GARNI.

3 Process for Assessing Noise from Rail Infrastructure

The process to be followed for assessing noise from rail infrastructure is provided in the GARNI which is available at www.epa.sa.gov.au.

Any clarification relating to the implementation of the GARNI shall be sought from the SA EPA and provided to the Department’s Technical Services Environment and Sustainability Unit.

The Department’s infrastructure projects shall meet the requirements of the GARNI and the following requirements.

3.1 Determining the Application of the GARNI

Where clarification is required advice shall be sought from the SA EPA regarding the application of the GARNI to the Department’s rail infrastructure projects.

3.2 Noise Mitigation

Where the rail noise assessment has determined that noise mitigation is required it shall be designed and implemented in accordance with the requirements of the GARNI and the process provided under the Department’s Master Specification PC-ENV4 “Noise”.

4 Verification and Validation

Following opening of the project, noise assessment verification shall be undertaken to verify that the noise mitigation implemented complies with the relevant noise criteria specified in the GARNI and the noise assessments by completing verification noise monitoring and modelling.

Validation of the noise model is to be undertaken during preparation of the following:

- Preliminary Noise Assessment and Mitigation Report undertaken during the Pre-Delivery phase
- Noise Modelling and Mitigation Design Report undertaken during the Delivery Phase. Note that results from noise monitoring undertaken during the Pre-Delivery phase can be used where appropriate.
- Noise Treatment Validation and Closure Report undertaken post project completion.

The intent of the validation process is to verify that the modelling assumptions and methodology through each of the project phases is sufficiently accurate and representative of the existing and future project conditions.

Post project opening, noise monitoring shall be undertaken as a minimum at or as near as possible to the previously monitored locations to validate the accuracy of the noise modelling process.
5 Reporting and Deliverables

Unless otherwise specified in the Contract Documentation the following deliverables apply to each phase of the project. These deliverables shall be provided the Department's Technical Services Environment and Sustainability Unit and Independent Design Certifier for review and acceptance and the SA EPA for acceptance (where specified or required under the GARNI).

5.1 Proving Phase

During the Proving Phase (planning/concept development/route selection) of a project, information may be required for input into planning study documentation (or similar), the Environment and Heritage Impact Assessment Report (EHIA) and to inform the cost estimation of the project.

An assessment to determine the applicability, or otherwise, of the GARNI, based on the scope of the project and the principles of application of the above noise guideline(s), shall be undertaken and used to identify the need for further assessment upon selection of the preferred design. This assessment shall be included as part of the preliminary and detailed EHIA documentation.

5.2 Pre-delivery/Delivery Phase

5.2.1 Preliminary noise and vibration assessment report

During the Pre-delivery Phase of the project or once a preferred (or reference) design has been selected, the applicability of GARNI must be assessed, or reassessed. Where there is a change in the scope of the project or design modifications, the applicability of this Guideline must be reassessed.

During the Pre-delivery Phase, where the noise guidelines are deemed to apply, a Preliminary Noise Assessment and Mitigation Report will be undertaken in accordance with the requirements of the Master Specification Part PC-ENV4. The report shall address the 'Documentation' requirements under the GANRI. The outcomes of this assessment will be included in the project's Detailed EHIA Report.

5.2.2 Detailed noise and vibration assessment report

When the project moves into detailed design, a Noise Modelling and Mitigation Design Report shall be prepared in accordance with Master Specification Part PC-ENV4.

Prior to undertaking noise modelling the design basis (identifying relevant criteria) for the detailed noise and vibration assessment shall be agreed with the Department.

**Deliverable:**

*Noise Modelling and Mitigation Design Report*

Report that addresses the requirements for Design Reports of the Department’s Master Specification Part PC-EDM1 Design Management and the ‘Documentation’ requirements under the GARNI for Rail Noise and Vibration Assessments and in addition include:

- Noise mitigation treatment plans e.g., noise barrier locations/heights and identified properties eligible for consideration of facade treatments, including the maximum Facade Treatment Package (FTP) level applicable for each dwelling.

Where noise barriers or mounds are identified within the Noise Modelling and Mitigation Design Report, detailed design drawings including details of barrier locations, heights, materials, finishes, drainage and maintenance considerations, urban design, typical construction details, start and end chainage, total length shall be included in the relevant multi-discipline design reports.

5.2.3 Facade treatment reports

Where facade treatment to Noise Sensitive Receivers has been identified in the Noise Modelling and Mitigation Design Report and agreed as a mitigation measure, each property is to be inspected to determine eligibility for treatment. Those properties identified to receive facade treatment are then eligible to be issued a Façade Treatment Scope of Works (FTSW) document for approval by the property owner prior to the implementation of the treatment measures. The FTSW deliverable requirements are outlined below.
Deliverable:

Facade Treatment Scope of Works (FTSW)

The FTSW document prepared for each eligible property shall, at a minimum, include:

• a floor plan detailing building orientation, room use and applicable treatment package;
• scope of noise mitigation treatment to be offered;
• information regarding fixtures identified for treatments (measurements, photographs, observations regarding practical implications for installation); and
• photographs of pre-existing conditions and work area.

Ensure that when designing mitigation treatments, consideration is given to the existing property features to ensure that (where reasonable and practical) proposed treatments conform to the existing style and character.

Note that the FTSW document must be suitable for issue to both the property owner for approval and the building contractor to implement the works. Where a property has been inspected and determined to be ineligible for treatment, a report should be prepared describing the inspection and reason(s) why no treatment should be implemented.

5.2.4 Post-construction Validation

The intent of the validation process at project completion is to confirm that the projects implemented noise treatment strategy meets the requirements of the GANRI. Further to the documented validation of the noise modelling predictions, the closure report also serves as a consolidated record of the 'as-built' noise treatment undertaken for future reference by the Department should community queries arise.

Deliverable:

Noise Treatment Validation and Closure Report

A report that address the ‘Documentation” requirements under the GARNI (Post-construction monitoring results) and includes the following:

• a summary of noise treatment across the project;
• a record of the noise mitigation implemented;
• details of properties that have received a façade treatment package in accordance with the GARNI;
• plans showing noise contours and mitigation locations including identification of façade noise treatment packages; and
• GIS shapefiles of noise contours and façade noise treatment packages applied to each property.