

BRIDGE POLICY CIRCULAR

BPC 2004/08

SUBJECT: INSPECTION OF MODULAR BRIDGE EXPANSION JOINTS AND CONTROL OF NOISE

No. Drawings Following	0	No. Appendix Sheets Following	0
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Background

Large modular bridge expansion joints are known to contribute to environmental noise due to an interaction between the vibrational modes of the joint and the acoustic modes of the abutment cavity below the joint. Past bridge designs have not allowed for the installation of effective noise abatement systems, and have also ignored the requirements for inspection and maintenance of these large expansion joints.

Current Position

RNI funded R&D Project R99-B003 resulted in the development of a noise abatement solution to the environmental noise associated with modular bridge expansion joints. This solution utilises a Helmholtz Absorber and its installation can reduce noise emissions by up to 10 dBA. A reduction of 10 dBA is equivalent to a halving of the perceived loudness of the noise.

A Helmholtz Absorber is approximately 600 mm deep and for its installation an additional 600 mm needs to be provided between the long walls of the abutment cavity, in addition to the space needed for inspection and maintenance of the joint.

Action Required

Designers and Project Managers must ensure that all abutments underneath modular bridge expansion joints have sufficient space within the abutment cavity if the installation of a Helmholtz Absorber for noise abatement is required after post commissioning noise measurements identify an actual or likely noise nuisance. The Helmholtz Absorber may cover all of one long wall of the abutment cavity. Sufficient space must also be provided for inspection and maintenance of the joint.



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16 September 2004

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