

An Bord Pleanála Oral Hearing

Córas Iompair Éireann/Iarnród Éireann

Dublin to Cork Railway Line Level Crossings

Brief of Evidence

Noise and Vibration

Chris Conroy

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Noise and vibration**

1. QUALIFICATIONS AND ROLE IN THE PROPOSED PROJECT

- 1 My name is Chris Conroy. I am a Senior Acoustician at Jacobs. I hold a MA(Hons) degree in Geography and History from the University of Dundee and a Master of Science degree in Geographical Information Systems (GIS) from The University of Ulster. I obtained the Diploma in Acoustics and Noise Control from the Institute of Acoustics (IOA) in 2019 and I am an Associate Member of the IOA (AMIOA).
- 2 In accordance with Section 39(1)(a) of the Transport (Railway Infrastructure) Act 2001 as amended and substituted (including by SI 743 of 2021), I confirm that I have over 12 years' experience undertaking and managing noise and vibration assessments mainly in the transport sector throughout Ireland and the UK. I have completed a noise assessment for a temporary bus depot in Jamestown, Dublin. I completed noise assessments for the Cork Light Rail Transit (LRT) Scheme, the N22 Farranfore to Kilkenny Road scheme, the Kildare-Meath Electricity Grid Upgrade scheme and the North Dublin Electricity Reinforcement Project. I compiled the Northern Ireland Roads Noise Action Plan for Round 3 in relation to the Environmental Noise Directive.
- 3 I have been involved in the Project since 2019 and my involvement culminated in the preparation of the Noise and Vibration Chapter (Chapter 10) in Volume 3 Part A of the EIAR which was submitted to An Bord Pleanála in April 2021.
- 4 Chapter 10 in Volume 3 Part A of the EIAR was prepared with the benefit of inputs from a number of noise and vibration specialists, including Mark Walker, and Robert Mansfield.
- 5 I confirm that this statement of evidence addresses the potential impacts on noise and vibration in the context of the Environmental Impact Assessment (EIA) carried out by An Bord Pleanála in respect of the Project.
- 6 Together with the other Assessments which comprise the Environmental Impact Assessment Report, this Statement reflects the assessment prepared in Chapter 10 (Noise and Vibration) which comprise part of the assessments which comprise the environmental impact assessment report for this Railway Order Application, and which inter alia contains:
 - i. A description of the proposed railway works comprising information on the site, design, size and other relevant features of the proposed works;
 - ii. A description of the likely significant effects of the proposed railway works on the environment;
 - iii. The data required to identify and assess the main effects which the proposed railway works are likely to have on the environment;
 - iv. A description of any features of the proposed railway works, and of any measures envisaged to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;
 - v. A description of the reasonable alternatives studied by CIÉ which are relevant to the proposed railway works and their specific characteristics and an indication of the main reasons for the option chosen, taking into account the effects of the railway works on the environment; and
 - vi. A summary in non-technical language of the above information.

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2. OVERVIEW OF NOISE AND VIBRATION ASSESSMENT

- 7 The approach to assessing the noise and vibration impacts is based on industry recognised methodology. The operational phase assessment was undertaken in accordance with the National Roads Authority (NRA) Guidelines for the Treatment of Noise and Vibration in National Roads Schemes (TII (formerly NRA) 2004) with further guidance taken from the Good Practice for the Treatment of Noise during the Planning of National Road Schemes (TII (formerly NRA) 2014). The construction phase assessment was undertaken in accordance with the methodology in BS 5228-1 and BS 5228-2 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise and Part 2: Vibration.
- 8 The noise and vibration chapter of the EIAR contains an assessment of the effects of the proposed Project on sensitive receptors within 300m from each of the proposed crossings during the operational and construction phases. The operational phase refers to the assessment of the change in traffic noise levels as a result of each of the proposed crossings.
- 9 During the operational phase no significant noise effects were predicted at any of the proposed crossings. No sensitive receptors were assessed as requiring mitigation in line with the TII noise mitigation criteria.
- 10 Construction noise and vibration levels will be reduced to acceptable levels by implementing a Best Practicable Means (BPM) approach to construction works. This would include implementing noise mitigation measures such as:
 - The use of appropriate noise abatement site hoardings and screens;
 - The use of effective sound reducing enclosures; and
 - Other mitigation measures as listed in the EIAR.
- 11 By implementing the above measures, construction noise levels are anticipated to be reduced by around 10dB. For example, in considering site hoardings alone, BS 5228 states a 10 dB reduction in noise levels is achievable when the noise screen completely hides the sources from the receiver.
- 12 Mitigation measures in relation to construction noise and vibration are considered environmental conditions in relation to a Railway Order as defined in Section 43A of S.I. 743/2021.

3. SUBMISSIONS/OBJECTIONS RECEIVED AND RESPONSES

- 13 In relation to the issues raised in submissions and observations, 10 submissions raised general concerns about the potential noise and vibration impacts at noise sensitive receptors as a result of the project.
- 14 In addition to my responses below, these matters are also addressed on behalf of CIÉ in Chapter 10 and at sections 10.6 and 10.7 of the EIAR which identify and evaluate the construction and operational phase effects of the project on noise and vibration sensitive receptors. No significant noise effects were predicted during the operational phase therefore no mitigation is required. Section 10.7 of the EIAR states in relation to the construction noise assessment that: noise levels will be reduced to acceptable levels by implementing appropriate mitigation measures detailed in the chapter. Section 10.7 of the EIAR states in relation to the construction vibration assessment that: vibration levels will be reduced to acceptable levels by implementing appropriate mitigation measures detailed in the chapter.

(A) Responses to Issues in Submissions

XC212

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Submission (Board of Management Ballyhea National School):

- 15 It is expected that the noise levels will increase and have potentially negative effects on the school rooms facing towards the south.

Response

- 16 Road traffic noise levels will decrease by 4dB at the school as a result of the proposals because the road will move around 30m from its existing position. This equates to a permanent perceptible reduction in noise levels as a result of the proposed project.
- 17 Construction noise levels will vary throughout the construction period depending on the works undertaken and the proximity to the school. The construction of the proposed Project is expected to last approximately one year.
- 18 Construction noise levels will be reduced to acceptable levels by implementing the following mitigation measures:
- Use of appropriate noise abatement site hoardings and screens;
 - The use of effective sound reducing enclosures;
 - Other mitigation measures as listed in the EIAR.
- 19 By implementing the above measures, noise levels are anticipated to reduce by around 10dB at the school. Noise levels during construction were predicted at 90dB during the worst-case phase but this is a worst-case scenario assuming plant is operating constantly and at the same time, and all plant is located 15m from the school. In reality the plant is likely to operate further away from the school and not operate constantly. For example, the middle of the construction site is around 70m from the school which would result in noise levels of 73dB at the school. This location can be considered to be representative of a typical noise emission from the site. Applying a 10dB reduction for the noise mitigation measures gives a noise level of 63dB at the school. This is below the 65dB threshold level as stated in the EIAR and within acceptable limits.
- 20 The highest noise levels are expected to occur during the road surfacing phase which is expected to last for 8 weeks. Therefore, this element of the works should be programmed during the school holidays. Other noisy works should be undertaken outside school hours where feasible.

Submission (John Dundon (and Others), Michael Mackessy (and Others), Michael O Kelly (and Others), Maria McNerney, Michael Copps, John Mortell (and Others) and Dennis and Margaret Ring)

- 21 In 2010 our views were made known to CIE and Cork County Council about a similar bridge. They included noise levels, loss of green space, bridge situated too close to houses and the school, and devaluation of property. All of those issues were then accepted as reasonable by Cork County Council and still are valid.

Response

- 22 Road traffic noise levels will either stay the same or decrease at the closest properties (including the school) to the crossing. This is because the road is around 30m further away from the closest properties including the school.

Submission (Ian Doyle):

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23 Noise levels will be amplified by height.

Response

24 Noise levels will be reduced or stay the same as a result of the proposals because the road is moving around 30m further away from the closest properties including the school.

XC219

Submission (Michael Kennedy and Deirdre Reilly)

25 In the vicinity of our clients house the new road would be both closer than and considerably higher than the existing road traffic would have to cross the proposed new culvert on our clients' side of the bridge and the bridge itself which would generate more noise than traversing a ground supported road. The road would be completely open, there would be no roadside absorption of any nature. The proposed road would generate a significant increase in noise at our clients' house in respect of which there is no consideration or provision. The route (green route) moves traffic closer to our clients house and will result in significant increase in noise levels. Noise mitigation measures are essential. It is noted that the EIA concludes that "No significant noise effects were predicted during the operation phase therefore no mitigation is required". It is unclear what boundary treatments were assumed for the raised embankment/bridge to arrive at this conclusion. The on-going use of the Buttevant Train station as a maintenance depot noise generated by this depot has been extremely impactful on our clients. Noise barriers should be provided to control noise impact from the depot.

Response

26 The assessment predicted that traffic noise levels would remain the same at the north-east facade of this property, i.e., the facade facing the existing road. The position of the road directly in front of the property (the north-east facade) does not change as a result of the scheme; however, it is true that the road gets slightly closer to the north-west and south-west facades of the property and is predicted to result in an increase in noise levels of more than 1dB. The TII guidelines state that noise mitigation should be applied if the following three conditions are met: the 'relevant' noise level from the proposed scheme and any other roads is greater than 60dB L_{den} ; the 'relevant' noise level is at least 1dB more than the noise level without the scheme; and the contribution to the increase in the 'relevant' noise level from the proposed scheme is at least 1dB. However, the relevant noise level at all facades of the property is predicted to be well below 60dB L_{den} ; therefore, mitigation measures are not required. This methodology is in line with current best practice when assessing traffic noise impacts.