Birmingham Eastside Extension

APP/P5.2

Transport and Works Act 1992

The Transport and Works
(Applications and Objections Procedure)
(England and Wales) Rules 2006

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Rupert Thornely-Taylor
Noise and Vibration
Summary Proof of Evidence

WEST MIDLANDS
COMBINED AUTHORITY

TRANSPORT AND WORKS ACT 1992

PROPOSED MIDLAND METRO (BIRMINGHAM EASTSIDE EXTENSION) ORDER 201[X]

SUMMARY PROOF OF EVIDENCE

OF

Rupert Thornely-Taylor
Noise and Vibration

FOR

WEST MIDLANDS COMBINED AUTHORITY

13 October 2017

CONTENTS

1. REVIEW OF CURRENT POLICY AND PRACTICE IN NOISE CONTROL

1.1 National Policy

1.1.1 National noise policy is to be found in The National Planning Policy Framework, the Noise Policy Statement for England, and the national planning practice guidance web-based resource to support the NPPF. The guidance makes use of the Lowest Observed Adverse Effect Level (LOAEL) above which noise should be mitigated and minimised and the Significant Observed Adverse Effect Level (SOAEL) exceedance of which should be avoided.

1.2 Regional and local Policies

1.2.1 The Birmingham Development Plan 2031 sets out a vision and a strategy for the sustainable growth of the City.

1.3 Other planning considerations

1.3.1 A Birmingham City Council document “EPU Response to Planning Consultation Note. 1 Noise & Vibration” is referred to in the Environmental Statement.

1.4 The Design Manual for Roads and Bridges

1.4.1 The Design Manual for Roads and Bridges (DMRB) describes a methodology for the assessment Noise and Vibration impacts from road projects in the UK.

1.5 World Health Organization Guidance

1.5.1 Current guidance on noise has been based on the World Health Organization Community Noise Guidelines and the Night Noise Guidelines for Europe.

1.6 Controls on Construction Activities

1.6.1 Noise and vibration impacts from construction will be subject to the provisions of the Control of Pollution Act, 1974, Sections 60 and 61 and to the Code of Construction Practice (CoCP).

1.6.2 The CoCP sets out façade noise limits for occupied dwellings and the circumstances and procedure for offering noise insulation or temporary rehousing.

1.7 Controls on Operational Noise and Vibration

1.7.1 The project has a Noise and Vibration policy setting out its commitments regarding operational noise and vibration.

2. SUMMARY OF WORK CARRIED OUT

2.1 Introduction

2.1.1 Following the publication of the ES, revised traffic modelling has taken place and the Update to the Environmental Statement of October 2017 includes a noise chapter giving the revised assessment and an update of the prediction and assessment of groundborne noise from the operation of trams. An erratum note and a revised plan of the study area, which do not materially change the outcome of the assessment, have been prepared containing amended versions of tables 3.6, 3.7 and 3.8.

2.2 Geographical Scope

2.2.1 The geographical scope for the construction assessment was determined using professional judgement and for the operational noise assessment using the method set out in paragraphs 10.2.75 to 10.2.77 of the ES.

2.3 Temporal scope

2.3.1 For the construction phase, the period considered is the duration of the construction programme which is expected to run from 2019 to 2022**.**

2.3.2 For the operational phase, the period considered extends to the lifetime of the system.

2.4 Receptors considered

2.4.1 The resources and receptors with high sensitivity have been identified as residential properties, hotels and places of worship. Medium sensitivity receptors are considered to be commercial premises including offices and shops, subject to professional judgement.

2.4.2 Receptors assessed as being potentially affected by effects due to construction works are listed in table 10.4 of the ES. Streets containing receptors assessed as being potentially affected by the operation are listed in table 10.19 of the ES which is updated in Appendix 4 of my evidence.

2.5 Baseline noise levels

2.5.1 Ambient noise levels were monitored during the period November 2015 to June 2016 in locations shown in Figure 1.3 of Technical Appendix M1 of the ES where the summary of the results is given in Table 1.7.

2.5.2 Measured baseline noise levels at the monitoring locations listed in Table 10.4 are summarised in Table 10.15.

2.6 Evaluation Criteria

2.6.1 In line with the NPPF and associated NPSE, the SOAEL and LOAEL are defined for each class of receptor, against which predicted noise levels are assessed, before mitigation measures are proposed where exceedances of the SOAEL and/or LOAEL are identified.

2.6.2 The evaluation of noise and vibration effects due to surface construction works including construction traffic is based upon criteria that are referred to in paragraph 2.7.2 of my proof of evidence.

2.7 Construction – Noise and Vibration

2.7.1 Levels generated are significant if they exceed the SOAEL values in the ES Table 10.9 and the total noise including the pre-construction baseline exceeds the pre-construction baseline by 5dB or more.

2.7.2 Changes in road traffic flow have been assessed using the approach of the Highways Agency's "Design Manual for Roads and Bridges". This takes into account construction traffic using the highway and non-construction traffic diverted from its normal route.

2.7.3 Criteria for assessing three potential vibration effects are set out in the CoCP section 5.1, Table 10.10 and paragraph 10.2.136 of the ES and the promoter's Noise and Vibration Policy.

2.8 Operation

2.8.1 Noise from trams has been assessed using the criteria given in table 10.11 and paragraph 10.2.137 of the ES.

2.8.2 Substation noise has been assessed using the criteria given in table 10.13 of the ES.

2.8.3 The significance criteria for effects of 'feelable' vibration from trams on people in buildings use guidance provided in the relevant British Standards.

For secondary noise radiated into sensitive spaces by vibrating wall, floor and/or ceiling surfaces, effect thresholds are set out in table 3.9 of the ES Update.

3. PROPOSED CONTROLS ON NOISE AND VIBRATION

3.1 Construction

3.1.1 The draft CoCP requires the contractor to apply for a consent under Section 61 of the Control of Pollution Act 1974 and for noise limits to be agreed with the local authority.

3.1.2 Sections 60 and 61 have the effect of securing the “best practicable means” (BPM) for reducing noise and vibration.

3.1.3 A key mechanism for managing the impact of noise will be through adherence to site working hours.

3.2 Operation

3.2.1 Incorporated mitigation of operational noise and vibration consists of the provision of resilient rail encapsulation and, if required, floating track slab. Additional potential sources of noise from tram operation include curving noise and wheel squeal which will be controlled by rail lubrication points, in-tram lubricators and friction modifiers.

4. OVERVIEW OF ASSESSMENT

4.1 Findings of assessment of construction phase

4.1.1 There are residual adverse effects predicted at a minority of locations, and significant effects predicted at four locations during Task 1 (road surface works) and Task 4 (Material excavation for track formation. To avoid SOAEL as required by policy the buildings concerned may be eligible for noise insulation.

4.1.2 Vibration levels are predicted to exceed SOAEL at 6 locations (10.6.15 and Table 10.4). The source in these cases is vibratory rollers, and to avoid SOAEL it will be necessary to use alternative methods of working near the relevant 6 receptors. For 12 locations likely to experience vibration above LOAEL but below SOAEL, mitigation by Best Practicable Means will be required.

4.1.3 Construction traffic will be managed via the CoCP (10.6.1), and a specific route provided to minimise any impacts at existing sensitive receptors. It is considered in the ES (10.6.12) that any noise effects can be controlled by correct traffic management procedures.

4.2 Findings of assessment of operational phase

4.2.1 In the short term there are 407 residential receptors with predicted adverse effects but no predicted significant adverse effects in the daytime period and 406 residential receptors with predicted adverse effects but no predicted significant adverse effects in the night-time period. In the long term there are is one adverse effect in the daytime only and no significant adverse effect.

4.2.2 Groundborne noise will not exceed LOAEL or SOAEL for residential receptors. A detailed assessment leading, if necessary, to consideration of mitigation through enhanced vibration isolation in the trackform and formation will be required with respect to three non-residential locations. Available methods will ensure that adequate results are obtained.

4.2.3 With regard to vibration, the ES finds that (10.7.14) neither SOAEL nor LOAEL are exceeded.

5. CONCLUSIONS

5.1.1 My evidence to this inquiry addresses the issues raised in the statement of matters.

5.1.2 My conclusions are that there are no predicted significant adverse effects caused by the operation of the scheme. In the short term only there are predicted adverse effects but no significant adverse effects The mitigation measure that is indicated as necessary in the Update to the ES is the provision of measures including friction modifiers to avoid the occurrence of wheel squeal and any significant effect therefrom.

5.1.3 As regards those significant effects that are currently predicted to occur during the construction phase, controls under the CoCP will ensure that the best practicable means will be used to control noise and vibration thereby minimising these effects. Avoidance of significant adverse effects can where necessary be achieved through the provision of noise insulation.

Rupert Thornely-Taylor

13 October 2017