

HIGH SPEED RAIL (LONDON - WEST MIDLANDS)

Supplementary Environmental Statement 3 and
Additional Provision 4 Environmental Statement

Volume 5 | Technical appendices

Wider effects report

(CT-005-000)

October 2015

SES3 and AP4 ES 3.5.1.15



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Department for Transport

High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

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1 Introduction

1.1 Overview

- 1.1.1 This document is an appendix which forms part of Volume 5 of the Supplementary Environmental Statement 3 (SES₃) and Additional Provision 4 Environmental Statement (AP₄ ES). The purpose of this document is to provide a commentary on the likely significant environmental effects which could result from a change in the scheme within the statutory limits of deviation for the SES₃ design changes and AP₄ amendments. This document should be read in conjunction with the Volume 2 community forum area (CFA) reports and map books of the SES₃ and AP₄ ES, and the corresponding Volume 5 appendices of the main Environmental Statement (ES) (CT-005-000) and the SES and AP₂ ES (CT-005-000).
- 1.1.2 The powers provided by the hybrid Bill ('the Bill') allow for changes within the statutory limits of deviation to occur where it is found that the spatial position of the HS₂ scheme may need to be adjusted, mainly for reasons of engineering practicability.
- 1.1.3 In essence these comprise lateral limits within the lines shown on the Bill plans and vertical limits not exceeding 3m upwards, and downwards to any extent, from the levels shown on the deposited sections, except for certain buildings such as stations, depots and ventilation shafts where an upper limit is specified. The limits of deviation for the tunnels allow for the tunnels to deviate so that a clearance of one tunnel diameter from any unexpected obstruction in the ground can be provided.

1.2 Analysis and assessment

- 1.2.1 A sensitivity analysis has been undertaken for each of the AP₄ amendments described in the Volume 2 CFA reports and shown in the CFA map books in order to identify where such spatial changes are feasible, and assess the environmental implications of such changes, taking account of the reported assessment of likely significant effects described for the amendments in the Volume 2 CFA reports.
- 1.2.2 The following sections describe locations within relevant CFAs which have been subject to further assessment. A commentary is provided on the likely significant environmental effects which could result from a change in the scheme within the statutory limits of deviation.
- 1.2.3 Areas where amendments to the alignment within the statutory limits of deviation are judged not to give rise to likely significant environmental effects are not considered further.
- 1.2.4 Where appropriate, references have been made to potential mitigation which could be considered in specific locations. Such mitigation could only be confirmed following further assessment and discussion with relevant stakeholders as part of the detailed design process for any alignment modifications.

1.3 Operational sound, noise and vibration considerations

Surface sections

- 1.3.1 For surface sections, to avoid or reduce significant airborne noise effects, the scheme incorporates noise barriers in the form of landscape earthworks, noise fence barriers and / or 'low-level' barriers on viaducts. Noise barrier locations are shown on Volume 2: Map Book - Sound, noise and vibration map series SV-05 of the main ES. Where there have been amendments these are shown in the relevant Map Book, Sound, noise and vibration Map series SV-05 of the SES and AP₂ ES; SES₂ and AP₃ ES; and SES₃ and AP₄ ES. The noise barriers identified in these maps also include engineering cuttings and retaining walls where they avoid or reduce significant adverse noise effects.
- 1.3.2 The height of the noise barriers are described relative to the rail level. Therefore any amendment to the vertical rail level will equally move the noise barrier so that its noise reduction is maintained.
- 1.3.3 Some landscape earthworks are not provided primarily for noise purposes and therefore removal of these features, or reducing their attenuation by raising the vertical alignment, would not materially alter the assessment presented here.
- 1.3.4 There are locations where existing features such as hills, roads and railways currently provide mitigation to the HS₂ scheme, which if the alignment was raised vertically could be reduced and may result in a new significant effect(s).
- 1.3.5 Following any change in alignment within the limits of deviation, further detailed modelling would be undertaken to confirm the predicted significant noise effects reported here. If these significant effects are confirmed, suitable mitigation in the form of noise barriers would be provided within the limits. The introduction of new noise barriers may require additional visual mitigation in the form of earthworks, planting or external finish. With this mitigation in place, no additional residual significant effects are considered to be likely.

Tunnelled sections

- 1.3.6 For tunnelled sections, following any change in alignment within the limits of deviation, detailed modelling would be undertaken to confirm the predicted significant noise effects reported here. If these significant effects are confirmed, suitable mitigation in the form of a further acoustically enhanced track system could be provided to mitigate this significant effect and with this mitigation in place no additional residual significant effects are likely.

2 Assessment of likely significant effects

2.1 CFA9 - Central Chilterns

Extension of the Chiltern tunnel from Mantle's Wood portal to South Heath green tunnel north portal (AP4-009-001)

- 2.1.1 Under the AP4 revised scheme, the bored Chiltern tunnel will be extended by 2.6km from Mantle's Wood, north-west of Hyde Heath, emerging at a revised Chiltern tunnel north portal, north-west of South Heath. Associated with the extension is also an increase in the depth and width of the bored tunnel alignment; as well as a deeper and wider north portal cutting.
- 2.1.2 The revised portal cutting is deeper than the original scheme. This, together with noise barriers provides noise mitigation for residential receptors in the Potter Row area. Any raising of the alignment could introduce new significant effects from operational noise on properties on Potter Row. However, the scope for raising the alignment at the new north portal is restricted by the maximum permitted gradient of the rail alignment. Any change in the alignment would need to be mitigated through an associated realignment of the noise barriers.
- 2.1.3 The main ES reported that a lowering of the vertical alignment at the original north portal location may require ground stabilisation works in the vicinity of the portal, which could give rise to an increased loss of habitat from Mantle's Wood. The AP4 revised scheme will emerge at the north portal in an approximately 23m deep cutting, and as with the original scheme may require ground stabilisation works in the vicinity of the portal. In the AP4 revised scheme location, this could give rise to a loss of habitat from Jenkins Wood, which is an ancient woodland, approximately 40m from the edge of the portal cutting, on the east of the alignment. However, this section has been designed to avoid Jenkins Wood. Any lateral movement of the track alignment has the potential to encroach on the woodland and introduce new significant effects from the loss of ancient woodland habitat. However, the scope for lateral movement is restricted by track geometry as the alignment moves closer together at the transition from bored tunnel to a surface alignment.
- 2.1.4 In the unlikely event of lateral movements in track alignment, compensation for the loss of irreplaceable ancient woodland habitat would be required in the form of woodland planting and the translocation of ancient woodland soils.

2.2 CFA15 – Greatworth to Lower Boddington

Additional land required for the provision of an accommodation overbridge at Cedars Farm (AP4-015-007)

- 2.2.1 Under the AP4 revised scheme a permanent new private accommodation overbridge will be provided across the HS2 route to maintain direct connectivity between two land parcels within Cedars Farm.
- 2.2.2 The amendment is within the Lower Boddington embankment section of the proposed scheme and there is some scope to raise the vertical alignment; although

the crossing of the Highfurlong Brook, approximately 1.5km to the south, limits any lowering of the alignment.

- 2.2.3 The main ES and SES reported significant visual effects for two viewpoints. Viewpoint 219.2.001: view looking north-east from Cedars Farm, west of Lower Boddington (a major adverse significant effect during year 1 of operation and a moderate adverse significant effect in year 15 and year 60). Viewpoint 221.4.001: view looking north-east from Boddington Road, north of Three Shires Farm (a moderate adverse significant effect during year 1, remaining as a moderate adverse significant effect in year 15 and year 60). The amendment will give rise to different significant visual effects compared with the original scheme and SES scheme for the two viewpoints arising primarily from the presence of a new, permanent accommodation overbridge structure. However, this will not change the level of significance of the effects reported in the SES and AP₂ ES.
- 2.2.4 Raising the alignment through this section is likely to make the new overbridge more prominent in the landscape and potentially raise the level of significance of visual effects locally. Mitigation in the form of tree planting would be required; however the significance of the visual effects previously reported is unlikely to be reduced.

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