



# High Speed Rail (West Midlands - Crewe)

Supplementary Environmental Statement and  
Additional Provision Environmental Statement

Volume 5: Technical appendices

Wider effects report (CT-005-000)



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Additional Provision Environmental Statement  
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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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A report prepared for High Speed Two (HS2) Limited:

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# 1 Introduction

## 1.1 Overview

- 1.1.1 This document is an appendix that forms part of Volume 5 of the Supplementary Environmental Statement (SES) and Additional Provision Environmental Statement (AP ES), which the Government has submitted to Parliament in support of the High Speed Rail (West Midlands – Crewe) Bill ('the Bill').
- 1.1.2 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 brought about by the amendments reported in the SES and AP ES.
- 1.1.3 This document should be read in conjunction with the SES and AP ES Volume 2, Community area reports and Map Books and the Volume 2, Community area reports and Map Books of the Environmental Statement (ES)<sup>1</sup>, which accompanied the Bill submitted to Parliament in July 2017, ('the main ES').
- 1.1.4 The SES and AP ES mapping, contained within the Volume 2 and 5 Map Books, shows the HS2 route on the centre line for the permanent works. Limits of deviation shown on the Parliamentary plans and sections, as amended by the APs and described in the Bill, enable the HS2 route to deviate slightly from the centre line of the works as may be required following detailed design. This appendix assesses whether the power to deviate within these statutory limits would alter the likely significant effects reported in the SES and AP ES by creating new or different likely significant effects.
- 1.1.5 The powers contained within the Bill allow for changes within the statutory limits of deviation to occur where it is found that the spatial position of the HS2 route or buildings may need to be adjusted, mainly for reasons of engineering practicability.
- 1.1.6 In essence, the extent of the limits of deviation comprise:
- lateral limits within the lines shown on the Parliamentary plans; and
  - vertical limits not exceeding 3m upwards, and downwards to any extent, from the levels shown on the Parliamentary sections.
- 1.1.7 The exceptions to this are certain buildings, such as those within the Infrastructure Maintenance Base – Rail (IMB-R) near Stone, where an upper height limit is specified. The limits of deviation for the tunnels at Whitmore Heath and Madeley allow for the tunnels to deviate so that an appropriate clearance from any unexpected obstruction in the ground can be provided.
- 1.1.8 The degree of adjustment is constrained by the limits of deviation, but also by key design elements of the Phase 2a scheme such as the alignment of the track system, which must allow for high speed trains to operate to the proposed timetable, the

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<sup>1</sup> HS2 Ltd (2017), High Speed Rail (West Midlands-Crewe) Environmental Statement, <https://www.gov.uk/government/collections/hs2-phase-2a-environmental-statement>.

position of tunnel portals, the height of viaducts and the location of third party infrastructure.

## **1.2 Analysis and assessment**

- 1.2.1 A sensitivity analysis has been undertaken for each of the amendments, which are described in the SES and AP ES Volume 2, Community area reports and shown in the SES and AP ES Volume 2 Map Books, in order to identify where such spatial changes are feasible, and to assess the environmental implications of such changes. The assessment has taken into account the environmental baseline and the likely significant effects described for the amendments in the SES and AP ES Volume 2, Community area reports.
- 1.2.2 This sensitivity analysis has identified potential new and/or different likely significant effects within CA3: Stone and Swynnerton, which could result from a change in alignment within the statutory limits of deviation.
- 1.2.3 Locations where amendments within the statutory limits of deviation are assessed as unlikely to give rise to new or different predicted significant effects are not considered further in this report.
- 1.2.4 Where appropriate, references have been made to potential mitigation that could be considered. Such mitigation would require further assessment and discussion with relevant stakeholders as part of the detailed design process.

## **1.3 Environmental minimum requirements**

- 1.3.1 In order to ensure that the environmental effects of the Phase 2a scheme will not exceed those set out in the ES documents, the Secretary of State will establish a set of controls known as Environmental Minimum Requirements (EMR). The EMR will be contained in a suite of documents that will sit alongside the provisions set out in the Bill itself. The body to be appointed to take forward the detailed design and implementation of the Phase 2a scheme after the Bill has been enacted, is known as the nominated undertaker. The nominated undertaker will be required to comply with the provisions of the Bill, the EMR and other controls, including any undertakings and assurances given by the Secretary of State.
- 1.3.2 During the passage of the Bill through Parliament, the Secretary of State will confirm to Parliament the scope of, and the documents forming, the EMR and will make a commitment to Parliament to take whatever steps are considered reasonable and necessary to secure compliance with them.
- 1.3.3 The EMR, together with the controls in the Bill, will ensure that the environmental effects set out in the ES documents will not be exceeded, unless this results from a change in circumstances that was not foreseeable at the time the ES documents were prepared; or any such changes will be unlikely to have significant adverse environmental effects; or such changes will be subject to a separate consent process and further environmental impact assessment.
- 1.3.4 The EMR will also impose a general requirement on the nominated undertaker to use reasonable endeavours to adopt measures to reduce the reported adverse environmental effects, provided that this does not add unreasonable cost or delay to the construction or operation of the Phase 2a scheme.

## 1.4 Operational sound, noise and vibration considerations

### Surface sections

- 1.4.1 To avoid or reduce significant airborne noise effects during operation, the Phase 2a scheme incorporates noise barriers in the form of landscape earthworks and/or noise fence barriers. Noise barrier locations are shown in the Volume 2: Sound, noise and vibration Map Book (SV-05 series) of the main ES. These maps also identify engineering cuttings and retaining walls as noise barriers where they will avoid or reduce significant adverse noise effects.
- 1.4.2 The effective heights of the noise barriers are described relative to the rail level. Therefore, any change to the vertical rail level will move the height of the noise barrier so that the extent of noise reduction is maintained.
- 1.4.3 Some earthworks are not provided primarily for noise reduction purposes and therefore, removal of these features or reduction in their noise attenuation by raising the vertical alignment, would not materially alter the assessment reported elsewhere in the main ES or the SES and AP ES.
- 1.4.4 There are locations where existing features, such as hills, roads and railways will provide some mitigation to the Phase 2a scheme, which if the alignment was raised vertically, could be reduced and may result in new or increased significant noise effects.



## 2 Assessment of likely significant effects

### 2.1 CA3 – Stone and Swynnerton

#### **Additional land permanently required and a change in the powers of the Bill for the viaduct crossing of the Norton Bridge to Stone Railway and track crossovers along the HS2 route (AP-003-001)**

- 2.1.1 With the AP revised scheme, the horizontal alignment of the HS2 route between the northern extent of Yarnfield North embankment and Tittensor Road overbridge will be moved in a north-easterly direction by up to 15.5m.
- 2.1.2 As described in the main ES Volume 2, Community area 3 report, the effects on landscape character are already considered to be major adverse (significant) for year 1 and year 15 for Swynnerton Park Sandstone Hills and Heath Landscape Character Area (LCA), reducing to moderate adverse (significant) at year 60. The visual effects on receptors in the vicinity of Swynnerton embankment are considered to be significant up to year 15, but the growth of planting at Swynnerton embankment integrating the HS2 route into its landscape setting by year 60, reduces the effects to non-significant.
- 2.1.3 The SES and AP ES Volume 2, Community area 3 report states that the landscape and visual effects of the AP amendment will remain as described in the main ES.
- 2.1.4 There is scope to move the horizontal alignment of the HS2 route within the limits of deviation by a further 5m in a north-easterly direction and raise the vertical alignment by up to 3m along this section.
- 2.1.5 This combined horizontal and vertical change to the alignment will result in an increase in significant adverse landscape character effects on the Swynnerton Park Sandstone Hills and Heath LCA. It will also result in new or increased significant visual effects for the residents at nearby properties, as well as on views from the following public rights of way (PRoW) and public road viewpoints: Swynnerton Footpath 37, Swynnerton Footpath 27, Stone Rural Footpath 34, the A51 Stone Road, Swynnerton Footpath 49, Stone Circles Challenge and Swynnerton Footpath 23.
- 2.1.6 Mitigation measures to provide landscape and visual screening have been included as part of the original scheme described in the main ES, including the provision of landscape earthworks and mitigation planting. The extent to which the existing mitigation could be refined or additional mitigation provided to account for changes in the alignment of the Swynnerton embankment will be limited. This may result in an increase in significant landscape effects on the Swynnerton Park Sandstone Hills and Heath LCA in year 60, such that the effects will be unlikely to reduce to moderate (adverse) significant, as reported in the main ES; as well as increased visual effects with the potential to create significant effects at year 60 along the following PRoW and public road viewpoints: Swynnerton Footpath 37, Swynnerton Footpath 27, Stone Rural Footpath 34, A51 Stone Road, Swynnerton Footpath 49, Stone Circles Challenge and Swynnerton Footpath 23.

## 3 References

HS2 Ltd (2017), High Speed Rail (West Midlands-Crewe) Environmental Statement. Available online at: <https://www.gov.uk/government/collections/hs2-phase-2a-environmental-statement>.







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