

High Speed Rail (Crewe – Manchester)

Supplementary Environmental Statement 1 and Additional Provision 1 Environmental Statement

Volume 5 Appendix: CT-006-00000

Wider effects report

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Additional Provision 1 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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Contents

1	Introduction	2
1.1	Overview	2
1.2	Analysis and assessment	3
1.3	Environmental Minimum Requirements	4
1.4	Operational sound, noise and vibration	5
2	Assessment of likely significant effects	6
2.1	Introduction	6
2.2	Hough to Walley's Green (MA01)	6
2.3	Broomedge to Glazebrook (MA04)	8

1 Introduction

1.1 Overview

- 1.1.1 This report forms part of the High Speed Two Ltd, High Speed Rail (Crewe – Manchester) Supplementary Environmental Statement 1 (SES1) and Additional Provision 1 Environmental Statement (AP1 ES). It sets out the wider effects that are likely to result from the SES1 design changes and AP1 amendments.
- 1.1.2 In the High Speed Rail (Crewe – Manchester) Environmental Statement (ES) published in January 2022 (the main ES)¹, the wider effects of the original scheme (that is the Bill scheme submitted to Parliament in January 2022) were reported.
- 1.1.3 This report should be read in conjunction with the Wider effects report² which formed part of the main ES and accompanied the Bill submitted to Parliament in January 2022. It should also be read in conjunction with the SES1 and AP1 ES Volume 2, Community Area reports and Map Books; and the Volume 2, Community Area reports and Map Books of the main ES.
- 1.1.4 In order to differentiate between the original scheme and the subsequent changes, the following terms are used:
- ‘the SES1 scheme’ – the original scheme with the changes described in SES1 that are within the existing powers of the Bill; and
 - ‘the AP1 revised scheme’ – the original scheme as amended by the SES1 changes and AP1 amendments.
- 1.1.5 Wider effects refer to any changes to the likely significant effects, reported in the SES1 and AP1 ES, that may result if the scheme as built deviates from the centre line of the works within the limits of deviation, as permitted under parliamentary powers. The SES1 and AP1 ES contain mapping within the Volume 2 and 5 Map Books, which show the HS2 route on the centre line for the permanent works.
- 1.1.6 The limits of deviation shown on the Parliamentary plans and sections, as amended by the SES1 design changes and AP1 amendments and described in the Bill, enable the AP1 revised scheme to deviate slightly from the centre line of the works as may be required for reasons of engineering practicability following detailed design.
- 1.1.7 A summary of the extent of the limits of deviation is described in Volume 1, Section 1 of the main ES. In essence these comprise lateral limits within the lines shown on the

¹ High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement*. Available online at: <https://www.gov.uk/government/collections/hs2-phase2b-crewe-manchester-environmental-statement>.

² High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement, Wider effects report*, Volume 5, Appendix: CT-006-00000. Available online at: <https://www.gov.uk/government/collections/hs2-phase2b-crewe-manchester-environmental-statement>.

Parliamentary plans and vertical limits, as amended by the AP1 amendments. The vertical limits cannot exceed 3m upwards, but can extend downwards to any extent, from the levels shown on the deposited section. This does not apply to certain buildings, such as stations, depots and shafts, where an upper height limit is specified. The limits of deviation for tunnels allow them 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, not only by the limits of deviation, but also by key design elements of the AP1 revised scheme. These include the alignment of the track system, which must allow for high-speed trains to operate to the proposed timetable, the position of tunnel portals, the height of viaducts and the location of significant third-party infrastructure.
- 1.1.9 This report sets out the assessment of whether the power to deviate within these statutory limits would alter the significant predicted effects reported elsewhere in the SES1 and AP1 ES by creating new or different significant effects.

1.2 Analysis and assessment

- 1.2.1 A sensitivity analysis has been undertaken for each of the SES1 design changes and AP1 amendments, which are described in the SES1 and AP1 ES Volume 2, Community Area reports and shown in the SES1 and AP1 ES Volume 2, Map Books. This analysis was to identify where such spatial changes are feasible and to assess their environmental implications. The assessment has taken into account the likely significant effects and the environmental baseline described for the AP1 revised scheme (which includes all SES1 changes and AP1 amendments) in the SES1 and AP1 ES Volume 2, Community Area reports. Where information may be incomplete, this assessment has been based on a precautionary approach using worst-case assumptions, which is consistent with that adopted for the overall environmental impact assessment (EIA).
- 1.2.2 The sensitivity analysis has identified potential new and/or different likely significant effects, as described in this report, in the following community areas:
- Hough to Walley's Green area (MA01): the additional land permanently required for the realignment and extension of Crewe tunnel (AP1-001-001) could result in new and/or different likely significant effects from a change in vertical alignment within the statutory limits of deviation; and
 - Broomedge to Glazebrook area (MA04): as a consequence of the removal of the HS2 West Coast Main Line connection from the Bill scheme (SES1-004-001), the likely significant effects previously identified in the main ES Wider effects report will be removed. Although the removal of the HS2 West Coast Main Line (WCML) connection is relevant to three community areas (MA03, MA04 and MA05), to be consistent with the main ES Wider effects report, this assessment is reported under MA04.

- 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 The changes to the predicted effects in this report have considered residual effects only (i.e. allowing for the adoption of mitigation). In the event that variations to the alignment occur within the statutory limits, references have been made where appropriate to further potential mitigation that 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 Environmental Minimum Requirements

- 1.3.1 In order to ensure that the environmental effects of the Proposed Scheme will not exceed those set out in the ES, the Secretary of State for Transport will establish a set of controls known as Environmental Minimum Requirements (EMR). The EMR will be contained in a set of documents that 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 Proposed Scheme after the Bill has been enacted, is known as the nominated undertaker. The nominated undertaker will be required to comply with the EMR and the other Bill controls.
- 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 impacts identified in the ES documents (including the main ES and SES1 and AP1 ES) will not be exceeded, except where:
- this results from a change in circumstances that was not likely at the time the ES documents were prepared; or
 - any such changes will be unlikely to have significant adverse environmental effects; or
 - any such changes will be subject to a separate consent process and further EIA.
- 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 Proposed Scheme.

1.4 Operational sound, noise and vibration

Surface sections

- 1.4.1 To avoid or reduce significant airborne noise effects during operation, the AP1 revised scheme incorporates noise barriers in the form of landscape earthworks and/or noise fence barriers. Noise barrier locations are shown in the main ES Map Books and in the SES1 and AP1 ES Volume 2, MA01– MA03 Map Books: Map Series SV-05. 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 height of the noise barriers is described in the main ES and the SES1 and AP1 ES relative to the rail level. Therefore, any amendment to the vertical rail level will move the noise barrier by an equivalent amount, so that the extent of noise reduction is maintained.
- 1.4.3 The maps also identify other earthworks which may reduce noise effects but do not materially affect the outcomes of the sound, noise and vibration assessment. Removal or amendment of these features, or reducing their attenuation by raising the vertical alignment, would not materially alter the assessment of sound, noise and vibration reported elsewhere in the main ES or the SES1 and AP1 ES.
- 1.4.4 There are locations where existing features such as hills, roads and railways will provide a degree of attenuation to operational noise levels. If the alignment were to be raised vertically in these locations, this attenuation could be reduced, potentially resulting in new or different adverse likely significant noise effects.
- 1.4.5 Following any change in alignment within the limits of deviation, further detailed modelling would be undertaken to confirm the predicted noise effects described in this report. If significant effects are confirmed, suitable mitigation, such as noise barriers, would be provided within the limits of deviation. With this mitigation in place, no additional residual significant noise effects are considered to be likely. The introduction of new noise barriers may require additional visual mitigation in the form of earthworks, planting or external finish.

Tunnelled sections

- 1.4.6 Following any change in alignment within the limits of deviation, detailed modelling would be undertaken to confirm the ground-borne noise effects. If any significant effects are confirmed, all reasonably practicable steps will be taken to mitigate them.

2 Assessment of likely significant effects

2.1 Introduction

2.1.1 This section assesses the potential for the creation of new or different likely significant effects, or the removal of such effects, at specific locations along the route of the AP1 revised scheme. The following SES1 design changes and AP1 amendments have the potential to give rise to changes in the wider effects:

- Additional land permanently required for the realignment and extension of Crewe tunnel (AP1-001-001); and
- Removal of the HS2 West Coast Main Line connection (SES1-004-001).

2.1.2 The following sections describe the new or different significant effects that could arise within relevant community areas. Where appropriate, each location has a common structure, as set out below:

- the title of the SES1 design change or AP1 amendment;
- the changes to the scheme proposed by the SES1 design change or AP1 amendment;
- an overview of the significant effects assessed at this location in the SES1 and AP1 ES, Volume 2, Community Area reports;
- the potential for movement within the limits of deviation associated with the SES1 design change or AP1 amendment;
- a description of any new or different significant effects generated by any such movement; and
- a description of any potential mitigation options and their efficacy.

2.2 Hough to Walley's Green (MA01)

Additional land permanently required for the realignment and extension of Crewe tunnel (AP1-001-001)

2.2.1 As part of the AP1 amendment AP1-001-001, Crewe tunnel will be extended at the northern end by approximately 620m, emerging 60m to the north of Parkers Road. The AP1 revised scheme will have a lower vertical alignment between Middlewich Street ventilation shaft and Crewe tunnel north portal compared to the original scheme. To accommodate the lowered vertical alignment, the horizontal alignment of Crewe tunnel will be changed throughout the length of the tunnel by up to 19m to the west and 25m to the east. See SES1 and AP1 ES Volume 2, Community Area report: Hough to Walley's Green (MA01), Section 5.1 for a full description of this AP1 amendment.

- 2.2.2 As described in the main ES Volume 2, Community Area report: Hough to Walley's Green (MA01), significant residual adverse effects were identified for 35 individual residential properties in Crewe, due to operational ground-borne noise effects. At a community level, significant residual adverse effects were identified due to increased ground-borne noise and vibration levels at approximately 265 residential properties. This has subsequently been corrected in Part 1 of the SES1 and AP1 ES Volume 2, Community Area report: Hough to Walley's Green (MA01) to approximately 285 residential properties. Six non-residential properties in Crewe would also experience likely significant ground-borne noise effects (Best Western Crewe Arms Hotel, Eurosales and Eurocard Centre (offices), ChuffChuff (Dance Studio), Cooperative Funeral Services (offices), Bentley Manor Care Home and Sherborne Court Neurological Centre).
- 2.2.3 The SES1 and AP1 ES Volume 2, Community Area report: Hough to Walley's Green (MA01) indicates that as a consequence of the changed alignment for the Crewe tunnel, the 35 residential properties previously identified as likely to experience significant ground-borne noise effects would no longer be significantly affected. Of the 285 residential properties that were identified as likely to be significantly affected by ground-borne noise at a community level, the lowering of the tunnel vertical alignment and horizontal realignment will reduce that number of significantly affected properties to 275. In addition, it will reduce the vibration impact classification at the most affected dwellings from moderate to minor. The six non-residential properties in Crewe would continue to experience likely significant ground-borne noise effects.
- 2.2.4 The main ES Volume 5, Wider effects report² predicted that raising the vertical alignment of Crewe tunnel would be likely to lead to an increase in operational noise levels in the area and to new significant ground-borne noise effects on nearby residential and non-residential receptors in Crewe. The main ES Wider effects report also identified that lowering the vertical alignment would remove some of the predicted significant ground-borne noise effects to individual residential properties and non-residential receptors located above Crewe tunnel. A lowering was considered unlikely to change the predicted significant ground-borne noise effects at a community level.
- 2.2.5 Engineering practicability limits the opportunity for further lowering of Crewe tunnel to remove the significant operational ground-borne noise effects of the AP1 revised scheme. A raising of the realigned Crewe tunnel vertical alignment, within the limits of deviation, would not generate any new or different significant effects.
- 2.2.6 The presence of the WCML limits the opportunity for horizontal change at the Crewe tunnel north portal to an extent that would limit the potential to generate new or different significant effects.
- 2.2.7 In the event of a proposed change to the tunnel vertical and/or horizontal alignment within the limits of deviation, further detailed noise modelling would be undertaken to confirm whether new or different significant effects are likely to occur. HS2 Ltd would seek reasonably practicable measures to reduce or avoid any new or increased significant effects.

If such mitigation is not available, affected landowners would be entitled to make a claim in line with the compensation code.

2.3 Broomedge to Glazebrook (MA04)

Removal of the HS2 West Coast Main Line connection (SES1-004-001)

- 2.3.1 Since the deposit of the Bill, the Secretary of State has decided to remove the HS2 WCML connection, included in the original scheme, from the High Speed Rail (Crewe – Manchester) Bill and has given this commitment to Parliament. As a result, the WCML connection from near Hoo Green junction on the HS2 network to the Lily Lane junction, near Golborne, on the WCML will be removed (SES1 design change SES1-004-001).
- 2.3.2 The Wider effects report in the main ES identified the potential for new or different likely visual, historic environment and operational noise significant effects as a consequence of changes to the horizontal or vertical alignment permitted in the Bill for the original scheme between Warburton cutting and Warburton embankment and between the Manchester Ship Canal viaduct and Glazebrook embankment south.
- 2.3.3 Removal of the HS2 WCML connection from the Bill also removes potential for the new or different significant effects, reported in the Wider effects report in the main ES, to occur at this location.

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