

## High Speed Rail (Crewe – Manchester)

### Supplementary Environmental Statement 1 and Additional Provision 1 Environmental Statement

#### Volume 5: Appendix LQ-001-00000

##### Land quality

Land quality report

MA01: Hough to Walley's Green

MA02: Wimboldsley to Lostock Gralam

MA03: Pickmere to Agden and Hulseheath

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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

- 1.1.1 This report is an appendix to the land quality assessment which forms part of Volume 5 of the Supplementary Environmental Statement 1 (SES1) and Additional Provision 1 Environmental Statement (AP1 ES). This report covers the following community areas (CA):
- Hough to Walley's Green (MA01);
  - Wimboldsley to Lostock Gralam (MA02); and
  - Pickmere to Agden and Hulseheath (MA03).
- 1.1.2 This appendix provides details of changes to the land quality assessment since the production of the High Speed Two (HS2) High Speed Rail (Crewe – Manchester) Environmental Statement (ES) published in 2022<sup>1</sup> (the main ES).
- 1.1.3 This report is structured into two parts: Part 1 – SES1 and Part 2 – AP1 ES. These parts are subdivided into community areas, and then into the relevant SES1 design changes and AP1 amendments which are of relevance to the land quality assessment.
- 1.1.4 This appendix should be read in conjunction with:
- SES1 and AP1 ES Volume 2, Community Area reports; and
  - Background Information and Data (BID), Land quality baseline data used in the Supplementary Environmental Statement 1 and Additional Provision 1 Environmental Statement (BID LQ-002-00000 SES1 and AP1 ES)<sup>2</sup>.
- 1.1.5 Maps referred to throughout this appendix are contained in the SES1 and AP1 ES Volume 5, Land quality Map Book: Map Series LQ-01. Sites carried through to assessment are given a reference number (Site ID). In this report they are referred to as MA01-195 and in the maps they are referred to as 01-195.
- 1.1.6 Further information regarding receptors in relation to each site or group of sites is set out in BID<sup>2</sup>.
- 1.1.7 Minerals baseline data, information about Local Geological Sites and geological Sites of Special Scientific Interest (SSSI) and site visit records are set out in the BID document.

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<sup>1</sup> 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>.

<sup>2</sup> High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Background Information and Data accompanying Supplementary Environmental Statement 1 and Additional Provision 1 Environmental Statement, Land quality baseline data used in the Supplementary Environmental Statement 1 and Additional Provision 1 Environmental Statement*, BID LQ-002-00000 SES1 and AP1 ES. Available online at: <https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-supplementary-environmental-statement-1-and-additional-provision-1-environmental-statement>.

- 1.1.8 The Environmental Impact Assessment (EIA) Scope and Methodology Report (SMR)<sup>3</sup>, (see main ES, Volume 5, Appendix: CT-001-00001) should be referred to for details of the land quality assessment.
- 1.1.9 In order to differentiate between the original scheme and the subsequent changes, the following terms are used:
- ‘the original scheme’ – the Bill scheme submitted to Parliament in January 2022, which was assessed in the main ES;
  - ‘the SES1 scheme’ – the original scheme with any changes described in the 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.

## 1.2 Scope of the assessment

- 1.2.1 The scope of the assessment in this report is limited to SES1 design changes and AP1 amendments which are considered likely to introduce a new significant effect, remove a significant effect, or result in a materially different significant effect on land quality than reported in the main ES.

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<sup>3</sup> High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement, Environmental Impact Assessment Scope and Methodology Report*, Volume 5, Appendix: CT-001-00001. Available online at: <https://www.gov.uk/government/collections/hs2-phase2b-crewe-manchester-environmental-statement>.

## 2 Engagement

2.1.1 Table 1, Table 2 and Table 3 sets out the organisations that have been engaged with during the preparation of the land quality assessment of the AP1 revised scheme for each of the study areas<sup>4</sup>, the types of information that have been provided to the assessment team and any specific concerns raised.

**Table 1: Engagement on land quality issues undertaken for Hough to Walley's Green (MA01)**

Organisation	Method/dates of contracts	Information provided and/or specific concerns
Cheshire RIGS <sup>5</sup> group	Email (16 September 2021)	Request to Cheshire RIGS group to provide any updated information with regards to Regionally Important Geological Sites in Cheshire.
	Email (16 September 2021)	Provision of data by Cheshire RIGS group.

**Table 2: Engagement on land quality issues undertaken for Wimboldsley to Lostock Gralam (MA02)**

Organisation	Method/dates of contracts	Information provided and/or specific concerns
Cheshire RIGS group	Email (16 September 2021)	Request to Cheshire RIGS group to provide any updated information with regards to Regionally Important Geological Sites in Cheshire.
	Email (16 September 2021)	Provision of data by Cheshire RIGS group.
Cheshire West and Chester Council	Email (24 September 2021)	Email to CWAC, further request for data relating to land contamination.

**Table 3: Engagement on land quality issues undertaken for Pickmere to Agden and Hulseheath (MA03)**

Organisation	Method/dates of contracts	Information provided and/or specific concerns
Cheshire RIGS group	Email (16 September 2021)	Request to Cheshire RIGS group to provide any updated information with regards to Regionally Important Geological Sites in Cheshire.
	Email (16 September 2021)	Provision of data by Cheshire RIGS group.

<sup>4</sup> The study area is defined as the land required for the construction of the AP1 revised scheme plus a 250m buffer. In the case of groundwater abstractions, this buffer is increased to 1km.

<sup>5</sup> Regionally Important Geological and Geomorphological Sites (RIGS).

## **3 Risk assessment**

- 3.1.1 A four-stage process, comprising stages A to D, has been carried out in accordance with the methodology set out in the SMR. At each stage, professional judgement has been used to check that the screening and assessment process is highlighting significant sites.
- 3.1.2 Stage A highlights potentially contaminative sites based on their potential impact. Sites with a moderate to high potential impact move through to stage B where they are assessed based on receptor proximity.
- 3.1.3 Sites with a high potential impact pass through stage B to detailed assessment irrespective of receptor proximity. Sites with a moderate potential impact and moderate to high receptor proximity also go through to detailed assessment.
- 3.1.4 For those sites which pass through stage B, a further detailed risk assessment (stages C and D) has been carried out.
- 3.1.5 The results of stage C are presented in three conceptual site models (CSM) as qualitative risk assessments covering baseline, construction and post-construction scenarios. Stage D then compares the risk of impact at construction and post-construction stages with the baseline to determine the change in risk and hence the potential for a significant effect.
- 3.1.6 Sections 5.2 to 5.5 present assessments for potentially contaminated sites which have passed through the screening process within the study area. For each site the following data are presented:
- baseline risk assessment;
  - construction risk assessment;
  - post-construction risk assessment;
  - assessment of temporary (construction) effects; and
  - assessment of permanent (post-construction) effects.
- 3.1.7 The construction and post-construction risk assessments assume that appropriate mitigation has been undertaken and that the operation of the railway is in accordance with environmental legislation.
- 3.1.8 The sites in the AP1 revised scheme study areas have been listed in Table 4.
- 3.1.9 For clarity, 'on-site' in this document means 'within the land required for the construction of the AP1 revised scheme' and 'off-site' refers to 'land beyond this boundary, but within the study area'.



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**Table 4: Sites included in the risk assessment within the SES1 and AP1 ES study area**

Site group	Site title (site ID) and land use class
<b>On-site</b>	
None	
<b>Off-site</b>	
Garage workshop	Garage workshop (MA01-195), Class 2

- 3.1.10 Contaminant types included within the risk assessments are based on the Department of the Environment, Farming and Rural Affairs (Defra) and Environment Agency (2002); Priority Contaminants Report CLR 8<sup>7</sup>. Although this report has been withdrawn by the Environment Agency, it remains technically valid and there has been no subsequent authoritative replacement.
- 3.1.11 The remainder of this section presents the risk assessment for the sites going through to stages C and D of the assessment. These sites are shown on SES1 and AP1 ES Volume 5, Land quality Map Book: Map Series LQ-01, maps LQ-01-301 to LQ-01-303, LQ-01-305-R1 to LQ-01-307-R2, and LQ-01-312a to LQ-01-312b.
- 3.1.12 The following abbreviations are used in Table 5, Table 6 and Table 7:
- CoCP – Code of Construction Practice;
  - PAH – polycyclic aromatic hydrocarbons;
  - PCB – polychlorinated biphenyls; and
  - PPE – personal protective equipment.

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<sup>6</sup> As defined by the SMR.

<sup>7</sup> Department for Environment, Food and Rural Affairs and Environment Agency (Defra) (2002), *Potential Contaminants for the Assessment of Land, R&D Publication CLR8*.

# **Part 1: Supplementary Environmental Statement 1**

## **4 SES1 scheme risk assessment**

- 4.1.1 The screening process for the SES1 scheme has not identified additional potentially contaminated sites.
- 4.1.2 The only change from the original scheme is the removal of MA03-169 (Agden Hall Farm) from the detailed assessment. This is due to the land required for the construction of the SES1 scheme being a greater distance from MA03-169 than in the original scheme.

## Part 2: Additional Provision 1 Environmental Statement

### 5 AP1 revised scheme risk assessment

5.1.1 The screening process for the AP1 revised scheme has identified a single site that is now required to be taken through to detailed assessment.

### 5.2 Baseline risk assessment

**Table 5: Baseline CSM and qualitative risk assessment for garage workshop (off-site)**

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline phase
Potential contamination from current activities: PCB, metals, asbestos, PAH, solvents, petroleum and diesel range hydrocarbons, and potentially low levels of ground gas (methane and carbon dioxide)	Existing site users Site workers and visitors	Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils	Low likelihood	Medium	Moderate/low
		Direct contact, ingestion, inhalation of vapours from contaminated waters	Unlikely	Medium	Moderate/low
		Inhalation of ground gases	Unlikely	Medium	Low
	Adjacent site users Residents, walkers and farm workers	Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils	Unlikely	Medium	Low
		Direct contact, ingestion, inhalation of vapours from contaminated waters	Unlikely	Medium	Low
		Inhalation of ground gases	Unlikely	Medium	Low
	Controlled waters – groundwater Secondary Undifferentiated aquifer of the glacial till	Leaching, vertical and lateral migration from contaminated soils and waters	Unlikely to low likelihood	Minor	Very low to low

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Source	Receptor	Pathway	Probability	Consequence	Risk at baseline phase
	Secondary B aquifer of the Sidmouth Mudstone Formation				
	Property receptors – buildings, foundations and services (existing and adjacent)	Exposure to explosive gases	Unlikely	Medium	Low
		Direct contact with contaminated soils and waters	Unlikely	Minor	Very low
<b>Notes/assumptions:</b>					
<ul style="list-style-type: none"> <li>• site assessed without construction of the AP1 revised scheme;</li> <li>• see BID LQ-002-00000 SES1 and AP1 ES, Section 2, Table 4 for details of receptors to the site; and</li> <li>• existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed.</li> </ul>					

## 5.3 Construction risk assessment

**Table 6: Construction CSM and qualitative risk assessment for garage workshop (off-site)**

Source	Receptor	Pathway	Probability	Consequence	Risk at construction phase
Potential contamination from current activities: PCB, metals, asbestos, PAH, solvents, petroleum and diesel range hydrocarbons, and potentially low levels of ground gas (methane and carbon dioxide)	Existing site users Site workers and visitors	Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils	Low likelihood	Medium	Moderate/low
		Direct contact, ingestion, inhalation of vapours from contaminated waters	Unlikely	Medium	Moderate/low
		Inhalation of ground gases	Unlikely	Medium	Low
	Adjacent site users Residents, walkers and farm workers	Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils	Unlikely	Medium	Low
		Direct contact, ingestion, inhalation of vapours from contaminated waters	Unlikely	Medium	Low

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Source	Receptor	Pathway	Probability	Consequence	Risk at construction phase
		Inhalation of ground gases	Unlikely	Medium	Low
	Controlled waters – groundwater Secondary Undifferentiated aquifer of the glacial till Secondary B aquifer of the Sidmouth Mudstone Formation	Leaching, vertical and lateral migration from contaminated soils and waters	Unlikely to low likelihood	Minor	Very low to low
	Property receptors – buildings, foundations and services (existing and adjacent)	Exposure to explosive gases	Unlikely	Medium	Low
		Direct contact with contaminated soils and waters	Unlikely	Minor	Very low

### Notes/assumptions:

- existing site users and adjacent site users in the receptor column refer to users at or near to the areas assessed;
- during construction, standard mitigation procedures are assumed to be implemented in accordance with the draft CoCP<sup>8</sup>. Construction workers have been excluded from assessment due to the use of PPE/risk management protocols and in accordance with the SMR; and
- while the draft CoCP will make it unlikely that there will be adverse consequences associated with construction e.g. the control of surface runoff and dust, it is considered that there may still be temporary minor adverse effects during the construction period from ground disturbance in these areas. The adoption of the draft CoCP generally results in a low to unlikely probability of a consequence, but in some cases the actual consequence may temporarily increase from that defined at baseline.

<sup>8</sup> HS2 Ltd (2022), High Speed Rail (Crewe – Manchester) *Environmental Statement, draft Code of Construction Practice*, Volume 5, Appendix CT-002-00000. Available online at: <https://www.gov.uk/government/collections/hs2-phase2b-crewe-manchester-environmental-statement>.

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## 5.4 Post-construction risk assessment

**Table 7: Post-construction CSM and qualitative risk assessment for garage workshop (off-site)**

Source	Receptor	Pathway	Probability	Consequence	Risk at post-construction phase
Potential contamination from current activities: PCB, metals, asbestos, PAH, solvents, petroleum and diesel range hydrocarbons, and potentially low levels of ground gas (methane and carbon dioxide)	Existing site users Site workers and visitors	Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils	Low likelihood	Medium	Moderate/low
		Direct contact, ingestion, inhalation of vapours from contaminated waters	Unlikely	Medium	Moderate/low
		Inhalation of ground gases	Unlikely	Medium	Low
	Adjacent site users Residents, walkers and farm workers	Direct contact, ingestion, inhalation of dusts and vapours from contaminated soils	Unlikely	Medium	Low
		Direct contact, ingestion, inhalation of vapours from contaminated waters	Unlikely	Medium	Low
		Inhalation of ground gases	Unlikely	Medium	Low
	Controlled waters – groundwater Secondary Undifferentiated aquifer of the glacial till Secondary B aquifer of the Sidmouth Mudstone Formation	Leaching, vertical and lateral migration from contaminated soils and waters	Unlikely to low likelihood	Minor	Very low to low
	Property receptors – buildings, foundations and services (existing and adjacent)	Exposure to explosive gases	Unlikely	Medium	Low
		Direct contact with contaminated soils and waters	Unlikely	Minor	Very low

**Notes/assumptions:**

- assumes baseline conditions will not change at post-construction; and
- existing site users and adjacent site users in the receptor column refer to users within/near to the areas assessed.

## 5.5 Assessment of temporary (construction) and permanent (post-construction) effects

5.5.1 The significance of the effects of land contamination is assessed by comparing the difference in risk of each contaminant linkage at baseline to those at construction and at post-construction stages. This provides a way of assessing both the adverse and beneficial effects during construction and the post-construction period.

**Table 8: Garage workshop (off-site) – significance of effect assessments**

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction significance	Post-construction significance
Exposure of human receptors to contamination by direct contact, ingestion and inhalation of dusts and vapours from contaminated soils	Moderate/low	Moderate/low	Moderate/low	Neutral effect	Neutral effect
Exposure of human receptors by direct contact, ingestion and inhalation of vapours from contaminated waters	Moderate/low	Moderate/low	Moderate/low	Neutral effect	Neutral effect
Exposure of human receptors to inhalation of gases and vapours	Low	Low	Low	Neutral effect	Neutral effect
Exposure of adjacent human receptors to contamination by direct contact, ingestion and inhalation of dusts and vapours from contaminated soils	Low	Low	Low	Neutral effect	Neutral effect
Exposure of adjacent human receptors by direct contact, ingestion and inhalation of vapours from contaminated waters	Low	Low	Low	Neutral effect	Neutral effect
Exposure of adjacent human receptors to inhalation of gases and vapours	Low	Low	Low	Neutral effect	Neutral effect
Exposure of groundwater to vertical and lateral migration of contaminated groundwater/leachate (glacial till, Sidmouth Mudstone Formation)	Very low to low	Very low to low	Very low to low	Neutral effect	Neutral effect

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Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction significance	Post-construction significance
Direct contact of property with contaminated soils and waters	Low	Low	Low	Neutral effect	Neutral effect
Exposure to explosive gas	Very low	Very low	Very low	Neutral effect	Neutral effect
Overall significance				Neutral effect	Neutral effect
<b>Notes/assumptions:</b>					
<ul style="list-style-type: none"> <li>the significance column may report a range of outcomes for a site. The draft CoCP is designed to mitigate effects, and it is considered that only temporary minor adverse effects during the construction period will occur from ground disturbance.</li> </ul>					





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