

## High Speed Rail (West Midlands - Crewe)

Supplementary Environmental Statement 2 and  
Additional Provision 2 Environmental Statement

Volume 2: Community Area report

CA3: Stone and Swynnerton

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CA3: Stone and Swynnerton



## 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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# Structure of the HS2 Supplementary Environmental Statement 2 and Additional Provision 2 Environmental Statement

This report is part of the suite of documents that make up the Supplementary Environmental Statement 2 (SES2) and Additional Provision 2 Environmental Statement (AP2 ES) for Phase 2a of the High Speed Two (HS2) rail network between the West Midlands and Crewe. The SES2 and the AP2 ES are separate documents, however, they are bound together and presented in a number of volumes as described below and shown in Figure 1.

- Non-technical summary (NTS). This provides a summary in non-technical language of the SES2 (Part 1) and the AP2 ES (Part 2). It presents a summary of any likely residual significant environmental effects (i.e. effects which are likely to remain after mitigation measures are put in place), both beneficial and adverse, which are new or different to those reported in the Environmental Statement (ES) submitted to Parliament in July 2017 in support of the hybrid Bill for Phase 2a of HS2 ('the main ES'), as amended by the Supplementary Environmental Statement 1 (SES1) submitted in March 2018 (and by SES2 for the AP2 amendments). The AP1 amendments described in the AP1 ES submitted in March 2018 are also taken into account where relevant.
- Glossary of terms and list of abbreviations. This contains any new or different terms and abbreviations used throughout the SES2 and the AP2 ES which are not already explained in the main ES or SES1 and AP1 ES.
- Volume 1: Introduction to the SES2 and the AP2 ES. This introduces the supplementary environmental information and changes to the design and construction assumptions included within the SES2 and amendments within the AP2 ES. The report explains the environmental impact assessment (EIA) process that has been applied.
- Volume 2: Community area reports and map books. These report the supplementary environmental information and changes to the design and construction assumptions included within the SES2 (Part 1), amendments within the AP2 ES (Part 2) and any new or different likely significant environmental effects arising from these changes or assumptions and amendments in each community area. These effects are compared to those reported in the main ES, as amended by SES1 (and by SES2 for the AP2 amendments). The AP1 amendments are also taken into account where relevant. The maps relevant to each community area are provided in separate Volume 2 map books and should be read in conjunction with the relevant community area report.
- Volume 3: Route-wide effects. This describes any new or different likely significant environmental effects arising at a route-wide level from the supplementary environmental information and changes to the design and construction assumptions included within the SES2 (Part 1) and the amendments within the AP2 ES (Part 2) compared to those reported in the



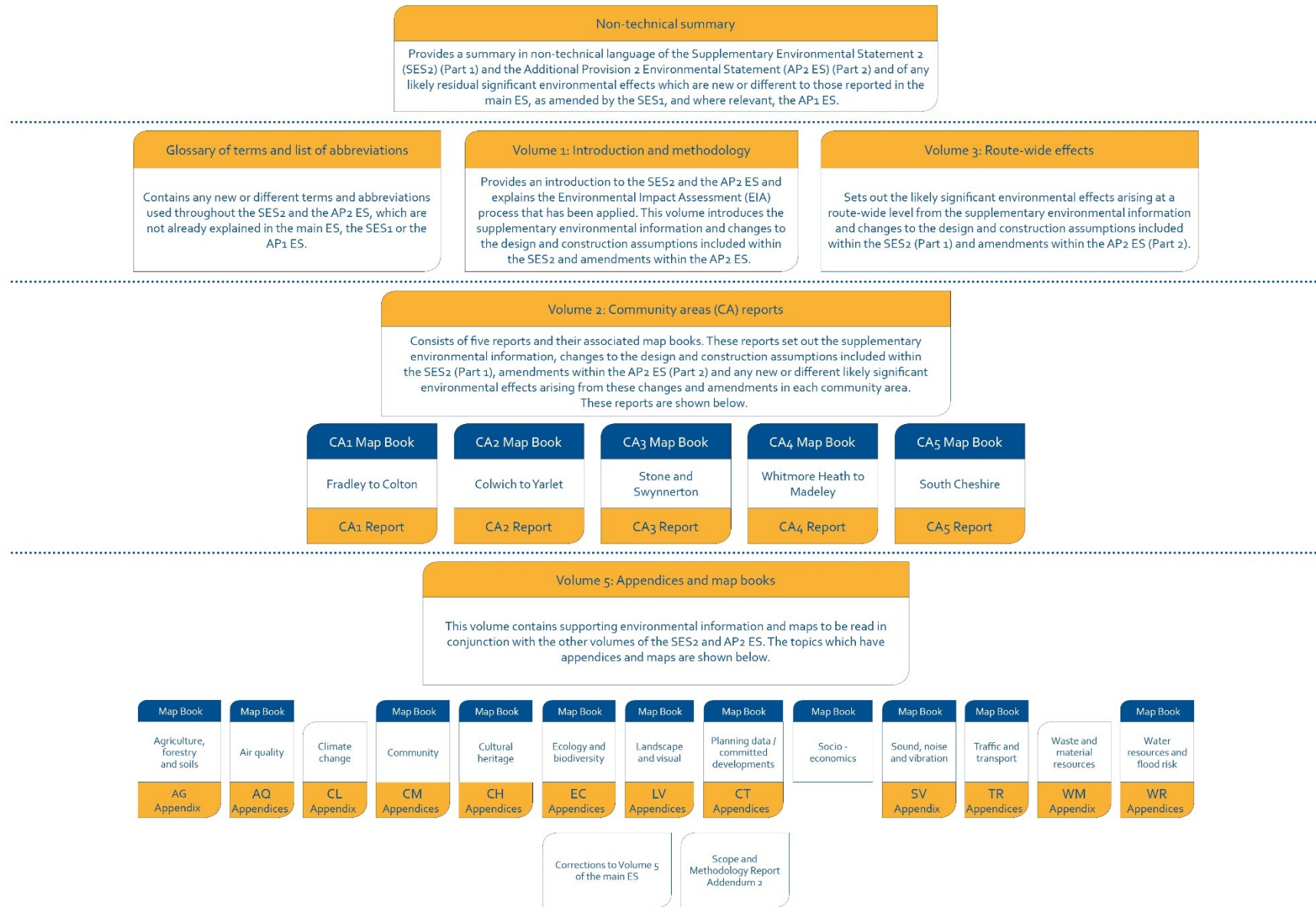
main ES, as amended by SES1 (and by SES2 for AP2). The AP1 amendments are also taken into account where relevant.

- Volume 5: Appendices and map book. These contain supporting environmental information and associated maps.

A Volume 4: Off-route effects report was produced as part of the main ES. This assessed the likely significant effects of the scheme at locations beyond the Phase 2a route corridor and its immediate environment. A separate Volume 4 has not been produced as part of the SES2 and AP2 ES. Any new or different significant off-route effects arising from the AP2 amendments are reported in the most relevant Volume 2 Community area report.

Certain reports and maps containing background information and data (BID) have been produced, which do not form part of the SES2 and AP2 ES. These documents are available online at [www.gov.uk/hs2](http://www.gov.uk/hs2). The BID documents and maps present background survey information and other relevant background material.

Figure 1: Structure of the SES2 and AP2 ES



## Structure of this report

This volume of the SES2 and AP2 ES is divided into five community area (CA) reports, which are in turn divided into two parts.

Part 1 provides supplementary environmental information, where relevant, relating to:

- new baseline information with respect to environmental surveys completed and additional information received since the production of the SES1 and AP1 ES;
- changes to the design and construction assumptions that do not require changes to the Bill; and
- corrections to the main ES and the SES1 and AP1 ES.

Part 2 provides environmental assessment information relating to proposed amendments to the design, which have resulted in the need to alter the powers conferred by the Bill.

Parts 1 and 2 include, where relevant:

- a description of the SES2 changes (Part 1) or the proposed AP2 amendments (Part 2) within the community area that have triggered the need for reassessment;
- an assessment of the environmental effects of the SES2 changes (Part 1) or the proposed AP2 amendments (Part 2) for relevant environmental topics considering the:
  - scope, assumptions and limitations of the assessment;
  - environmental baseline;
  - effects arising during construction;
  - effects arising from operation;
  - mitigation and residual effects; and
- a summary of any new or different likely residual significant effects as a result of the SES2 changes (Part 1) and the proposed AP2 amendments (Part 2).



# 1 Introduction

- 1.1.1 The High Speed Rail (West Midlands - Crewe) Bill was submitted to Parliament together with the main ES in July 2017. The SES1 and AP1 ES, which was submitted in March 2018, updated the main ES and contained a number of changes and amendments to the design of the original scheme (i.e. the scheme submitted in July 2017).
- 1.1.2 Since the submission of the main ES, SES1 and AP1 ES, updates to environmental baseline information and changes to the scheme design or assumptions have occurred, which may lead to new or different significant effects. These effects, depending on the type of change, are reported in the SES2 (Part 1) or AP2 ES (Part 2).
- 1.1.3 The Bill and associated Additional Provisions (APs) to the Bill described above, if enacted by Parliament, will provide the powers to construct, operate and maintain Phase 2a of HS2.
- 1.1.4 In order to differentiate between the original scheme and the subsequent changes, the terms set out in Table 1 are used.

Table 1: Scheme definitions

Scheme name	Definition	Relevant CAs
the original scheme	the Bill scheme submitted to Parliament in July 2017, which was assessed in the main ES	1 - 5
the SES1 scheme	the original scheme with the changes described in the SES1 submitted in March 2018	1 - 5
the AP1 revised scheme	the SES1 scheme as amended by the AP1 submitted in March 2018	1 - 3, 5
the SES2 scheme	the SES1 scheme with the changes described in the SES2	1 - 5
the AP2 revised scheme	the SES2 scheme as amended by the AP2	1 - 5

- 1.1.5 The following terms are used to differentiate between changes included in the SES2 and those included in the AP2 ES:
- ‘SES2 design changes’ – changes to the scheme design reported in the SES2 that do not require additional powers. In this report the term ‘design change’ is also used;
  - ‘SES2 changes’ – all changes reported in the SES2 that do not require additional powers. This may include new baseline information, changes to the design and construction assumptions, and corrections; and
  - ‘AP2 amendments’ – amendments to the scheme reported in the AP2 ES that include requirements for additional powers in the Bill. In this report the term ‘amendment’ is also used.
- 1.1.6 In addition, the following terms are also used in the SES2 and AP2 ES, where relevant:
- ‘SES1 design changes’ – changes to the scheme design reported in the SES1 that do not require additional powers;

- ‘SES1 changes’ – all changes reported in the SES1 that do not require additional powers. These may include new baseline information, changes to the design and construction assumptions, and corrections; and
- ‘AP1 amendments’ – amendments to the scheme reported in the AP1 ES that include requirements for additional powers in the Bill.

- 1.1.7 The SES2 (Part 1 of this report) contains updated environmental baseline information and scheme information relating to changes within the current limits and powers of the Bill, and therefore do not require an AP to the Bill. The SES2 changes within the Stone and Swynnerton area include:
- additional environmental baseline information for air quality; cultural heritage; ecology and biodiversity; traffic and transport;
  - changes to the design and construction assumptions that do not require changes to the Bill; and
  - corrections to the main ES and the SES1 and AP1 ES.
- 1.1.8 These changes are described in Part 1 and are assessed on a topic by topic basis where relevant using the same approach adopted in the main ES, SES1 and AP1 ES.
- 1.1.9 The purpose of SES2 is to provide an assessment of any new or different likely significant environmental effects arising from the changes described. As there were SES1 changes in the Stone and Swynnerton area, the environmental effects of the SES2 changes are compared to those reported in the main ES as amended by SES1, and with the AP1 amendments taken into account as appropriate.
- 1.1.10 The AP2 ES (Part 2 of this report) describes the likely significant effects of amendments to the design of the scheme, which require the use of land outside the original limits of the Bill, additional access rights, and/or other extensions to the powers conferred by the Bill, making it necessary to submit an AP to the Bill.
- 1.1.11 The AP2 ES reports the assessment of each amendment separately for all relevant topics. The purpose of the AP2 ES is to provide an assessment of any new or different likely significant environmental effects arising from the amendments, compared to those reported in the main ES, as amended by SES1 and SES2, taking into account AP1 amendments where relevant.
- 1.1.12 A combined assessment of new or different significant construction traffic effects, as a result of changes in construction traffic flows, is reported in Section 7. This is because alterations in construction traffic flows cannot generally be directly attributed to particular SES2 changes or AP2 amendments. Traffic and transport effects are reported first, since the effects arise from changes in construction traffic flows, and then other topics which are affected by traffic and transport changes are reported as necessary.
- 1.1.13 All other new or different significant traffic and transport effects are reported with the relevant SES2 change or AP2 amendment.
- 1.1.14 The standard measures that will be used to mitigate likely significant adverse environmental effects during construction and operation of the scheme are described in the main ES, Volume 1, Section 9 and the draft Code of Construction Practice

## SES2 and AP2 ES Volume 2 – Community area 3, Stone and Swynnerton

(CoCP)<sup>1</sup> submitted in support of the Bill. Implementation of these measures has been assumed in this SES2 and AP2 ES.

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<sup>1</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at <https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a>

# Part 1: Supplementary Environmental Statement 2

## 2 Summary of changes in the Stone and Swynnerton area

### 2.1 New environmental baseline information

2.1.1 Since the production of the main ES, SES1 and AP1 ES, updates to the environmental baseline information have occurred which may lead to new or different significant effects for the following environmental topics.

#### Air quality

2.1.2 Air quality measurements for the baseline year of 2016 have become available in the Stone and Swynnerton area. These 2016 air quality measurements have been used to verify the air quality models for the assessment of traffic emissions which is presented in Section 7. This is done by comparing predicted pollutant concentrations against air quality measurements. Details of the 2016 air quality measurements and monitoring sites that are relevant to the assessment are provided in the SES2 and AP2 ES Volume 5: Appendix AQ-001-003 and Map Series AQ-01.

2.1.3 Since the assessment of the original scheme, the Department for Environment, Food and Rural Affairs (Defra) has issued updated tools for undertaking air quality assessments, for example background pollutant concentrations and road vehicle emission factors. Further explanation is presented in Volume 1. The air quality assessment undertaken for the SES2 changes and AP2 amendments uses these updated tools and is reported in Section 7.

#### Cultural heritage

2.1.4 Additional geophysical and heritage walkover surveys have been undertaken in the Stone and Swynnerton area.

2.1.5 Details of surveys completed and the additional desk-based information obtained is provided in Background Information and Data (BID) document CH-004-000, which accompanies the SES2 and AP2 ES, and Map Series CH-01 in the SES2 and AP2 ES Volume 5: Cultural heritage Map Book.

2.1.6 Details of the supplementary cultural heritage information that is relevant to the SES2 assessment is provided in Section 3.

#### Ecology and biodiversity

2.1.7 Additional Phase 1 habitat surveys have been undertaken and new baseline data relating to the designation of nature conservation sites has been published by Staffordshire Wildlife Trust for the Stone and Swynnerton area. Data has additionally been provided by Staffordshire Wildlife Trust regarding a National Vegetation Classification (NVC) survey undertaken at Cash's Pit Biodiversity Alert Site (BAS).



- 2.1.8 Details of the additional Phase 1 habitat surveys completed in the Stone and Swynnerton area are provided in BID document BID-EC-019-000, which accompanies the SES2 and AP2 ES. Details of the data relating to the designation of nature conservation sites is provided in SES2 and AP2 ES Volume 5: Appendix EC-001-000.
- 2.1.9 SES2 and AP2 ES Volume 5: Appendix EC-018-000 provides a summary of additional ecological survey data, which has resulted in no change to the conclusions of the main ES. SES2 and AP2 ES Volume 5: Appendix EC-016-000 identifies additional local/parish level effects that are likely to occur as a consequence of SES2 changes and AP2 amendments but which will not be significant.
- 2.1.10 Details of the supplementary ecological information that is relevant to the SES2 assessment are provided in Section 3.

### **Traffic and transport**

- 2.1.11 Additional information on traffic flows on three roads and/or junctions in the Stone and Swynnerton area has been collected. This information is provided in BID document BID TR-001-000, which accompanies the SES2 and AP2 ES.
- 2.1.12 SES2 and AP2 ES Volume 5: Appendix TR-001-000 provides an assessment of the survey data, which has resulted in no change to the conclusions of the main ES.

## **2.2 Changes to the design or construction assumptions not requiring a change to the Bill**

- 2.2.1 Since the production of the SES1 and AP1 ES, the need to make changes to the design and construction assumptions has been identified. The changes in the Stone and Swynnerton area are as follows and are described in the following sections:
- construction programme;
  - railway systems compounds; and
  - SES2 engineering design changes.
- 2.2.2 These changes do not require a change to the Bill.

### **Changes to construction programme in the Stone and Swynnerton area**

- 2.2.3 The main ES provided indicative details of the construction works to be managed from the construction compounds in the Stone and Swynnerton area, including duration of works, number of workers and a summary of the works to be undertaken.
- 2.2.4 In addition, a construction programme illustrating indicative periods for each of the core construction activities was also provided. See Volume 2, CA3, Section 2 of the main ES<sup>2</sup>.

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<sup>2</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe), Environmental Statement (July 2017), Volume 2, CA3*, Figure 8 Indicative construction programme between 2020 and 2027. Available online at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/627565/E15\\_CA3\\_Stone\\_and\\_Swynnerton\\_WEB\\_final.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/627565/E15_CA3_Stone_and_Swynnerton_WEB_final.pdf)

- 2.2.5 Since submission of the SES<sub>1</sub> and AP<sub>1</sub> ES, changes to the design and construction assumptions, including a route-wide review of the earthworks and movement of materials, have resulted in the need to make alterations to the indicative construction programme, shown in Figure 2 and reported in Section 3 of the SES 2 and Section 5 of the AP<sub>2</sub> ES.
- 2.2.6 The main SES<sub>2</sub> design changes and AP<sub>2</sub> amendments which give rise to changes to the construction programme are listed below and identified in Figure 2, which provides a revised indicative construction programme<sup>3</sup>. AP<sub>2</sub> amendments which give rise to changes to the construction programme are included in this section for completeness, but the assessment of those amendments is reported in Section 5 of the AP<sub>2</sub> ES.
- 2.2.7 The following SES<sub>2</sub> design changes give rise to changes to the construction programme:
- Landscape earthworks in the vicinity of the Stone Infrastructure Maintenance Base-Rail (IMB-R) (SES<sub>2</sub>-003-002);
  - Local placement of surplus excavated material to the north and south of Hatton South cutting (SES<sub>2</sub>-003-006); and
  - Change to the diversion of a Scottish Power Energy Networks 132kV overhead power line and a new utility compound, south-east of Swynnerton Footpath 10 Accommodation underbridge (SES<sub>2</sub>-003-007).
- 2.2.8 The SES<sub>2</sub> design changes above are considered to require a reassessment of the likely significant environmental effects and any mitigation and these are reported in Section 3 or Section 7, where relevant.
- 2.2.9 The following AP<sub>2</sub> amendments give rise to changes to the construction programme:
- Additional land required for a revised high pressure National Grid Gas Transmission Line diversion under Yarlet Central cutting and a new temporary utility compound (AP<sub>2</sub>-003-001);
  - Additional land required for modifications to the Yarnfield Lane M6 overbridge replacement (AP<sub>2</sub>-003-008);
  - Additional land required for a water treatment facility at the Severn Trent Water Limited Swynnerton Pumping Station (AP<sub>2</sub>-003-009);
  - Additional land required and a change to Bill powers for a revised gas pipeline diversion under the Swynnerton embankment and Tittensor Road diversion and a temporary utility compound to the east of the Tittensor Road diversion (AP<sub>2</sub>-003-011);

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<sup>3</sup> Site reinstatement shown in the construction programme is phased; phase one includes reinstatement of civils construction compounds and following completion of civils construction activities. The second phase includes reinstatement of haul roads, which remain until completion of track installation construction activities.

- Additional land required and a change to Bill powers for the provision of a roundabout at the junction of the A51 Stone Road diversion/Tittensor Road diversion (AP2-003-012);
- Additional land required for a water treatment facility at the Severn Trent Water Limited Mill Meece Pumping Station (AP2-003-013);
- Additional land required for a water treatment facility at the Severn Trent Water Limited Hanchurch Distribution and Storage Reservoir (AP2-003-015); and
- Additional land required for modifications to the roundabout junction of the A500 Queensway/A519 Newcastle Road/A519 Clayton Road (Hanchurch Interchange) and the signalised crossroads junction of the A519 Newcastle Road/A5182 Whitmore Road/B5038 Whitmore Road and a new temporary satellite compound (AP2-003-017).

2.2.10 The AP2 amendments above are considered to require a reassessment of the likely significant environmental effects and any mitigation and these are reported in Section 5 or Section 7, where relevant.

2.2.11 Other AP2 amendments give rise to changes to the construction programme but are not of a scale to be shown in Figure 2. These AP2 amendments are also reported in Section 5 and the construction programme is as described in the relevant scheme descriptions.





Stone and Swynnerton	2020 Quarters				2021 Quarters				2022 Quarters				2023 Quarters				2024 Quarters				2025 Quarters				2026 Quarters				2027 Quarters			
Construction activity	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Tittensor Road closure													■	■																		
Swynnerton auto-transformer station foundation															■	■	■	■	■	■												
Swynnerton auto-transformer station installation																					■	■	■	■								
Track installation (access point 9)																					■	■	■	■								
Site reinstatement																									■	■						
<b>Swynnerton North cutting main compound</b>					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■								
Site preparation and set-up					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■								
Utilities							■	■	■	■	■	■	■	■	■	■	■	■	■	■												
Swynnerton North cutting							■	■	■	■	■	■	■	■	■	■	■	■	■	■												
Tittensor Road overbridge and diversion							■	■	■	■	■	■	■	■	■	■																
Stab Lane closure							■	■	■	■	■	■																				
Bottom Lane closure							■	■	■	■	■	■																				
A51 Stone Road diversion											■	■			■	■																
A51 Stone Road closure											■	■																				
A519 Newcastle Road overbridge and realignment											■	■	■	■	■	■	■	■	■	■												
Swynnerton Heath Farm overbridge													■	■	■	■	■	■	■	■												
Site reinstatement																													■			
<b>Tittensor Road utility compound</b>													■	■	■	■																
Cadent diversion													■	■	■	■																
<b>Hatton South cutting satellite compound</b>					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■								
Site preparation and set-up					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■								
Demolitions							■	■	■	■	■	■																				
Utilities							■	■	■	■	■	■																				
Swynnerton Footpath 52 accommodation underbridge, realignment and widening											■	■																				
Swynnerton Footpath 15 green overbridge and realignment											■	■																				
Swynnerton Estate Central green underbridge											■	■	■	■	■	■																
Swynnerton Estate North green overbridge											■	■	■	■	■	■																
Hatton embankment											■	■	■	■	■	■	■	■	■	■												
Hatton South cutting											■	■	■	■	■	■	■	■	■	■												
Rowe Farm overbridge											■	■	■	■	■	■																
Plantation culvert											■	■	■	■	■	■																
Site reinstatement																																
<b>Hatton North cutting satellite compound</b>					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■								
Site preparation and set-up					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■								
Demolitions							■	■	■	■	■	■																				
Utilities							■	■	■	■	■	■	■	■	■	■	■	■	■	■												
Dog Lane Drop inlet culvert											■	■																				
Shelton culvert											■	■																				
Bent Lane (North) diversion											■	■																				
Swynnerton Footpath 10 underbridge and realignment											■	■	■	■	■	■																
Stableford South embankment											■	■	■	■	■	■																

Stone and Swynnerton	2020 Quarters				2021 Quarters				2022 Quarters				2023 Quarters				2024 Quarters				2025 Quarters				2026 Quarters				2027 Quarters							
Construction activity	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Bent Lane (South) realignment																																				
Hatton North cutting																																				
Dog Lane overbridge and realignment																																				
Stableford mid-point auto-transformer station foundation																																				
Site reinstatement																																				
<b>Bent Lane utility compound</b>																																				
Scottish Power Energy Networks diversion																																				
A519 junction modifications satellite construction compound																																				
A519/A5182 Trentham Road Highway improvement																																				
<b>Severn Trent Water Hanchurch compound</b>																																				
Severn Trent Water Hanchurch																																				
<b>Stableford mid-point auto-transformer station satellite compound</b>																																				
Site preparation and set-up																																				
Stableford auto-transformer station installation																																				
Site reinstatement																																				

Key	
	Compound duration showing start and end of mobilisation. Activities below will be managed from the above compound. Second phase site reinstatement can occur post the compound demobilisation.
	Activity duration (indicates where there is no change from the main ES taking into consideration SES1 changes and AP1 amendments).
	Increase in duration as a result of a SES2 change or AP2 amendment.
	Decrease in duration as a result of a SES2 change or AP2 amendment (A yellow box indicates that works are no longer taking place in the quarter indicated).
	New element of the programme (compound or associated works) as a result of a SES2 change or an AP2 amendment.

## Railway systems compounds

- 2.2.12 The Bill provides for land to be acquired for a number of railway systems compounds from which railway installation works will be managed. These works include: installation of the hydraulically bound layer<sup>4</sup> and pre-cast slab, rails (including crossovers) and overhead line equipment, installation of auto-transformer stations and changes to the existing rail network.
- 2.2.13 Since the submission of the SES<sub>1</sub> and AP<sub>1</sub> ES, refinement of the construction methodology and access requirements for the installation of slab track<sup>5</sup> has led to changes in the operational characteristics of one railway systems compound in the Stone and Swynnerton area. These changes include:
- change in the number of railway system workers (peak and/or average); and
  - change in railway systems construction traffic numbers (heavy goods vehicles (HGV) and cars/light goods vehicles (LGV)).
- 2.2.14 To further support this refinement in construction methodology and wherever practicable, site haul routes have been retained on completion of the civil engineering phase to support the access to railway systems compounds for slab track installation from the main road network and to reduce the reliance on access from the local road network.
- 2.2.15 The change to the operational characteristics of the existing compound in this area does not require a change to the Bill and is not considered to require in isolation a reassessment of the environmental effects or mitigation as set out in the main ES with respect to any environmental topics.
- 2.2.16 Whilst the changes to the construction methodology and access requirements for the installation of a slab track formation will increase the number of railway systems HGV movements, these will be later in the construction programme than civil engineering HGV movements and will, wherever practicable, utilise access via site haul routes from the main road network. In these locations, any increase in traffic on the road network associated with slab track installation will be relatively small. Therefore, there will be no new or different significant traffic effects as a result of these changes in isolation, compared to those reported in the main ES or SES<sub>1</sub>. This change, in combination with other SES<sub>2</sub> changes and AP<sub>2</sub> amendments, is reported for traffic, and other topics which are affected by changes to traffic flows, in Section 7.
- 2.2.17 Table 2 provides details on the changes to the operational characteristics of the existing railway systems compound in this area.

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<sup>4</sup> Aggregate mixture incorporating cement or lime based or other binders, which harden in-situ by a chemical/hydraulic reaction.

<sup>5</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe), Environmental Supplementary Environmental Statement and Additional Provision Environmental Statement* (March 2018), Volume 1, Section 7. Available online at:

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/692614/G7\\_Volume\\_1\\_WEB.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/692614/G7_Volume_1_WEB.pdf)



## SES2 and AP2 ES Volume 2 – Community area 3, Stone and Swynnerton

Table 2: Summary of changes to the construction assumptions within the existing powers of the Bill in the Stone and Swynnerton area

Details of changes to construction assumptions	Description of the SES1 scheme	Description of the SES2 scheme	Change to significant effects
Change to the railway systems worker numbers and railway systems HGV trips for the Swynnerton embankment satellite compound	<p>The main ES, as corrected by SES1, reported that the compound would support an average of 15 civil engineering workers per day (25 workers at peak times) and an average of 30 railway systems workers per day (40 workers at peak times).</p> <p>The main ES further reported that the compound would generate 71-84 civil engineering HGV trips per day and up to 10 railway systems HGV trips per day during busy periods<sup>6</sup> and within the peak month of activity.</p> <p>Map CT-05-225, E7 in the main ES, Volume 2, CA3 Map Book</p>	<p>There are no changes to the operational characteristics for the Swynnerton embankment satellite compound related to civil engineering works.</p> <p>There will be an increase in the number of railway systems workers supported by this compound with an average of 45 railway systems workers per day (70 workers at peak times).</p> <p>There will be an increase in the number of railway systems HGV trips generated by this compound with 160-162 trips per day during the busy periods and within the peak month of activity.</p>	<p>Although there will be an increase in peak HGV and worker trips to this compound as a result of this change, this will not lead to new or different significant effects in isolation, as the change to overall traffic levels on the road network is relatively small.</p> <p>The assessment of the changes in railway systems HGV and worker trips is considered in combination with SES2 changes and AP2 amendments and is reported in Section 7.</p>

### SES2 engineering design changes

2.2.18 Table 3 provides a summary of the SES2 engineering design changes not requiring a change to the Bill which result in new or different significant effects in the Stone and Swynnerton area. Figure 3 shows the locations of these changes.

2.2.19 All dimensions in the following sections are approximate.

Table 3: Summary of changes to the engineering design not requiring a change to the Bill in the Stone and Swynnerton area

Name of SES2 engineering design change	Description of the SES1 scheme (and AP1 revised scheme where relevant)	Description of the SES2 scheme
<p>Local placement of surplus excavated material to the south of Yarlet embankment</p> <p>SES2-003-001</p> <p>Map CT-06-220b, C6 to A7, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>A temporary material stockpile would be located to the south of Yarlet embankment, east of the Stone Rural Bridleway 0.1135.</p> <p>Following construction, the land would be returned to agricultural use.</p>	<p>Surplus excavated material will be placed permanently to the south of Yarlet embankment, east of Stone Rural Bridleway 0.1135.</p> <p>The material will be graded so that the placement area can be returned to agricultural use.</p>

<sup>6</sup> The busy period is the period during which HGV traffic serving that compound will be greater than 50% of the HGV traffic in the peak month. The average daily combined two-way vehicle trips for the busy period is the lower end of the range and for the peak month is the upper end of the range.

SES2 and AP2 ES Volume 2 – Community area 3, Stone and Swynnerton

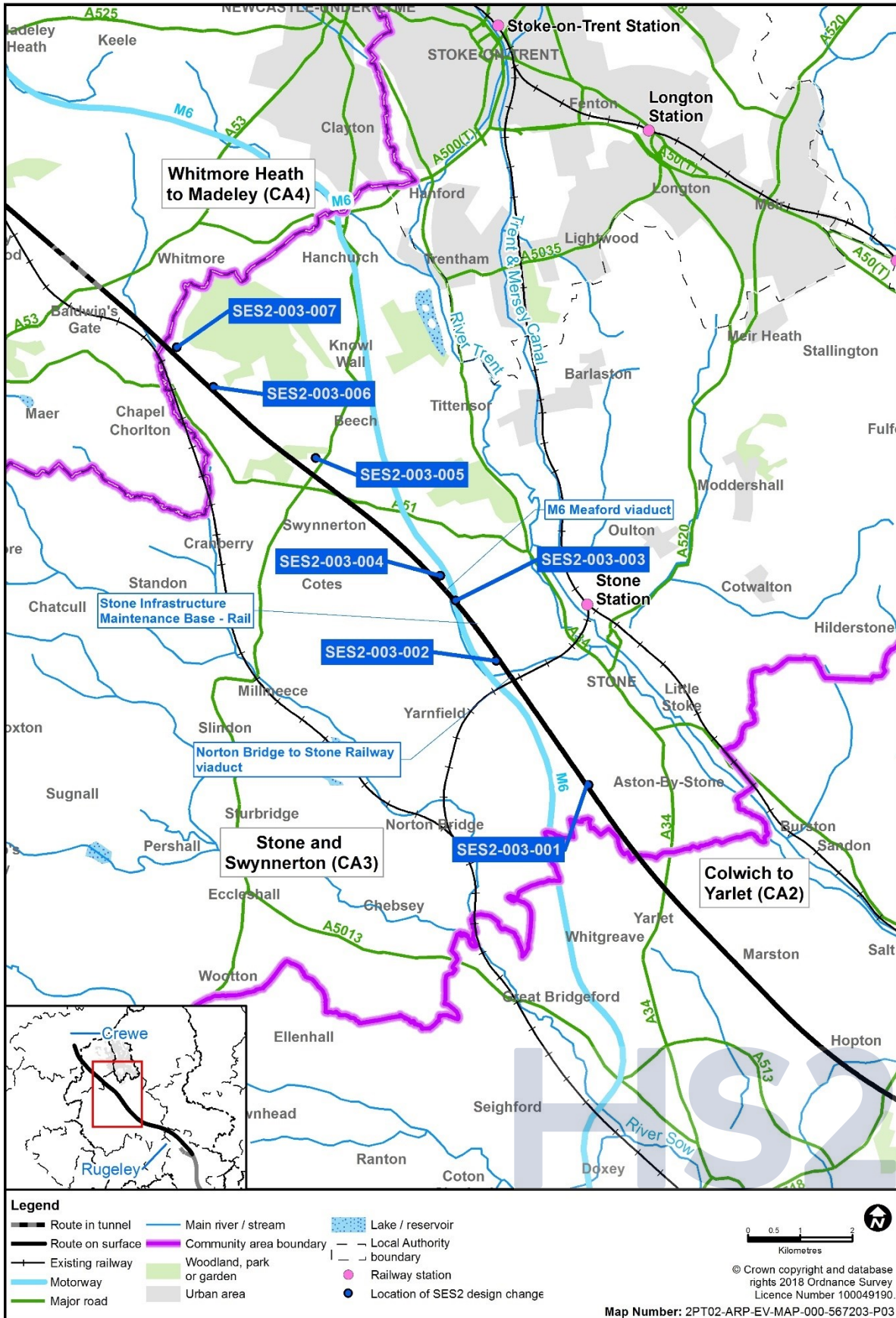
Name of SES2 engineering design change	Description of the SES1 scheme (and AP1 revised scheme where relevant)	Description of the SES2 scheme
<p>Landscape earthworks in the vicinity of the Stone Infrastructure Maintenance Base-Rail (IMB-R)</p> <p>SES2-003-002</p> <p>Map CT-06-222, G7 to D5, and Map CT-06-223, H7 to B7, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>Stone IMB-R would be provided as a permanent maintenance facility, covering 40ha of land and extending 1.6km along the HS2 main line from the Norton Bridge to Stone Railway. During construction, the area required permanently for the Stone IMB-R would be used as the Stone railhead main compound.</p> <p>The AP1 revised scheme (AP1-003-001: 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) made provision for changes to the HS2 main line alignment in this area and for the Norton Bridge to Stone Railway viaduct and removed the proposed Filly Brook viaduct.</p>	<p>Five permanent landscape earthworks to the south of the Stone IMB-R and three permanent landscape earthworks within the Stone IMB-R site will be created. Where landscape earthworks will be located within areas of environmental mitigation planting, the planting will remain at the same location and be planted on top of the earthwork. A small area of grassland mitigation will no longer be provided and there will be a small increase in landscape mitigation planting at the northern end of the Yarnfield South embankment.</p>
<p>Increase in length and change to design of the M6 Meaford viaduct</p> <p>SES2-003-003</p> <p>Map CT-06-223, E9 to A6, and Map CT-06-224, J6 to G3, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>The original scheme provided for the M6 Meaford viaduct, 174m in length, to carry the HS2 route across the M6. The viaduct would be a four-span structure with piers in the central reservation of the M6. The southbound lanes of the M6 would be realigned for 1.1km as a result of the need for the central reservation to be widened to accommodate the viaduct piers. Consequently, the existing M6 underpass, 150m south-west of the HS2 main line, would be extended by 3.5m, maintaining access for the realigned Stone Rural Footpath 33 under the M6. Drainage and hedgerow planting would be provided along the eastern side of the M6 realignment, north of the HS2 route.</p> <p>The AP1 revised scheme (AP1-003-001: 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) provided for the horizontal realignment of the M6 Meaford viaduct by 13.5m in a north-easterly direction. The length of the M6 Meaford viaduct was slightly extended by 2m to 176m, the Meaford South embankment was extended from 343m to 382m and the Meaford North embankment was reduced in length from 928m to 910m.</p>	<p>The length of the M6 Meaford viaduct will be increased to a total length of 208m and be constructed as a three-span structure. The central span of the viaduct will be 130m in length with a tied arch structural form, up to 20m above rail level and up to 36m above existing ground level, removing the requirement for a pier in the central reservation of the motorway. A realignment of the southbound lanes of the M6, and extension in the length of the existing M6 underpass, will therefore no longer be required.</p> <p>As a result of the increased length of the M6 Meaford viaduct, the total length of the Meaford South embankment will be 379m and the Meaford North embankment will be 881m.</p> <p>Drainage and hedgerow planting along the eastern side of the M6 realignment will no longer be required.</p>

## SES2 and AP2 ES Volume 2 – Community area 3, Stone and Swynnerton

Name of SES2 engineering design change	Description of the SES1 scheme (and AP1 revised scheme where relevant)	Description of the SES2 scheme
<p>Two new utility compounds for the diversion of a Western Power Distribution 33kV overhead line and a Scottish Power Energy Networks 132kV overhead line, north-east of Swynnerton Footpath 27 accommodation underbridge</p> <p>SES2-003-004</p> <p>Map CT-05-224, F5 to F1, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>Two overhead power lines, one Western Power Distribution 33kV overhead line and one Scottish Power Energy Networks 132kV overhead line, would be diverted over a length of 1.2km. The power lines, which share a series of pylons, would be diverted underground for 500m along their existing alignments, passing under the HS2 route and the M6 in a north-east to south-west direction, 100m south of the Swynnerton Footpath 27 accommodation underbridge. The diversion would be managed and constructed from Meaford North embankment satellite compound.</p>	<p>Two new utility compounds will be provided to manage the utility diversion works. Swynnerton Utility compound (North) and Swynnerton Utility compound (South) will be located adjacent to the utility diversion, to the north-east and south-west of the M6. Meaford North embankment satellite compound will no longer be required to be used for these utility works. There is no change to the diversions themselves.</p>
<p>Local placement of surplus excavated material to the north of Swynnerton North cutting</p> <p>SES2-003-005</p> <p>Map CT-06-226, F3 to E5, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>A temporary material stockpile would be located to the north of Swynnerton North cutting, north-west of the A519 Newcastle Road/A51 Stone Road roundabout.</p> <p>Following construction, the land would be returned to agricultural use.</p>	<p>Surplus excavated material will be placed permanently to the north of Swynnerton North cutting, north-west of the A519 Newcastle Road/A51 Stone Road roundabout.</p> <p>The material will be graded so that the placement area can be returned to agricultural use.</p>
<p>Local placement of surplus excavated material to the north and south of Hatton South cutting</p> <p>SES2-003-006</p> <p>Map CT-06-228a, J5 to H6, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>Two temporary material stockpiles would be located adjacent to the Hatton South cutting, 200m north-west of the Swynnerton Footpath 15 green overbridge.</p> <p>Following construction, the land would be returned to agricultural use.</p>	<p>Surplus excavated material will be placed permanently on the northern and southern sides of the Hatton South cutting, 200m north-west of Swynnerton Footpath 15 green overbridge.</p> <p>The material will be graded so that the placement area can be returned to agricultural use.</p>
<p>Change to the diversion of a Scottish Power Energy Networks 132kV overhead power line and a new utility compound, south-east of Swynnerton Footpath 10 accommodation underbridge</p> <p>SES2-003-007</p> <p>Map CT-05-228a, C8 to A1, and CT-06-228a, C8 to A1, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>Diversion of a Scottish Power Energy Networks 132kV overhead power line for 870m, of which 250m would be diverted underground to cross under the HS2 route in a north-east to south-west direction, 100m to the south-east of the Swynnerton Footpath 10 underbridge.</p> <p>A small area of grassland habitat creation would be provided between the landscape mitigation planting to the north-east of the HS2 route on Stableford South embankment.</p> <p>The diversion would be managed from the Hatton North cutting satellite compound.</p>	<p>The diversion route for the Scottish Power Energy Networks 132kV overhead power line to the south-east of Swynnerton Footpath 10 accommodation underbridge will be amended.</p> <p>The diversion will start and finish at the same points as proposed in the original scheme, and the underground route will increase in length from 250m to 400m and will be diverted along an accommodation access and public highways. A strip of grassland habitat creation provided for easement in the original scheme will be replaced with landscape mitigation planting.</p> <p>A new utility compound (Bent Lane utility compound) will be provided to manage the installation of the Scottish Power Energy Networks 132kV overhead power line. It will be provided within land required for the original scheme, 250m south of Swynnerton Footpath 10 accommodation underbridge.</p>

# SES2 and AP2 ES Volume 2 – Community area 3, Stone and Swynnerton

Figure 3: Locations of SES2 engineering design changes not requiring a change to the Bill in the Stone and Swynnerton area



*Local placement of surplus excavated material to the south of Yarlet embankment (SES2-003-001)*

- 2.2.20 The Bill provides for the temporary storage of excavated material, adjacent to the HS2 route, for reuse within the scheme during construction. A temporary material stockpile would be provided to the south of Yarlet embankment, east of Stone Rural Bridleway 0.1135. Following construction, the land would be returned to agricultural use. See Map CT-05-220b, C6 to B8, in the main ES Volume 2, CA3 Map Book.
- 2.2.21 As part of a route-wide review of earthworks and the movement of materials, the scope for local placement of surplus excavated material on land already required for the construction of the scheme has been considered. Use of local placement areas would reduce the need for off-site road transportation and disposal of that surplus excavated material and reduce the environmental impacts arising from HGV movements on the highway network. Volume 1 of the SES2 and AP2 ES provides further detail on the local placement of surplus excavated material.
- 2.2.22 Surplus excavated material will be placed permanently to the south of Yarlet embankment. The location for the placement of surplus excavated material will cover an area of 4ha and will be up to 3m in height. The surplus excavated material will be graded to allow the area to return to agricultural use following construction.
- 2.2.23 The agricultural soil profile (i.e. the topsoil and subsoil) will be available for agricultural restoration so that agricultural soils can be returned to the same condition as their pre-excavated state, using good practice techniques to handle, store and reinstate soils. Given the currently unknown nature of the surplus excavated material beneath the restored agricultural soil profile, it is likely that agricultural land drainage works will be required when restoring this area to achieve this condition and to ensure ongoing agricultural management of the restored land.
- 2.2.24 Surplus excavated material will be placed in the local placement area throughout the construction period as suitable material arises. This process will be managed from Yarlet embankment satellite compound.

**Local alternatives**

- 2.2.25 A process of identifying potentially suitable local placement areas in the Yarlet area was undertaken.
- 2.2.26 This process identified four locations in the Yarlet area for the placement of surplus excavated material, three of which are in the Stone and Swynnerton area and one of which is in the Colwich to Yarlet area (CA2). The identified locations were considered against criteria, as identified in Volume 1, which set out the key considerations for the suitability of local placement sites. The four locations are reported below.
- 2.2.27 When considered against the criteria, the following three options were not taken forward for further consideration as they were not considered to be reasonable options:
- Option 1A (in the Colwich to Yarlet area (CA2)) would be located to the north-west of Hopton and Coton Bridleway 11 accommodation overbridge, on the northern side of the Hopton North cutting. This option was not taken forward as it would

require some additional land outside of the Bill powers and would conflict with the diversion of a high pressure gas pipeline and a high pressure fuel pipeline;

- Option 1B would be located on the north-east of Pirehill Grange Farm, on the southern side of Yarlet embankment. This option was not taken forward as it would require additional land outside of the Bill powers; and
- Option 1C would be located on the north-east of Pirehill Grange Farm, on the northern side of Yarlet embankment. This option was not taken forward as it would require additional land outside of the Bill powers.

2.2.28 Option 2 would be located to the north-east of Pirehill Grange Farm, adjacent to Stone Rural Bridleway 0.1135, on the southern side of Yarlet embankment. The location for this option meets with the majority of the criteria, however it would be in proximity to Pirehill Grange Farm, which would potentially be subject to minor visual impacts. This option has been taken forward into the SES2 scheme as, on balance, the effects on Pirehill Grange Farm would be minor and limited to the construction period.

### **Topics included in the SES2 assessment**

2.2.29 The assessment of the changes to construction traffic flows and traffic related effects as a result of this SES2 design change in combination with all SES2 changes and AP2 amendments, is reported in Section 7.

2.2.30 This SES2 design change is not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES, as amended by SES1 and SES2, with respect to any environmental topics.

### *Landscape earthworks in the vicinity of the Stone Infrastructure Maintenance Base-Rail (IMB-R) (SES2-003-002)*

2.2.31 The Bill provides for a permanent infrastructure maintenance facility in the form of the Stone Infrastructure Maintenance Base-Rail (IMB-R). The Stone IMB-R would occupy land between the HS2 main line and the M6 north of the Norton Bridge to Stone Railway. The facility would operate as a base for maintenance activities and would cover approximately 40ha, extending across 1.6km and spanning 300m at its widest point. A range of maintenance facilities would be provided within the Stone IMB-R, which would include stabling sidings to allow the handling and storage of rail infrastructure materials and maintenance trains, a permanent two-storey workshop, and administration and welfare buildings adjacent to the M6. See Map CT-06-223, J9 to C7, in the main ES Volume 2, CA3 Map Book.

2.2.32 During construction, the area required permanently for the Stone IMB-R would be used as the Stone railhead main compound. This compound would be used to manage the import of railway systems construction materials and railway systems installation works along the HS2 route. See Map CT-05-223, J9 to C7, in the main ES Volume 2, CA3 Map Book.

2.2.33 To the south of the Stone IMB-R, the B5026 Eccleshall Road would be realigned 25m north-west of its existing alignment to cross over Yarlet North cutting on the B5026 Eccleshall Road overbridge. See Map CT-06-222, G7 to H1, in the main ES Volume 2, CA3 Map Book.

- 2.2.34 Woodland habitat creation would provide replacement habitat on the south-western side of the Yarnfield South embankment, and landscape earthworks and landscape mitigation planting on the north-eastern side of the embankment would integrate the embankment into the surrounding landscape.
- 2.2.35 An area of grassland habitat creation would be provided to the south-west of the reception tracks in the area bounded by the reception tracks, the Norton Bridge to Stone Railway, the M6 and the B5026 Eccleshall Road realignment. A second area of grassland habitat creation would be provided to the south-east of the Norton Bridge to Stone Railway in an area between the reception tracks crossing the Norton Bridge to Stone Railway underbridge and the reception tracks crossing beneath Filly Brook viaduct. Grassland habitat creation would also be provided surrounding the area of woodland habitat creation on the southern side of the HS2 main line, adjacent to Yarnfield South embankment.
- 2.2.36 The AP1 revised scheme (AP1-003-001: 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) made provision for changes to the HS2 main line alignment in this area and the Norton Bridge to Stone Railway viaduct, and replaced the proposed Filly Brook viaduct with the Norton Bridge to Stone Railway viaduct. The AP1 revised scheme would result in an extension to the north-west of Yarnfield South embankment by approximately 85m. There would be associated minor changes to the areas of woodland and grassland mitigation planting either side of Yarnfield South embankment to accommodate the modifications to the HS2 main line alignment.
- 2.2.37 Since submission of the SES1 and AP1 ES, an opportunity has been identified to better integrate the Stone IMB-R into the surrounding landscape.
- 2.2.38 A series of permanent landscape earthworks will be created to the south of the Stone IMB-R, between the B5026 Eccleshall Road realignment and Norton Bridge to Stone Railway, as follows:
- a new landscape earthwork will be provided, within an area of grassland habitat creation included in the original scheme, between reception tracks associated with the Stone IMB-R and the M6, immediately to the north-west of the B5026 Eccleshall Road realignment. The landscape earthwork will be up to 5m in height and will have a footprint area of 0.5ha. The grassland habitat creation area proposed in the original scheme will remain and will be planted on top of the earthwork. See Map CT-06-222, G7 to F7, in the SES2 and AP2 ES Volume 2, CA3 Map Book;
  - a new landscape earthwork will be provided between reception tracks associated with the Stone IMB-R and the M6, immediately to the south-east of the Norton Bridge to Stone Railway. The landscape earthwork will be up to 4m in height and will have a footprint area of 1ha. The grassland habitat creation area proposed in the original scheme will remain and will be planted on top of the earthwork. See Map CT-06-222, E7 to D7, in the SES2 and AP2 ES Volume 2, CA3 Map Book;
  - a new landscape earthwork will be provided adjacent to the south-east of the Norton Bridge to Stone Railway, within an area of grassland habitat creation included in the original scheme between the reception tracks associated with the

Stone IMB-R crossing the Norton Bridge to Stone Railway underbridge and the reception tracks associated with the Stone IMB-R crossing beneath the HS2 main line. The landscape earthwork will be up to 4m in height and will have a footprint area of 0.3ha. The grassland habitat creation area proposed in the original scheme will remain and will be planted on top of the earthwork. See Map CT-06-222, D6, in the SES2 and AP2 ES Volume 2, CA3 Map Book;

- a new landscape earthwork will be provided to the south-west of the Yarnfield South embankment, in the area of woodland habitat creation included in the original scheme, as amended by the AP1 revised scheme (amendment AP1-003-001: 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). The AP1 revised scheme would reduce the proposed woodland mitigation planting and introduce a surrounding band of grassland habitat creation. The area is bounded by the HS2 main line to the north-east and the reception tracks associated with Stone the IMB-R to the south-west. A new perimeter drainage ditch will be required around the base of the landscape earthwork, which will replace the area of grassland habitat creation that was proposed as part of the AP1 revised scheme. The landscape earthwork will be up to 4m in height and will have a footprint area of 0.8ha. The woodland habitat creation area proposed in the original scheme, which would be amended as part of the AP1 revised scheme, will remain and will be planted on top of the earthwork. See Map CT-06-222, E6 to D6, in the SES2 and AP2 ES Volume 2, CA3 Map Book; and
- a new landscape earthwork will be provided to the north-east of the HS2 main line, along Yarnfield South embankment, immediately to the south of the Norton Bridge to Stone Railway viaduct. This earthwork will form part of the extension of the Yarnfield South embankment proposed in the AP1 revised scheme (AP1-003-001: 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). The landscape earthwork will be up to 10m in height, with a footprint area of 0.4ha and will be provided to grade out the slope of the northern side of Yarnfield South embankment from 1 in 2.5 to 1 in 4. The landscape earthwork will be located within the area of landscape mitigation planting proposed in the AP1 revised scheme between the HS2 main line and an access road to balancing ponds. The landscape mitigation planting area will remain and will be planted on top of the earthwork and extended towards the HS2 main line, increasing the total area of landscape mitigation planting. See Map CT-06-222, D5, in the SES2 and AP2 ES Volume 2, CA3 Map Book.

2.2.39 Three further landscape earthworks will be provided within the Stone IMB-R site, between the realigned Yarnfield Lane and the M6 Meaford viaduct, as follows:

- a new landscape earthwork will be provided on the south-western side of the HS2 main line, along Yarnfield North embankment, Meaford cutting and Meaford South embankment, extending from 100m north-west of Yarnfield Lane underbridge to 100m south-east of the M6 Meaford viaduct. The landscape earthwork will be up to 7m in height and will have a footprint area of 4.9ha. To accommodate the landscape earthwork the access road to Yarnfield Lane



auto-transformer station will be realigned within the Stone IMB-R site by up to 80m to follow the base of the slope of the landscape earthwork. See Map CT-06-223, G7 to C7, in the SES2 and AP2 ES Volume 2, CA3 Map Book;

- a new landscape earthwork will be provided alongside the north-eastern side of the M6 and to the north of the permanent two-storey workshop, administration and welfare building and the south-west of the stabling sidings. The landscape earthwork will be up to 4m in height and will have a footprint area of 1.2ha and occupy an area that was previously identified for a single-storey temporary office and welfare building for the Stone railhead main compound. The permanent two-storey workshop, and administration and welfare building will be used to provide the temporary office and welfare facilities during the operation of the Stone railhead main compound. See Map CT-06-223, F9 to D8, in the SES2 and AP2 ES Volume 2, CA3 Map Book; and
- a new landscape earthwork will be provided adjacent to the north of the new roundabout junction of the M6 slip roads and the Stone IMB-R access road, connecting to the realigned Yarnfield Lane, and to the south-east of the permanent two-storey workshop, and administration and welfare building and south-west of the stabling sidings. The landscape earthwork will be up to 2m in height and will have a footprint area of 0.3ha. See Map CT-06-223, G9, in the SES2 and AP2 ES Volume 2, CA3 Map Book.

- 2.2.40 The landscape earthworks will be created in the identified areas throughout the construction period as suitable material arises. The landscape earthworks will be formed over a period of up to two years and nine months, commencing in 2021, and will be managed from the Yarnfield North embankment satellite compound.

### **Topics included in the SES2 assessment**

- 2.2.41 This SES2 design change is considered to require reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, for landscape and visual. This is reported within Section 3.
- 2.2.42 The assessment of the changes to construction traffic flows and traffic related effects as a result of this SES2 design change, in combination with all SES2 changes and AP2 amendments, is reported in Section 7.

### *Increase in length and change to design of the M6 Meaford viaduct (SES2-003-003)*

- 2.2.43 The Bill provides for the M6 Meaford viaduct, 174m in length, to carry the HS2 route across the M6. The viaduct would be a four-span structure with piers in the central reservation of the M6. The southbound lanes of the M6 would be realigned for 1.1km and the central reservation would be widened to accommodate the viaduct piers. The existing M6 underpass, 150m south-west of the HS2 main line, would be extended by 3.5m as a consequence of the widening of the M6 central reservation by 13m for the M6 Meaford viaduct piers. Access under the M6 for the realigned Stone Rural Footpath 33 would be maintained via the extended underpass. See Map CT-06-223, D8, in the main ES Volume 2, CA3 Map Book. Drainage and hedgerow planting would be provided along the eastern side of the M6 realignment, north of the HS2 route.

See Map CT-06-223, E9 to A6, and Map CT-06-224, J7 to G4, in the main ES Volume 2, CA3 Map Book.

- 2.2.44 Since submission of the Bill, the AP1 revised scheme (AP1-003-001: 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) would provide additional land and a change in Bill powers for the horizontal realignment of the M6 Meaford viaduct by 13.5m in a north-easterly direction. See Map CT-06-222, F5 to D5 and D5 to A5, and Map CT-06-223, J7 to H7, in the SES and AP ES, Volume 2, CA3 Map Book. The length of the M6 Meaford viaduct was extended by 2m to 176m, the Meaford South embankment was extended from 343m to 382m and the Meaford North embankment was reduced from 928m to 910m.
- 2.2.45 Further engagement with Highways England and consideration of traffic management impacts during construction has identified the requirement to increase the length of the M6 Meaford viaduct to a total length 208m and revise the design of the viaduct to provide a three-span structure. The central span of the viaduct will be 130m in length with a tied arch structural form, up to 20m above rail level and up to 36m above existing ground level. The longer structure will allow the abutments to be located further back from the carriageway and will remove the requirement for a pier in the central reservation, as proposed in the original scheme, thereby avoiding realignment of the southbound carriageway and prolonged lane closures on both carriageways. During construction, these lane closures could have negated the benefits of the Smart Motorway scheme, currently under construction, to upgrade the M6 between Junction 13 and Junction 15. Realignment of the southbound lanes of the M6 and an extension of the existing M6 underpass will therefore no longer be required. As a result of the increased length of the M6 Meaford viaduct, the total length of the Meaford South embankment will be reduced to 379m and the Meaford North embankment will be reduced to 881m. Proposed drainage and hedgerow planting along the eastern side of the M6 realignment included in the original scheme will no longer be required. See Map CT-06-223, E9 to A6, and Map CT-06-224, J7 to G4, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 2.2.46 The M6 Meaford viaduct will be constructed over a period of three years, commencing in 2021. Meaford South embankment and Meaford North embankment will be constructed over a period of three years, commencing in 2022. Works will be managed from the M6 Meaford viaduct satellite compound.

### **Topics included in the SES2 assessment**

- 2.2.47 The assessment of the changes to construction traffic flows and traffic related effects as a result of this SES2 design change, in combination with all SES2 changes and AP2 amendments, is reported in Section 7.
- 2.2.48 This SES2 design change is not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES, as amended by SES1 and SES2, with respect to any environmental topics.
- 2.2.49 A re-assessment of landscape and visual effects is not considered to be necessary as the relatively small change (to increase the length to the M6 Meaford viaduct and reduce the length of the associated Meaford South and North embankments and

altered bridge style) will be seen in the context of the larger scale change as a result of the original scheme in this area.

*Two new utility compounds for the diversion of a Western Power Distribution 33kV overhead line and a Scottish Power Energy Networks 132kV overhead line, north-east of Swynnerton Footpath 27 accommodation underbridge (SES2-003-004)*

- 2.2.50 The Bill provides for the diversion of two overhead power lines, one Western Power Distribution 33kV overhead line and one Scottish Power Energy Networks 132kV overhead line, over a length of 1.2km. The power lines, which share the same pylons, would be diverted underground for 500m on their existing alignments, passing under the HS2 route and the M6 in a north-east to south-west direction, 100m south of the Swynnerton Footpath 27 accommodation underbridge. See Map CT-06-224, F1 to F9, and Map CT-06-224-R1, F9 to F10, in the main ES Volume 2, CA3 Map Book. Construction of the power lines diversion would take one year and three months to complete, commencing in 2021, and would be managed from the Meaford North embankment satellite compound. See Map CT-05-224, G7 to G6, in the main ES Volume 2, CA3 Map Book.
- 2.2.51 Since submission of the Bill, a requirement has been identified through further engagement with the utility provider to provide two new utility compounds for delivery of the overhead line diversion works (one for each major utility). The Swynnerton utility compound comprises a northern and southern site adjacent to the diversion route either side of the M6 motorway. The northern compound is 50m south of Stone Rural Byway Open to All Traffic (BOAT) 34 and the southern compound is located 50m north-east of Swynnerton Footpath 27 accommodation underbridge, within land required for the original scheme. See Map CT-05-224, F5 to F1, in the SES2 and AP2 ES, Volume 2 CA3 Map Book.
- 2.2.52 The two Swynnerton utility compound sites (North and South) will be operational for nine months, commencing during 2021, and will each support an average of 15 workers per day (20 workers at peak times). Access to the northern compound will be from Stone Rural BOAT 34 for the whole duration. Access to the southern compound will be from Stone Rural BOAT 34 and via site haul routes and Tittensor Road.
- 2.2.53 The diversion works will be constructed over a period of nine months, commencing in 2021.
- 2.2.54 There are no proposed changes to mitigation as a consequence of the introduction of Swynnerton utility compound (North and South).

**Topics included in the SES2 assessment**

- 2.2.55 The assessment of the changes to construction traffic flows and traffic related effects as a result of this SES2 design change, in combination with all SES2 changes and AP2 amendments, is reported in Section 7.
- 2.2.56 This SES2 design change is not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES, as amended by SES1 and SES2, with respect to any environmental topics.

*Local placement of surplus excavated material to the north of Swynnerton North cutting (SES2-003-005)*

- 2.2.57 The Bill provides for the temporary storage of excavated material, adjacent to the HS2 route, for reuse within the scheme during construction. A temporary material stockpile would be provided to the north of Swynnerton North cutting, north-west of the A519 Newcastle Road/A51 Stone Road roundabout. Following construction, the land would be returned to agricultural use. See Map CT-06-226, E5 to F3, in the main ES Volume 2, CA3 Map Book.
- 2.2.58 As part of a route-wide review of earthworks and the movement of materials, the scope for local placement of surplus excavated material on land already required for the construction of the scheme has been considered. Use of local placement areas would reduce the need for off-site road transportation and disposal of that surplus excavated material and reduce the environmental impacts arising from HGV movements on the highway network. Volume 1 of the SES2 and AP2 ES provides further detail on the local placement of surplus excavated material.
- 2.2.59 Surplus excavated material will be placed to the north of Swynnerton North cutting, north-west of the A519 Newcastle Road/A51 Stone Road roundabout, in the area occupied by the temporary material stockpile in the original scheme. The location for the placement of surplus excavated material will cover a footprint area of 3.8ha and will be up to 3m in height. The surplus excavated material will be graded to allow the area to return to agricultural use following construction. See Map CT-06-226, F3 to E5, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 2.2.60 The agricultural soil profile (i.e. the topsoil and subsoil) will be available for agricultural restoration so that agricultural soils can be returned to the same condition as their pre-excavated state, using good practice techniques to handle, store and reinstate soils. Given the currently unknown nature of the surplus excavated material beneath the restored agricultural soil profile, it is likely that agricultural land drainage works will be required when restoring this area to achieve this condition and to ensure ongoing agricultural management of the restored land.
- 2.2.61 Surplus excavated material will be placed in the local placement area throughout the construction period as suitable material arises. This process will be managed from Swynnerton North cutting main compound.

**Local alternatives**

- 2.2.62 A process of identifying potentially suitable local placement areas in the Swynnerton area was undertaken.
- 2.2.63 This process identified three locations in the Swynnerton area for the placement of surplus excavated material. These were considered against criteria, as identified in Volume 1, which set out the key considerations for the suitability of local placement sites. The three locations are reported below.
- 2.2.64 When considered against the criteria, the following two options were not taken forward for further consideration as they were not considered to be reasonable options:

- Option 1 would be located to the east of the A51 Stone Road closure, on the northern side of Swynnerton North cutting. This option was not taken forward as it would conflict with the diversion of three water mains and two underground high voltage electricity cables; and
- Option 2 would be located to the north-east of the A519 Newcastle Road overbridge, on the northern side of Swynnerton North cutting. This option was not taken forward as it would conflict with the Swynnerton North cutting transfer node (North), which would be in use throughout the duration of construction.

2.2.65 Option 6 would be located to the north-west of the A519 Newcastle Road overbridge, on the northern side of Swynnerton North cutting. The location for this option meets with the majority of the criteria, however it will potentially increase the temporary loss and severance of agricultural land during construction. This option has been taken forward into the SES2 scheme as, on balance, the effects on agricultural land would be minor and limited to the construction period.

### **Topics included in the SES2 assessment**

2.2.66 The assessment of the changes to construction traffic flows and traffic related effects as a result of this SES2 design change in combination with all SES2 changes and AP2 amendments, is reported in Section 7.

2.2.67 This SES2 design change is not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES, as amended by SES1 and SES2, with respect to any environmental topics.

### *Local placement of surplus excavated material to the north and south of Hatton South cutting (SES2-003-006)*

2.2.68 The Bill provides for the temporary storage of excavated material, adjacent to the HS2 route, for reuse within the scheme during construction. Two temporary material stockpiles would be provided to the north and south of the Hatton South cutting, 200m north-west of the Swynnerton Footpath 15 green overbridge. Following construction, the land would be returned to agricultural use. See Map CT-06-228a, 16 to H5, in the main ES Volume 2, CA3 Map Book.

2.2.69 As part of a route-wide review of earthworks and the movement of materials, the scope for local placement of surplus excavated material on land already required for the construction of the scheme has been considered. Use of local placement areas would reduce the need for off-site road transportation and disposal of that surplus excavated material and reduce the environmental impacts arising from HGV movements on the highway network. Volume 1 of the SES2 and AP2 ES provides further detail on the local placement of surplus excavated material.

2.2.70 Surplus excavated material will be placed to the north and south of the Hatton South cutting. The location for the placement of the surplus excavated material to the north of the cutting will cover a footprint area of 1.7ha and will be up to 2m in height. To the south of the cutting, the location for the placement of the surplus excavated material will cover a footprint area of 1.8ha and will be up to 2.5m in height. The surplus excavated material will be graded to allow the areas to return to agricultural use

following construction. See Map CT-06-228a, I6 to H5, in the SES2 and AP2 ES Volume 2, CA3 Map Book.

- 2.2.71 The agricultural soil profile (i.e. the topsoil and subsoil) will be available for agricultural restoration so that agricultural soils can be returned to the same condition as their pre-excavated state, using good practice techniques to handle, store and reinstate soils. Given the currently unknown nature of the surplus excavated material beneath the restored agricultural soil profile, it is likely that when restoring these areas agricultural land drainage works will be required to achieve this condition and to ensure ongoing agricultural management of the restored land.
- 2.2.72 Surplus excavated material will be placed in the local placement area throughout the construction period as suitable material arises. This process will be managed from Hatton South cutting satellite compound.

### **Local alternatives**

- 2.2.73 A process of identifying potentially suitable local placement areas in the Stableford and Shelton under Harley areas was undertaken.
- 2.2.74 This process identified five locations in the Stableford and Shelton under Harley areas for the placement of surplus excavated material. These were considered against criteria, as identified in Volume 1, which set out the key considerations for the suitability of local placement sites. The five locations are reported below.
- 2.2.75 When considered against the criteria, the following three options were not taken forward for further consideration as they were not considered to be reasonable options:
- Option 3 would be located to the east of the Green Lane/Bent Lane (North) junction, on the northern side of Hatton North cutting. This option was not taken forward as it would conflict with the Hatton North cutting satellite compound, required to support civil engineering and railway systems construction activities;
  - Option 4 would be located to the north-east of the Bent Lane (North)/Dog Lane junction, on the northern side of Hatton North cutting. This option was not taken forward as it would potentially result in visual impacts by screening views of Swynnerton Old Park to the north, which would be permanent; and
  - Option 5 would be located to the east of Dog Lane overbridge, on the northern side of Hatton North cutting. This option was not taken forward as it would potentially result in visual impacts by screening views of Swynnerton Old Park to the north, which would be permanent.
- 2.2.76 The remaining two options were taken forward into the SES2 scheme, collectively as SES2 change SES2-003-006:
- Option 7 would be located immediately adjacent, and to the south of, Rowe Farm overbridge, on the northern side of Hatton North cutting. The location for this option meets with the criteria and has been identified as a suitable option; and

- Option 8 would be located immediately adjacent, and to the south of, Rowe Farm overbridge, on the northern side of Hatton North cutting. The location for this option meets with the criteria and has been identified as a suitable option.

### Topics included in the SES2 assessment

2.2.77 The assessment of the changes to construction traffic flows and traffic related effects as a result of this SES2 design change in combination with all SES2 changes and AP2 amendments, is reported in Section 7.

2.2.78 This SES2 design change is not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES, as amended by SES1 and SES2, with respect to any environmental topics.

### *Change to the diversion of a Scottish Power Energy Networks 132kV overhead power line and a new utility compound, south-east of Swynnerton Footpath 10 accommodation underbridge (SES2-003-007)*

2.2.79 The Bill provides for the permanent diversion of a Scottish Power Energy Networks 132kV overhead power line for 870m, of which 250m would be diverted underground to cross under the HS2 route in a north-east to south-west direction, 100m to the south-east of the Swynnerton Footpath 10 accommodation underbridge. The diversion would start 480m north-east of the Swynnerton Footpath 10 accommodation underbridge, re-conductoring the existing overhead line to the pylon 10m north of Shelton under Harley Farm. The diversion would continue south underground for 250m crossing beneath the HS2 route, 100m to the south-east of the Swynnerton Footpath 10 underbridge. The diversion would then continue in the same direction overhead, re-conductoring the existing line, until 400m south-east of the Swynnerton Footpath 10 underbridge. The existing pylons at each end of the underground section of the diversion would be replaced by terminal towers. See Map CT-06-228a, C8 to B2, in the main ES Volume 2, CA3 Map Book. Construction of the power line diversion would take one year and three months to complete, commencing in 2021, and would be managed from the Hatton North cutting satellite compound. See Map CT-05-228a, D5 to C4, in the main ES Volume 2, CA3 Map Book.

2.2.80 Grassland habitat creation would be provided between areas of landscape mitigation planting to the north-east of the HS2 route on Stableford South embankment, to allow access to the underground section of the diversion. See Map CT-06-228a, B5, in the main ES Volume 2, CA3 Map Book.

2.2.81 Since submission of the Bill, a requirement has been identified through further engagement with the utility provider to amend the route of the underground section of the diverted power line and provide a utility compound for delivery of the diversion works.

2.2.82 The overhead sections of the diversion will remain as set out in the original scheme. The amended underground section will start and finish at the same points proposed in the original scheme. The underground route will be diverted along roads and accommodation accesses, travelling north along the Bent Lane (North) diversion, turning west along the Swynnerton Footpath 10 accommodation underbridge, then south along the Bent Lane (South) realignment private access before re-connecting to

the existing overhead power line. Overall, the power line will be diverted up to 140m west of its existing alignment. See Map CT-06-228a, C6 to B4, in the SES2 and AP2 ES Volume 2, CA3 Map Book.

- 2.2.83 An area of grassland habitat creation, 0.1ha in area, to the north of the Stableford South embankment, provided for easement in the original scheme, will be replaced with landscape mitigation planting. See Map CT-06-228a, B5 in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 2.2.84 The diversion works will be undertaken over a period of one year, commencing in 2021. The diversion of Swynnerton Footpath 10 accommodation underbridge will be constructed in conjunction with the Scottish Power Energy Networks 132kV overhead power line diversion and will be constructed over a period of one year and three months, commencing in 2021.
- 2.2.85 A new utility compound (Bent Lane utility compound) will be provided to manage the installation of the diverted overhead and underground power line. See Map CT-05-228a, D7 to C6, in the SES2 and AP2 ES, Volume 2 CA3 Map Book. Bent Lane utility compound will be operational for one year, commencing during 2021, and will support an average of 15 workers per day (20 workers at peak times). Access to the new compound will be from Bent Lane and the A51 The Rowe.

#### **Topics included in the SES2 assessment**

- 2.2.86 The assessment of the changes to construction traffic flows and traffic related effects as a result of this SES2 design change, in combination with all SES2 changes and AP2 amendments, is reported in Section 7.
- 2.2.87 This SES2 design change is not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES, as amended by SES1 and SES2, with respect to any environmental topics.

## **2.3 Corrections to the main ES and SES1**

- 2.3.1 Since submission of the main ES and SES1, the need for a number of corrections to the contents of the main ES and SES1 has been identified. Table 4 provides a list of the instances where there has been a need to correct the Volume 2 Community area report for the Stone and Swynnerton area because of the potential to alter the significant environmental effects reported in the main ES or a factual inaccuracy relating to a significant effect that has been identified. Table 4 also clarifies elements of the scheme description reported in the main ES. The table gives the location of the text that is subject to the correction in the main ES, the reason for the correction, replicates the text from the main ES, where applicable provides revised text, and identifies whether the correction changes a significant effect reported in the main ES. Where relevant, these corrections have been taken into account in the technical assessments contained within Section 3 of this SES2.



Table 4: Summary of corrections to the main ES and SES1 in the Stone and Swynnerton area

Reference in the main ES or SES1	Reason for correction	Text in the main ES or SES1	Revised text	Change to significant effects and mitigation
<p>Overview of the area and description of the Proposed Scheme</p> <p>Paragraphs 2.3.83 third bullet, Volume 2, CA3 of the main ES</p>	<p>The description of construction activities managed from the Meaford North embankment satellite compound states the access to the compound would be from the existing BOAT 34 and Swynnerton Footpath 27 for site set up and then via site haul routes along the line of the route of the scheme.</p> <p>The access to the compound for site set up will be from Tittensor Road and site haul routes as was reported in Table 28, Row 8 in the Traffic and transport section.</p>	<p>Paragraph 2.3.83, third bullet:</p> <p>be accessed initially via the existing BOAT 34 and Swynnerton Footpath 27 for site set up and then via site haul routes along the line of the route of the Proposed Scheme.</p>	<p>Paragraph 2.3.83, third bullet:</p> <p>be accessed initially via <i>Tittensor Road and site haul routes</i> for site set up and then via site haul routes along the line of the route of the Proposed Scheme.</p>	<p>No change.</p> <p>The construction access route was correctly described in the Traffic and transport section of the main ES and included in the assessment.</p>
<p>Cultural heritage</p> <p>Paragraph 7.4.6, Volume 2, CA3 of the main ES.</p>	<p>The impact on heritage asset STS011, a milepost at Walton Heath, was omitted from the main ES.</p>	<p>No text exists in the Volume 2, CA3 of the main ES related to this correction.</p>	<p>New paragraph to be inserted following paragraph 7.4.5:</p> <p>A milepost at Walton Heath (STS011), an asset of low value, will be removed during works on the B5026 Eccleshall Road. This will constitute a high adverse impact and a moderate adverse significant effect.</p>	<p>Yes</p> <p>This correction will lead to a new significant cultural heritage effect in the original scheme due to the removal of a milepost at Walton Heath.</p>

Reference in the main ES or SES1	Reason for correction	Text in the main ES or SES1	Revised text	Change to significant effects and mitigation
<p>Ecology and biodiversity</p> <p>Table 2, Volume 2, CA3 of SES1 and Paragraph 8.4.58</p> <p>Volume 2, CA3 of main ES</p>	<p>Approximately 0.9ha of woodland habitat creation was proposed on an area (to the west of Stone) subsequently understood to form part of the Filly Brook Local Wildlife Site (LWS). Woodland habitat creation in this area was deemed to be inappropriate (as Filly Brook LWS is designated in part for its grassland habitat) and, as such, this will no longer be implemented at this location.</p> <p>It is proposed instead to enhance the existing grassland to increase its biodiversity value, which will complement the other grassland habitat creation measures along the Filly Brook. This will ensure a more appropriate balance of habitats are provided in response to the habitat loss at Filly Brook LWS.</p>	<p>Table 2, 8th entry</p> <p>Revised text -</p> <p>Paragraph 8.4.52</p> <p>Within the Stone and Swynnerton area, approximately 30.2ha of further woodland habitat creation will be undertaken to compensate primarily for adverse effects upon non-ancient woodland at locations including the following:</p> <p>Paragraph 8.4.58, first bullet</p> <p>approximately 1.8ha of species-rich grassland will be created along the retained and realigned sections of the Filly Brook within the western section of the Filly Brook floodplain adjacent to the route of the Proposed Scheme. This will compensate for the loss of approximately 1.4ha of lowland meadow at Filly Brook LWS;</p>	<p>Table 2, 8th entry</p> <p>Revised text -</p> <p>Paragraph 8.4.52</p> <p>Within the Stone and Swynnerton area, approximately 29.3ha of further woodland habitat creation will be undertaken to compensate primarily for adverse effects upon non-ancient woodland, at locations including the following:</p> <p>Paragraph 8.4.58, first bullet</p> <p>approximately 2.7ha of species-rich grassland will be created <i>and/or enhanced</i> along the retained and realigned sections of the Filly Brook within the western section of the Filly Brook floodplain adjacent to the route of the Proposed Scheme. This will compensate for the loss of approximately 1.4ha of lowland meadow at Filly Brook LWS;</p>	<p>No change.</p> <p>The woodland habitat creation in this area was proposed to mitigate for CA-wide and route-wide losses of non-ancient woodland. The slight reduction in proposed woodland habitat creation within the Stone and Swynnerton area is not substantially different to that reported in the main ES and SES1 and will not change the level of significance of the effect, reported in the main ES and SES1.</p>

## 3 Assessment of SES2 changes in the Stone and Swynnerton area

### 3.1 Introduction

3.1.1 Section 3 reports the assessment for cultural heritage; ecology and biodiversity; and landscape and visual as a result of the SES2 changes.

### 3.2 Cultural heritage

#### Introduction

3.2.1 The environmental baseline relevant to the cultural heritage assessment is described below. Any new or different likely significant environmental effects as a result of the changes introduced in Section 2 are then identified, compared to those reported in the main ES.

#### Scope, assumptions and limitations

3.2.2 The assessment scope, key assumptions and limitations for cultural heritage are as set out in Volume 1, the Scope and Methodology Report (SMR)<sup>7</sup> and SMR Addendum<sup>8</sup> of the main ES and SMR Addendum 2 (see SES2 and AP2 ES Volume 5: Appendix CT-001-000).

3.2.3 As the cultural heritage impacts of the SES2 changes of relevance to this assessment are not reversible, they therefore have the potential to result in new or different significant permanent construction effects only. There is no temporary construction or operational assessment for cultural heritage.

#### SES2 changes of relevance to this assessment

3.2.4 New heritage baseline information identified through geophysical surveys in the Stone and Swynnerton area is considered in this assessment.

#### Environmental baseline

##### *Existing baseline*

3.2.5 The baseline cultural heritage information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 7 of the main ES

3.2.6 Additional geophysical surveys undertaken in the Stone and Swynnerton area have identified a substantial increase in the extent of a late prehistoric or Romano-British settlement site, a non-designated asset of moderate value, south of Dog Lane, Stableford (STSo64).

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<sup>7</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report (Appendix CT-001-001). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>8</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report Addendum (Appendix CT-001-002). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

- 3.2.7 Further information about this asset is provided in the main ES Volume 5: Appendix CH-002-003 and Map Series CH-01 in the main ES Volume 5: Cultural heritage Map Book, and Background Information and Data (BID) document CH-004-003, which accompanies the main ES.
- 3.2.8 Details of surveys completed and the additional desk-based information obtained is provided in BID document CH-004-000, which accompanies the SES2 and AP2 ES, and Map Series CH-01 and CH-02 in the SES2 and AP2 ES Volume 5: Cultural heritage Map Book.

### *Future baseline*

#### **Construction (2020)**

- 3.2.9 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### **Effects arising during construction**

#### *Avoidance and mitigation measures*

- 3.2.10 No avoidance or mitigation measures additional to those reported in the main ES and draft Code of Construction Practice (CoCP)<sup>9</sup> are identified.

#### *Assessment of impacts and effects*

- 3.2.11 The main ES reported a permanent major adverse significant effect on a late prehistoric or Romano-British settlement site (STSo64), a non-designated asset of moderate value. Additional geophysical surveys have identified that this asset extends over a greater area than previously considered and that part of the asset will be lost by the construction of the original scheme. This will give rise to a different significant effect, however this will not change the level of significance of the effect reported in the main ES.
- 3.2.12 For further information see the main ES Volume 5: Appendix CH-003-003, Map Series CH-01 in the SES2 and AP2 ES Volume 5: Cultural heritage Map Book and SES2 and AP2 ES Volume 5: Appendix CH-003-000.

#### *Other mitigation measures*

- 3.2.13 No mitigation measures additional to those reported in the main ES and draft CoCP are identified.

#### *Summary of likely residual significant effects*

- 3.2.14 Additional geophysical surveys have identified that a late prehistoric or Romano-British settlement site (STSo64) extends over a greater area than previously considered. Removal of part of this asset by construction of the original scheme will give rise to a different likely residual permanent major adverse significant effect.

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<sup>9</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at <https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a>

### *Cumulative effects*

- 3.2.15 There are no new or different likely significant cumulative effects for cultural heritage as a result of the SES2 changes relevant to this assessment acting in combination with any other SES2 changes or AP1 amendments.

## **3.3 Ecology and biodiversity**

### **Introduction**

- 3.3.1 The environmental baseline relevant to the ecology and biodiversity assessment is described below. Any new or different likely significant environmental effects as a result of the changes introduced in Section 2 are then identified, compared to those reported in the main ES as amended by SES1.

### **Scope, assumptions and limitations**

- 3.3.2 The assessment scope, key assumptions and limitations for ecology and biodiversity are as set out in Volume 1, the SMR and SMR Addendum of the main ES and SMR Addendum 2 (see SES2 and AP2 ES Volume 5: Appendix CT-001-000).
- 3.3.3 The SES2 changes of relevance to this assessment are those that have the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for ecology and biodiversity.
- 3.3.4 Where data are limited, a precautionary baseline has been built up according to the guidance provided in the SMR and SMR Addendum. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 3.3.5 The precautionary approach to the assessment that has been adopted identifies the likely significant environmental effects of the SES2 scheme.

### **SES2 changes of relevance to this assessment**

- 3.3.6 The following SES2 changes are considered in this assessment:
- new baseline information on habitats resulting from additional Phase 1 habitat surveys; and
  - new baseline information on designated nature conservation sites.

### **Environmental baseline**

#### *Existing baseline*

- 3.3.7 The ecological baseline for the assessment takes into account baseline information collected in support of the main ES and SES1, which included field survey data, aerial photography and relevant existing information gathered from national organisations and from regional and local sources. A full list of data sources that informed the assessment in this area is provided in Volume 2, CA3, Section 8 of the main ES.

The assessment also takes into account additional desk study and survey information that is reported in BID document EC-004-000, including Map Series (EC-02, EC-04, EC-05, EC-10, EC-11 and EC-12<sup>10</sup>), which accompanies SES1 and AP1 ES.

- 3.3.8 Details of the Phase 1 habitat surveys completed since the production of SES1 are provided in BID document BID-EC-019-000 and Map Series EC-02, which accompanies SES2 and AP2 ES. Details of the designated nature conservation sites are provided in SES2 and AP2 ES Volume 5: Appendix EC-001-000 and Map Series EC-01.

### Designated sites

- 3.3.9 Since the production of SES1, Moss Rose Barn (western field) has been designated as a Local Wildlife Site (LWS) (Moss Rose Barn (western field) LWS). The LWS covers an area of 0.5ha and comprises a small damp grassland supporting a diverse flora, including orchids. Moss Rose Barn (western field) LWS is located directly to the north-west of the Norton Bridge to Stone Railway and south-east of Yarnfield, directly adjacent to the land required for the original scheme. The LWS is of county value.
- 3.3.10 Since the production of SES1, the extent of the area designated as Pool House Wood LWS has been reduced from 3.3ha to 2.5ha. This site was reported in the main ES and valued at county level. The LWS comprises two separate blocks of damp deciduous woodland. Pool House Wood LWS is located to the east of the M6 and west of Stone within the land required for the original scheme. The LWS remains of county value.
- 3.3.11 Since the production of SES1, the extent of the area designated as Clifford's Wood LWS has been increased from 16.9ha to 32ha. This site was reported in the main ES and valued at county level. The LWS comprises semi-natural broadleaved woodland including areas of ancient woodland and mixed plantation. Clifford's Wood LWS is located to the north of the A51 Stone Road and west of the A519 Newcastle Road, partially within the land required for the original scheme. The LWS remains of county value.
- 3.3.12 Since the production of SES1, Lodge Covert, previously designated as a LWS and reported in the main ES, has been re-designated as a BAS (Lodge Covert BAS). The main ES reported that only the area on the eastern side of the M6 was designated as a LWS, covering 2.9ha. The main ES reported this site as being of county value. The new BAS designation has been increased to include the full extent of the woodland on either side of the M6 covering an area of 7.3ha. The BAS comprises linear planted broadleaved woodland, supporting species characteristic of National Vegetation Classification (NVC) *W10c Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland *Hedera helix* sub-community. Lodge Covert BAS is located south-east of Sandyford and bisected by the M6, partially within the land required for the original scheme. Given the large area of broadleaved woodland forming the BAS, it is considered to be of county value.
- 3.3.13 Since the production of SES1, Closepit Plantation, previously designated as a LWS and reported in the main ES, has been re-designated as a BAS (Closepit Plantation BAS). The main ES reported this site as being of county value. The BAS covers an area of

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<sup>10</sup> HS2 Ltd (2018). *High Speed Two Phase 2a (West Midlands - Crewe), Background Information and Data: Ecology Map Book*, Available online at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/692669/G35\\_Ecological\\_baseline\\_data\\_map\\_book.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/692669/G35_Ecological_baseline_data_map_book.pdf)

1.6ha and comprises deciduous woodland dominated by sycamore, and three eutrophic pools. Closepit Plantation BAS is located off the A51 Stone Road at Long Compton, partially within the land required for the original scheme. In acknowledgement of the site's re-designation to a BAS, and in the absence of new survey information, Closepit Plantation BAS is considered to be of district/borough value.

3.3.14 Since the production of SES1, Cash's Pit has been designated as a BAS (Cash's Pit BAS). The BAS covers an area of 1.4ha and comprises a single semi-natural broadleaved woodland dominated by oak with sycamore, beech and ash and is characteristic of NVC *W8e Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland *Geranium robertianum* sub-community. Cash's Pit BAS is located to the north of the A51 Stone Road and west of Bottom Lane, within the land required for the original scheme. The BAS is considered to be of district/borough value.

3.3.15 Since the production of SES1, Swynnerton Heath Farm (east of) has been designated as a BAS (Swynnerton Heath Farm (east of) BAS). The BAS covers an area of 0.5ha and comprises a traditional orchard. Swynnerton Heath Farm (east of) BAS is located to the north-east of the A519 Newcastle Road and north of the A51 Stone Road, partially within the land required for the original scheme. The BAS is considered to be of district/borough value.

### Habitats

3.3.16 The main ES reported the presence of NVC *W8e Fraxinus excelsior-Acer campestre-Mercurialis perennis Geranium robertianum* sub-community woodland at Cash's Pit, which was of local/parish value. Since the production of SES1, updated NVC surveys have been undertaken by Staffordshire Wildlife Trust at Cash's Pit BAS. These surveys have identified a greater level of botanical diversity within the woodland than was reported in the main ES. In light of this new information, the semi-natural broadleaved woodland at Cash's Pit is now considered to be of district/borough value.

3.3.17 The main ES reported the presence of plantation woodland to the north-east of the junction of the A519 Newcastle Road and A51 Stone Road, which was of local/parish value. Since the production of SES1, 0.5ha of this habitat has been designated as traditional orchard (as described for Swynnerton Heath Farm (east of) BAS above). Traditional orchard is a habitat of principal importance listed under the provisions of Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006)<sup>11</sup>. This area of traditional orchard habitat is considered to be of district/borough value

### *Future baseline*

#### **Construction (2020)**

3.3.18 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

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<sup>11</sup> Natural Environment and Rural Communities Act 2006 (2006 CHAPTER 16). Her Majesty's Stationery Office, London.

## Effects arising during construction

### *Avoidance and mitigation measures*

- 3.3.19 The assessment assumes implementation of the measures set out within the draft Code of Construction Practice (CoCP)<sup>12</sup>.
- 3.3.20 No avoidance or mitigation measures additional to those reported in the main ES and draft CoCP are required.

### *Assessment of impacts and effects*

- 3.3.21 All of the effects within this section are reported in the absence of other mitigation.

### **Designated sites**

- 3.3.22 The main ES reported the loss of 3.3ha (100%) of NVC W6d *Alnus glutinosa-Urtica dioica* woodland *Sambucus nigra* sub-community woodland at Pool House Wood LWS for construction of the original scheme. The woodland is the reason for the LWS designation and its loss was reported in the main ES as a permanent adverse effect on the structure and function of the site that is significant at the county level. Following the reduction in the extent of the LWS designation, the original scheme will result in the loss of 2.5ha of NVC W6d *Alnus glutinosa-Urtica dioica* woodland *Sambucus nigra* sub-community woodland within the revised boundary of the LWS, which is still 100% of the LWS. This will result in a different significant effect to that reported in the main ES. However, this will not change the level of significance of the effect reported in the main ES.
- 3.3.23 The main ES reported the loss of 1.3ha (8%) of ancient woodland at Clifford's Wood LWS for construction of the original scheme. The main ES also reported the loss of 1.1ha of NVC W10a *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland and 2.5ha of mixed plantation woodland, outside of the area covered by the LWS designation. The main ES reported that the loss of this habitat would fragment the woodland and result in a permanent adverse effect on the structure and function of the site that is significant at the county level. Since the production of SES<sub>1</sub>, the whole of Clifford's Wood has been designated as a LWS and the construction of the original scheme will result in the loss of 4.9ha of woodland within the LWS. This will result in a different significant effect to that reported in the main ES. However, this will not change the level of significance of the effect reported in the main ES.
- 3.3.24 The main ES reported the loss of 0.1ha (3%) of broadleaved woodland at Lodge Covert LWS for construction of the original scheme. The main ES also reported the loss of 1.9ha of broadleaved woodland from the non-LWS section of Lodge Covert for construction of the original scheme. The main ES reported that the loss of a small area of broadleaved woodland within the LWS would result in a permanent adverse effect on the structure and function of the site that is significant at the district/borough level. Since the production of SES<sub>1</sub>, Lodge Covert has been re-designated as a BAS and the designation has been extended to cover the whole area of woodland at Lodge Covert. The loss of 2ha of broadleaved woodland to construction of the original scheme

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<sup>12</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at <https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a>



represents a permanent adverse effect on the structure and function of Lodge Covert BAS that is significant at the county level. This will result in a different significant effect to that reported in the main ES. This will change the level of significance of the effect from district borough level to county level.

- 3.3.25 The main ES reported a fragmentation effect through the isolation of the woodland and pond habitats at Closepit Plantation LWS by the construction of the original scheme. These habitats are the reason for the designation of the LWS and the fragmentation effect was reported in the main ES as a permanent adverse effect that is significant at the district/borough level. Since the production of SES<sub>1</sub>, Closepit Plantation has been re-designated as a BAS. There is no change to the fragmentation effect of the original scheme on the woodland and pond habitats at Closepit Plantation BAS. This will result in a different significant effect to that reported in the main ES. However, this will not change the level of significance of the effect reported in the main ES.
- 3.3.26 The main ES reported the loss of 1.5ha of semi-natural broadleaved woodland at Cash's Pit for the construction of the original scheme. Since the production of SES<sub>1</sub>, Cash's Pit has been designated as a BAS. The woodland is the reason for the designation of Cash's Pit BAS and forms 100% of the BAS. The loss of 1.5ha of woodland for the construction of the original scheme represents a new permanent adverse effect on the structure and function of the site that is significant at the district/borough level.
- 3.3.27 The main ES reported the presence of plantation broadleaved woodland in the form of an unmanaged orchard north-east of the junction of the A519 Newcastle Road and A51 Stone Road. The main ES reported that the combined loss of 0.8ha of plantation woodlands through the Stone and Swynnerton area would result in a permanent adverse effect at the local/parish level, which is not significant. Since the production of SES<sub>1</sub>, this unmanaged orchard has been designated as Swynnerton Heath Farm (east of) BAS. The plantation woodland is part of the reason for the designation of the BAS. The loss of 200m<sup>2</sup> (4%) of woodland for the construction of the original scheme represents a new permanent adverse effect on the structure and function of the site that is significant at the district/borough level.

### Habitats

- 3.3.28 The main ES reported the loss of 1.5ha of NVC W8e *Fraxinus excelsior-Acer campestre-Mercurialis perennis Geranium robertianum* sub-community woodland at Cash's Pit, which would result in a permanent adverse effect at the local/parish level, which is not significant. Since the production of SES<sub>1</sub> a new botanical survey of this woodland undertaken by Staffordshire Wildlife Trust has led to the woodland now being considered to be of district/borough value in line with the BAS designation. In response to this re-valuation the loss of 1.5ha of NVC W8e woodland at Cash's Pit to the construction of the original scheme represents a new permanent adverse effect on woodland at Cash's Pit that is significant at the district/borough level.
- 3.3.29 The main ES reported that the combined loss of 0.8ha of plantation woodland through the Stone and Swynnerton area would result in a permanent adverse effect at the local/parish level, which is not significant. Approximately 200m<sup>2</sup> of this loss is from an area that is now understood to comprise traditional orchard, located to the north-

east of the junction of the A519 Newcastle Road and A51 Stone Road. The loss of 200m<sup>2</sup> of traditional orchard habitat for the construction of the original scheme represents a new permanent adverse effect on this habitat that is significant at the district/borough level.

#### *Other mitigation measures*

- 3.3.30 The main ES reported the provision of 4.8ha of woodland habitat creation on either side of Swynnerton North cutting connecting to Cash's Pit. This planting, once mature, would provide enhanced ecological connectivity and compensate for the loss of 1.5ha of NVC W8e *Fraxinus excelsior-Acer campestre-Mercurialis perennis Geranium robertianum* sub-community woodland at Cash's Pit BAS. The mitigation provision was predominantly based on the area of woodland lost and the ability to provide improved connectivity to other areas of retained habitat and new habitat creation. These woodland habitat creation areas, once established, will reduce the adverse effect on woodland at Cash's Pit BAS to a level that is not significant.

#### *Summary of likely residual significant effects*

- 3.3.31 There will be a new likely residual permanent adverse effect due to the loss of 200m<sup>2</sup> of traditional orchard habitat at Swynnerton Heath Farm (east of) BAS that is significant at the district/borough level. However, in consultation with relevant stakeholders and local landowners, suitable alternative compensatory measures are being sought in order to reduce this permanent adverse effect to a level that is no longer significant.

#### *Cumulative effects*

- 3.3.32 AP1 amendment AP1-003-001 (Additional land 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) will also result in the loss of broadleaved woodland from Lodge Covert BAS. This will give rise to a different significant effect on Lodge Covert BAS, however the effect will remain significant at the county level.

## **3.4 Landscape and visual**

### **Introduction**

- 3.4.1 The environmental baseline relevant to the landscape and visual assessment is described below. Any new or different significant environmental effects as a result of the changes introduced in Section 2 are then identified, compared to those reported in the main ES.

### **Scope, assumptions and limitations**

- 3.4.2 The assessment scope, key assumptions and limitations for landscape and visual are as set out in Volume 1, the SMR and SMR Addendum of the main ES.
- 3.4.3 The SES2 design change of relevance to this assessment has the potential to result in new or different significant operational landscape effects only. Therefore, there is no construction assessment for landscape or visual, and no operational assessment for visual.

## SES2 changes of relevance to this assessment

- 3.4.4 The SES2 design change relating to landscape earthworks in the vicinity of the Stone Infrastructure Maintenance Base-Rail (IMB-R) (SES2-003-002) is considered in this assessment.

### Environmental baseline

#### *Existing baseline*

- 3.4.5 The baseline landscape and visual information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 11 of the main ES.

### Landscape baseline

- 3.4.6 The SES2 design change has the potential to affect the Yarnfield Settled Farmlands Landscape Character Area (LCA), which is described in Volume 5: Appendix LV-001-003 of the main ES and summarised below.

#### *Yarnfield Settled Farmlands LCA*

- 3.4.7 The Yarnfield Settled Farmlands LCA is an area of undulating arable farmland bounded by patchy hedgerows with hedgerow trees. Of the few woodlands the largest is Darlaston Wood, which forms part of a remnant designed landscape at Darlaston Park. Settlement mainly comprises dispersed and isolated farmsteads and Yarnfield village with its historic core based around a village green. The otherwise scenic and tranquil qualities of the landscape are locally diminished due to development, such as the Yarnfield Park Training and Conference Centre, and infrastructure including the M6, pylons and rail lines.

#### *Future baseline*

### Operation (2027)

- 3.4.8 The future baseline for operation in 2027 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

## Permanent effects arising during operation

### *Avoidance and mitigation measures*

- 3.4.9 No avoidance or mitigation measures additional to those reported in the main ES are identified.

### *Assessment of impacts and effects*

### The Yarnfield Settled Farmlands LCA

- 3.4.10 The main ES reported a moderate adverse significant effect at year 1 and year 15 of operation, reducing to non-significant at year 60. This was due to the scale and complexity of the new infrastructure within the LCA, including the M6 Meaford viaduct, Meaford North and Swynnerton embankments, cuttings and the Stone IMB-R. The viaducts and embankments would be prominent features on the rural skyline and the severance caused by the original scheme would substantially alter the character of the planned estate landscape. The Stone IMB-R and its associated

lighting and sky glow would also introduce a noticeable change to the predominantly dark night time sky. Mitigation planting would provide some integration of the new structures within the wider landscape but the viaduct and embankments would remain prominent. At year 60, the effect would reduce to non-significant as the mature mitigation planting would screen and integrate the scheme into the wider landscape.

- 3.4.11 At year 1, the SES2 design change to introduce new landscape earthworks will partially screen and achieve some integration of the Stone IMB-R into the surrounding farmland thereby slightly reducing its prominence as a landscape feature and consequent effect on the landscape character of the Yarnfield Settled Farmlands LCA. The SES2 design change will therefore give rise to a different significant landscape effect. However, the level of significance of effect will remain moderate adverse significant as reported in the main ES.
- 3.4.12 At year 15, the maturing woodland mitigation planting on the earthworks will provide further integration of the Stone IMB-R into the wider landscape. The SES2 design change will therefore give rise to a different significant landscape effect. However, the level of significance will remain moderate adverse significant as reported in the main ES. At year 60, the level of significance of effect will remain non-significant as reported in the main ES.
- 3.4.13 For further information see SES2 and AP2 ES Volume 5: Appendix LV-001-003 and SES2 and AP2 ES Volume 5: Landscape and visual Map Book.

#### *Other mitigation measures*

- 3.4.14 No mitigation measures additional to those reported in the main ES are required.

#### *Summary of likely residual significant effects*

- 3.4.15 The SES2 design change to introduce new landscape earthworks in the vicinity of the Stone IMB-R will give rise to a different likely residual significant operational effect on the landscape character of the Yarnfield Settled Farmlands LCA. The effect will reduce but will remain moderate adverse significant at year 15. This will not change the level of effect reported in the main ES.

#### *Cumulative effects*

- 3.4.16 There are no new or different likely significant cumulative effects for landscape or visual receptors as a result of the SES2 changes relevant to this assessment acting in combination with any other SES2 changes or AP1 amendments.

#### *Monitoring*

- 3.4.17 Volume 1 of the main ES sets out the general approach to environmental monitoring during operation of the original scheme.
- 3.4.18 There are no changes to the monitoring requirements identified in the main ES for landscape and visual as a result of the SES2 design change.

### **3.5 Summary of new or different likely residual significant effects as a result of the SES2 changes**

- 3.5.1 A correction to the content of the main ES has identified a new likely residual significant effect in the original scheme which was omitted from the main ES. A milepost at Walton Heath (STSo11), an asset of low value, will be removed during works on the B5026 Eccleshall Road. This will constitute a high adverse impact and a moderate adverse significant effect.
- 3.5.2 Additional geophysical surveys have identified that a late prehistoric or Romano-British settlement site (STSo64) extends over a greater area than previously considered. Removal of part of this asset by construction of the original scheme will give rise to a different significant effect, however this will not change the level of significance of the effect reported in the main ES.
- 3.5.3 Since the production of SES1, Swynnerton Heath Farm (east of) has been designated as a BAS. The loss of 200m<sup>2</sup> of unmanaged orchard at the BAS will give rise to a new likely residual permanent adverse effect.
- 3.5.4 The SES2 design change to introduce new landscape earthworks in the vicinity of the Stone IMB-R will give rise to a different likely residual significant operational effect on the landscape character of the Yarnfield Settled Farmlands LCA. However, this will not change the level of significance of the effect reported in the main ES.

## Part 2: Additional Provision 2 Environmental Statement

### 4 Summary of AP2 amendments in the Stone and Swynnerton area

#### 4.1 Introduction

4.1.1 In the Stone and Swynnerton area, the following types of amendments are proposed in the AP2 revised scheme:

- engineering amendments; and
- minor utility amendments.

4.1.2 All dimensions in the following sections are approximate.

#### 4.2 Engineering amendments

4.2.1 Engineering amendments will be required in the Stone and Swynnerton area that will result in changes to the land or Bill powers required for the SES2 scheme and separately the AP1 revised scheme where relevant. Table 5 provides a summary of the engineering amendments.

4.2.2 Figure 4 shows the locations of the engineering amendments.

Table 5: Summary of AP2 engineering amendments in the Stone and Swynnerton area

Name of the AP2 amendment	Description of the SES2 scheme (and AP1 revised scheme where relevant)	Description of the AP2 revised scheme
<p>Additional land required for a revised high pressure National Grid Gas Transmission Line diversion under Yarlet central cutting and a new temporary utility compound</p> <p>AP2-003-001</p> <p>Map CT-05-220b, I5 to I4 and Map CT-06-220b, I7 to H4, in the SES2 and AP2 ES Volume 2, CA3 Map Book and Map CT-06-219a, B5 to A7, in the SES2 and AP2 ES Volume 2, CA2 Map Book</p>	<p>A 900mm diameter National Grid high-pressure gas pipeline would be diverted for 330m to cross under the HS2 route, 30m south-east of its existing alignment under Yarlet central cutting. An ecological mitigation pond would be provided within an area of grassland habitat creation in proximity to the diversion, adjacent to the north-east of the HS2 route.</p> <p>The works would be managed from the Yarlet embankment satellite compound.</p>	<p>Additional land and a change to Bill powers will be required to permanently modify the alignment of the diverted high pressure National Grid Gas Transmission Line. The new diversion will be 350m in length and will cross the HS2 route 20m further south than in the original scheme and 55m south-east of its existing alignment. An ecological mitigation pond and associated grassland mitigation planting will be relocated further west to accommodate the diversion works.</p> <p>A new utility compound will be provided for the management of the gas transmission line diversion works 500m south-east of the revised location of Stone Rural Footpath 28 accommodation overbridge, provided for in amendment AP2-003-002: Additional land required and a change to Bill powers for the relocation of Stone Rural Footpath 28 accommodation overbridge.</p> <p>The majority of this amendment and all relevant potential receptors lie</p>

## SES2 and AP2 ES Volume 2 – Community area 3, Stone and Swynnerton

Name of the AP2 amendment	Description of the SES2 scheme (and AP1 revised scheme where relevant)	Description of the AP2 revised scheme
		<p>within the Stone and Swynnerton area, therefore a detailed description of the amendment and assessment of effects are reported below. Part of this amendment lies within the Colwich to Yarlet area (CA2) and the works associated with this amendment within the Colwich to Yarlet area are described in SES2 and AP2 ES, Volume 2, Community area 2, Colwich to Yarlet.</p>
<p>Additional land and a change to Bill powers required along the A34 Stone Road for the provision of a new access to Yarlet School</p> <p>AP2-002-027</p> <p>Map CT-06-219b, F5 to C1, in the SES2 and AP2 ES, Volume 2, CA3 Map Book and Map CT-06-219-R1, D10 to C8, in the SES2 and AP2 ES, Volume 2, CA2 Map Book.</p>	<p>The original scheme would include land for the temporary diversion of the A34 Stone Road for 750m, up to 100m from its existing alignment, during construction. The existing access to Yarlet School would be required for construction access to manage the temporary diversion of the A34 Stone Road. Following construction, the A34 Stone Road would be reinstated on its existing alignment to cross the HS2 route via the A34 Stone Road overbridge. The AP1 revised scheme (amendment AP1-002-106) included a change to Bill powers for the permanent diversion of a Cadent gomm low pressure gas main at Yarlet along the existing school access.</p>	<p>Additional land and a change to Bill powers will be required for the permanent provision of a new junction and access road to serve Yarlet School. Modifications will be required to the central reservation and width of the A34 Stone Road to provide an access across the carriageway to Yarlet School. New areas of hedgerow habitat creation and woodland habitat creation will be provided as replacement habitat along the southbound side of the A34 Stone Road and school access.</p> <p>The majority of this amendment and all relevant potential receptors lie within the Colwich to Yarlet area (CA2), therefore a detailed description of the amendment and assessment of effects are reported in SES2 and AP2 ES Volume 2, Community area 2, Colwich to Yarlet. Part of this amendment lies within the Stone and Swynnerton area and the works associated with this amendment within the Stone and Swynnerton area are reported below.</p>
<p>Additional land required and a change to Bill powers for the relocation of Stone Rural Footpath 28 accommodation overbridge</p> <p>AP2-003-002</p> <p>Map CT-06-220b, I7 to F5, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>Stone Rural Footpath 28 would be permanently realigned 125m north-west of its existing alignment, to cross over the HS2 route on the Stone Rural Footpath 28 accommodation overbridge.</p> <p>During construction, Stone Rural Footpath 28 would be temporarily diverted to the south of the HS2 route.</p>	<p>Additional land and a change to Bill powers will be required for the permanent diversion of Stone Rural Footpath 28, to cross over the relocated Stone Rural Footpath 28 accommodation overbridge 330m further north-west to that provided in the original scheme, and the diversion of Whitgreave Footpath 3. A temporary diversion of Stone Rural Footpath 28 will no longer be required.</p>
<p>Additional land required for the provision of a new permanent left turn filter lane on the roundabout connecting the A51 Stone Bypass to the south-eastern arm of the A34 Stafford Road</p> <p>AP2-003-003</p> <p>Map CT-06-220-R2, B10 to A9, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>There were no changes proposed to the existing roundabout junction of the A34 Stafford Road, the A51 Stone Bypass and Brooms Road as part of the original scheme. The roundabout junction, which is situated 1.7km north-east of the HS2 route, formed part of a proposed construction traffic route, which would pass through the roundabout in both directions along the A34 Stafford Road.</p> <p>The SES2 scheme provides for an additional construction traffic route</p>	<p>Additional land will be required to provide a permanent segregated left turn filter lane to the roundabout connecting the A51 Stone Bypass to the south-eastern arm of the A34 Stafford Road. Widening of the existing carriageways by up to 8m will be required in the vicinity of the roundabout. The existing hedgerow along the line of the left turn lane will be removed and replaced with new permanent hedgerow.</p>

SES2 and AP2 ES Volume 2 – Community area 3, Stone and Swynnerton

Name of the AP2 amendment	Description of the SES2 scheme (and AP1 revised scheme where relevant)	Description of the AP2 revised scheme
	<p>from Stone to Weston via Sandon and introduces HS2 construction traffic onto the A51 Stone Bypass through this roundabout. See SES2-002-010: New construction traffic route along the A51 from Stone to Weston via Sandon in the SES2 and AP2 ES, Volume 2, Community area 2, Colwich to Yarlet.</p>	
<p>Additional land required for the realignment of Stone Rural Footpath 32 diversion AP2-003-004 Map CT-06-221 E4 to D3, in SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>Stone Rural Footpath 32 would be realigned 500m to the south-east of its existing alignment to cross over the HS2 route along the associated accommodation overbridge, adjacent to Walton Heath Farm and Walton House Farm, over a length of 1.4km. It would then re-join the existing footpath alignment to the south of the HS2 route.</p>	<p>Additional land will be required to permanently realign a short section of the Stone Rural Footpath 32 diversion over a distance of 450m, to be 120m further east of Walton Heath Farm. This extension will increase the overall footpath diversion length by 200m from the original scheme, to a total length of 1.6km.</p>
<p>A change to Bill powers to provide permanent accommodation access for Walton Heath Farm AP2-003-005 Map CT-06-221, E4 to D3, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>Stone Rural Footpath 32 would be realigned 500m south-east of its existing alignment to cross over the HS2 route on the Stone Rural Footpath 32 accommodation overbridge, close to Walton House Farm.</p>	<p>A change to Bill powers will be required to permanently upgrade a 140m section of the realigned Stone Rural Footpath 32, as proposed in the original scheme, to provide permanent accommodation access across the HS2 route for Walton Heath Farm, whose land is severed by the HS2 route.</p> <p>The AP2 revised scheme (amendment AP2-003-004: Additional land required for the realignment of Stone Rural Footpath 32 diversion) will divert Stone Rural Footpath 32 away from the proposed accommodation access track.</p>
<p>Additional land required for realignment of B5026 Eccleshall Road and associated field access AP2-003-006 Map CT06-222, H1 to E4, and Map CT-06-222-R1, H10 to H9, in the SES2 and AP2 ES Volume 2, CA3 Map Book.</p>	<p>The B5026 Eccleshall Road would be realigned for 900m. It would cross the HS2 route via the B5026 Eccleshall Road overbridge, 25m north-west of its current alignment.</p> <p>The AP1 revised scheme (amendments AP1-003-102: Additional land for the permanent diversion of British Telecom (BT) Openreach and Zayo underground telecommunications cables along the B5026 Eccleshall Road; AP1-003-103: Additional land for the permanent diversion of an Openreach overhead telecommunications cable along the realigned B5026 Eccleshall Road; and AP1-003-104: Additional land for the permanent diversion of Western Power Distribution overhead lines parallel to the HS2 main line and connection to Micklow House Farm) provided for additional land on both sides of the realigned B5026 Eccleshall Road for the permanent diversion of overhead and underground minor utilities.</p>	<p>Additional land will be required for the permanent realignment of the B5026 Eccleshall Road to the north of the HS2 route, to tie into the existing B5026 Eccleshall Road south of Micklow Bungalow.</p> <p>A new permanent field access will be provided from the realigned B5026 Eccleshall Road to land owned by Walton Heath Farm.</p> <p>The amendment will result in an area of land no longer being required due to a reduced length of highway realignment.</p>



SES2 and AP2 ES Volume 2 – Community area 3, Stone and Swynnerton

Name of the AP2 amendment	Description of the SES2 scheme (and AP1 revised scheme where relevant)	Description of the AP2 revised scheme
	If the AP2 amendment is enacted, the AP1 amendments AP1-003-102 and AP1-003-103 will not be required.	
<p>Additional land required for the provision of new permanent traffic signals at the junction of Yarnfield Lane and the A34 The Fillybrooks</p> <p>AP2-003-007</p> <p>Map CT-06-222-R1, C4 to B3, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>The existing junction of Yarnfield Lane with the A34 The Fillybrooks is 1.4km to the north-east of the HS2 route, outside of the land required for the original scheme. No changes to the junction itself are proposed in the original scheme but construction traffic routes would pass through the junction along the A34 The Fillybrooks and Yarnfield Lane.</p>	<p>Additional land will be required to provide permanent traffic signals at the junction of Yarnfield Lane and the A34 The Fillybrooks, to enable safer turning manoeuvres and manage potential traffic conflicts. The amendment includes minor adjustments to existing carriageways and kerblines. Hedgerow mitigation planting will replace the loss of shrubs and trees at the boundary of a property as a result of the junction modifications.</p>
<p>Additional land required for modifications to the Yarnfield Lane M6 overbridge replacement</p> <p>AP2-003-008</p> <p>Map CT-06-223-L1, I4 to F1, and CT-06-223, J10 to E9, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>The original scheme included provision for the realignment of Yarnfield Lane over a distance of 1.2km, 25m north-west of its current alignment, including a replacement bridge to carry Yarnfield Lane over the M6, up to 9m in height above existing ground level.</p> <p>Permanent access would be provided to and from the Stone IMB-R from Yarnfield Lane and the M6 southbound carriageway via slip roads and a roundabout junction. Permanent maintenance and emergency access to the northbound lanes of the M6 from the realigned Yarnfield Lane would also be provided. During construction these would provide temporary access for construction traffic, which would then cross to the Stone IMB-R site via the Yarnfield Lane M6 overbridge replacement.</p> <p>Construction traffic routes for the works would be provided along Yarnfield Lane and via the site haul routes.</p>	<p>Additional land will be required to permanently provide a redesigned replacement overbridge which can be constructed earlier in the programme and without requiring substantial traffic management on the M6 motorway. This enables the replacement overbridge to be operational concurrently with the existing Yarnfield Lane overbridge during construction, thus segregating construction traffic from public traffic on Yarnfield Lane and resulting in safety improvements and reduced disruption to existing users of Yarnfield Lane. The proposed replacement overbridge will increase in length, which will allow for any future widening of the M6 motorway.</p> <p>The vertical alignment of the realigned Yarnfield Lane and replacement overbridge will increase by up to 0.6m and there will be slight modifications to the alignments of the M6 slip roads (northbound and southbound). There will be marginal reductions in areas of landscape mitigation planting and grassland habitat creation due to minor increases in the footprint of the highway earthworks.</p>
<p>Additional land required for a water treatment facility at the Severn Trent Water Limited Swynnerton Pumping Station</p> <p>AP2-003-009</p> <p>Map CT-06-224-R1, E7 to C8, in the SES2 and AP2 ES Volume 2, CA3 Map Book.</p>	<p>No works were proposed at the Swynnerton Pumping Station as part of the original scheme.</p>	<p>Additional land will be required to allow for a new permanent water treatment facility at the existing Severn Trent Water Swynnerton Pumping Station. The facility is one of three existing Severn Trent Water sites that will be required to provide mitigation for the temporary loss of water supply from the Whitmore borehole abstraction during construction.</p>
<p>Additional land required for provision of a power supply to Whitmore Heath tunnel</p> <p>AP2-004-001</p>	<p>Within the Whitmore Heath to Madeley area (CA4), power connections would be required to operate the tunnel boring machines (TBM) for the construction of the</p>	<p>Additional land, largely in the highway, will be required for provision of a 14.5km power supply connection from Meaford Bulk Supply Point to Whitmore Heath tunnel. The power</p>

## SES2 and AP2 ES Volume 2 – Community area 3, Stone and Swynnerton

Name of the AP2 amendment	Description of the SES2 scheme (and AP1 revised scheme where relevant)	Description of the AP2 revised scheme
<p>Maps CT-05-225-R3, CT-05-225-R2, CT-05-225-R1, CT-05-225, CT-05-226, CT-05-227-L1, CT-05-228-L1 and CT-05-228a in the SES2 and AP2 ES Volume 2, CA3 Map Book and Map CT-05-228b, G10 to A6, to Map CT-05-229, J6 to C1, in the SES2 and AP2 ES Volume 2, CA4 Map Book</p>	<p>Whitmore Heath and Madeley tunnels. The power connections would be retained permanently to be used for the operation of the tunnel, including lighting and ventilation systems.</p> <p>It was originally proposed that these power supplies would be provided by the statutory electricity undertaker, but in order to provide certainty that the scheme can be implemented within the construction programme it is necessary to include powers within the Bill.</p>	<p>supply route originates in the Stone and Swynnerton area and ends at Whitmore tunnel south portal in the Whitmore Heath to Madeley area (CA4). This power supply will be used during construction to power the TBM and the Whitmore Heath Tunnel satellite compound, and then for the permanent non-traction power supply and tunnel operations.</p> <p>Part of this amendment and relevant potential receptors lie within the Whitmore Heath to Madeley area (CA4). A detailed description of the amendment and assessment of effects within the Whitmore Heath to Madeley area is reported in SES2 and AP2 ES Volume 2, Community area 4, Whitmore Heath and Madeley. Part of this amendment lies within the Stone and Swynnerton area and the works associated with this amendment and assessment of effects on receptors within the Stone and Swynnerton area are reported below.</p>
<p>A change to Bill powers for an amendment to the proposed Swynnerton New Bridleway</p> <p>AP2-003-010</p> <p>Map CT-06-225, G6 to C4, in the SES2 and AP2 ES Volume 2, CA3 Map Book.</p>	<p>A new section of bridleway, Swynnerton New Bridleway, would connect retained sections of the existing Tittensor Road to the north and south of the HS2 route, via the Swynnerton New Bridleway accommodation underbridge. A new section of bridleway to the south of the HS2 route, Swynnerton New Bridleway 2, would also connect a retained section of Stab Lane and the diverted Tittensor Road, along with a 350m section of segregated route for non-motorised users along the northern side of the A51 Stone Road to the north of the HS2 route.</p> <p>The SES1 scheme would amend the non-motorised user provision to be located along the southern side of the A51 Stone Road, between the Swynnerton Bridleway 54 and the diverted Tittensor Road, on the northern side of the HS2 route.</p>	<p>A change to Bill powers will be required for an amendment to the proposed Swynnerton New Bridleway to provide a new permanent bridleway route between the retained section of Tittensor Road, to the north of the HS2 route, to the non-motorised user provision south of the A51 Stone Road, crossing the diverted Tittensor Road. The diverted Tittensor Road and the Tittensor Road overbridge will be widened by up to 4.3m to accommodate non-motorised user provision between Swynnerton New Bridleway 2 and the A51 Stone Road diversion.</p> <p>The proposed new section of bridleway, referred to as Swynnerton New Bridleway in the original scheme, to connect retained sections of the existing Tittensor Road to the north and south of the HS2 route via the Swynnerton New Bridleway accommodation underbridge, will no longer be required. The Swynnerton New Bridleway accommodation underbridge will be renamed Swynnerton underbridge.</p>
<p>Additional land required and a change to Bill powers for a revised gas pipeline diversion under the Swynnerton Embankment and Tittensor Road diversion and a</p>	<p>A 600mm diameter National Grid high-pressure gas pipeline would be diverted under the Swynnerton Embankment and Tittensor Road diversion. The diversion would be managed from the Swynnerton North cutting main compound.</p>	<p>Additional land and a change to Bill powers will be required for the permanent diversion of a section of 600mm diameter Cadent<sup>43</sup> high-pressure gas pipeline. The new diversion is 510m in length and follows a different alignment under the</p>

<sup>43</sup> In 2017, National Grid Gas Distribution was rebranded as Cadent, which is an independent organisation. The two utility providers describe the same asset differently.

SES2 and AP2 ES Volume 2 – Community area 3, Stone and Swynnerton

Name of the AP2 amendment	Description of the SES2 scheme (and AP1 revised scheme where relevant)	Description of the AP2 revised scheme
<p>temporary utility compound to the east of the Tittensor Road diversion</p> <p>AP2-003-011</p> <p>Map CT-05-225, F7 to E7 and Map CT-06-225, D8 to E3, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>Four ecological mitigation ponds and associated grassland habitat creation would be provided to the north of the HS2 route and 100m east of Tittensor Road overbridge.</p>	<p>Swynnerton Embankment and Tittensor Road diversion.</p> <p>Two ecological mitigation ponds and associated grassland habitat creation will be relocated further west to accommodate the diversion works.</p> <p>A new utility compound will be provided to manage the installation of the gas pipeline diversion to the east of the Tittensor Road diversion.</p>
<p>Additional land required and a change to Bill powers for the provision of a roundabout at the junction of the A51 Stone Road diversion/Tittensor Road diversion</p> <p>AP2-003-012</p> <p>Map CT-06-225, F2 to A5, in the SES2 and AP2 ES Volume 2, CA3 Map Book.</p>	<p>Tittensor Road would be diverted 375m north-west of its existing alignment, crossing over the HS2 route via Tittensor Road overbridge. Tittensor Road diversion would connect into the A51 Stone Road, 525m west of the existing connection, via a T-junction arrangement. A segregated route for non-motorised users would be located along the northern side of the A51 Stone Road and would cross the A51 Stone Road to tie into the diverted Tittensor Road to the north of the HS2 route.</p> <p>The SES1 scheme changes the segregated route for non-motorised users to be located along the southern side of the A51 Stone Road and would tie into the diverted Tittensor Road to the north of the HS2 route.</p> <p>The AP1 revised scheme (AP1-003-004: Additional land permanently required to widen the highway verge along the A51 Stone Road) provided for additional land for the permanent widening of the highway verge along the south edge of the A51 Stone Road to the east of the proposed A51/diverted Tittensor Road junction, to improve visibility at the junction. If the AP2 amendment is enacted, the AP1 amendment will not be required.</p>	<p>Additional land and a change to Bill powers will be required for the permanent provision of a roundabout at the junction of the A51 Stone Road/Tittensor Road diversion.</p> <p>The A51 Stone Road will require additional earthworks and realignment to tie into the proposed roundabout. A retaining wall will be required adjacent to Long Compton Farm due to the increased vertical alignment of the A51 Stone Road. A new shared access will be provided to Long Compton Farm and a new highway balancing pond will be provided on the northern side of the A51 Stone Road, east of Long Compton Farm.</p> <p>Additional woodland habitat creation will be required to the east of Closepit Plantation Biodiversity Alert Site (BAS), as well as additional hedgerow and grassland habitat creation on the northern side of the A51 Stone Road, to the east of Long Compton Farm.</p>
<p>Additional land required for a water treatment facility at the Severn Trent Water Limited Mill Meece Pumping Station</p> <p>AP2-003-013</p> <p>Map CT-06-225-L3, C6 to B5, in the SES2 and AP2 ES Volume 2, CA3 Map Book.</p>	<p>No works were proposed at Mill Meece Pumping Station as part of the original scheme.</p>	<p>Additional land will be required to allow for a new permanent water treatment facility at the existing Severn Trent Water Mill Meece Pumping Station. The facility is one of three existing Severn Trent Water sites that will be required to provide mitigation for the temporary loss of water supply from the Whitmore borehole abstraction during construction.</p>
<p>A change to Bill powers to move the stopping up point of Bottom Lane to the existing junction between the A519 Newcastle Road and Bottom Lane, and the provision of a new permanent agricultural access from the diverted A51 Stone Road</p> <p>AP2-003-014</p>	<p>Bottom Lane would be closed to the north of the HS2 route, 275m to the north of where it currently intersects the A51 Stone Road. Users would be diverted along the A51 Stone Road, increasing the length of journey by 150m. A turning head would be provided at the point of stopping up.</p>	<p>A change to Bill powers will be required to relocate the stopping up point of Bottom Lane to the existing junction of the A519 Newcastle Road and Bottom Lane. The A519 Newcastle Road/Bottom Lane junction is proposed to be retained as an agricultural field access point only. The turning head proposed on Bottom Lane in the original scheme is no</p>

## SES2 and AP2 ES Volume 2 – Community area 3, Stone and Swynnerton

Name of the AP2 amendment	Description of the SES2 scheme (and AP1 revised scheme where relevant)	Description of the AP2 revised scheme
<p>Map CT-06-226, H5 to F1, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>During construction, a temporary material stockpile associated with the Swynnerton North cutting main compound would be located at the point of stopping up. Following construction this area would provide permanent woodland habitat creation.</p>	<p>longer required, with a resultant slight increase in the area available for the temporary material stockpile during construction, and woodland habitat creation post construction. A new agricultural access will also be provided from the diverted A51 Stone Road, which will include amendments to drainage works and hedgerow planting.</p>
<p>Additional land required for a water treatment facility at the Severn Trent Water Limited Hanchurch Distribution and Storage Reservoir</p> <p>AP2-003-015</p> <p>Map CT-06-228-R2, J9 to G7, in the SES2 and AP2 ES Volume 2, CA3 Map Book.</p>	<p>No works were proposed at the Severn Trent Water Hanchurch Distribution and Storage Reservoir as part of the original scheme.</p>	<p>Additional land will be required to allow for a new permanent water treatment facility at the existing Severn Trent Water Hanchurch Distribution and Storage Reservoir. The facility is one of three existing Severn Trent Water sites that will be required to provide mitigation for the temporary loss of water supply from the Whitmore borehole abstraction during construction.</p>
<p>Additional land required and a change to Bill powers to modify the alignment of the realigned Dog Lane and introduce new field accesses</p> <p>AP2-003-016</p> <p>Map CT-06-228a, G2 to E5, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>Dog Lane would be realigned over a distance of 950m, 125m north-west of its existing alignment, to cross over the HS2 route on the Dog Lane overbridge. Bent Lane would be diverted to the north of the HS2 route over a distance of 750m to create Bent Lane (North), which would run parallel to the HS2 route and pass south of Shelton under Harley before continuing into the Whitmore Heath to Madeley area (CA4).</p> <p>An area of landscape mitigation planting would be provided between the HS2 route and the Bent Lane (North) diversion, which would extend north-west towards Shelton culvert.</p> <p>During construction, temporary material stockpiles would be present on both sides of the Dog Lane realignment and on either side of the junction between the realigned Dog Lane and the diverted Bent Lane (North).</p>	<p>Additional land and a change to Bill powers will be required to permanently modify a section of the realigned Dog Lane to the north of the HS2 route and to the east of its junction with the diverted Bent Lane (North) by up to 35m in order to provide a straighter alignment and improve the forward visibility from the alignment previously proposed.</p> <p>The amendment will also introduce two new permanent field accesses, one on each side of the Dog Lane realignment.</p> <p>The amendment results in an increase in hedgerow habitat creation and a marginal increase in landscape mitigation planting.</p> <p>During construction, three material stockpiles will slightly change in shape, size and distribution on either side of Dog Lane in line with the realignment, but the total area will remain broadly the same.</p>
<p>Additional land required for modifications to the roundabout junction of the A500 Queensway/A519 Newcastle Road/A519 Clayton Road (Hanchurch Interchange) and the signalised crossroads junction of the A519 Newcastle Road/A5182 Trentham Road/B5038 Whitmore Road and a new satellite construction compound.</p> <p>AP2-003-017</p> <p>Map CT-05-228a-R4, F6 and Map CT-06-228a-R4, G9 to F5, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>The original scheme includes temporary construction traffic routes which would pass through the A500 Queensway/A519 Newcastle Road and A519 Newcastle Road/A5182 Trentham Road junctions.</p>	<p>Additional land will be required for permanent junction improvements to the existing roundabout junction of the A500 Queensway/A519 Newcastle Road/A519 Clayton Road (Hanchurch Interchange) and the signalised crossroads junction of the A519 Newcastle Road/A5182 Trentham Road/B5038 Whitmore Road. A noise fence barrier and landscape mitigation planting will be provided west of the A519 Newcastle Road and an area of hedgerow habitat creation will be provided adjacent to the eastbound A500 Queensway.</p>

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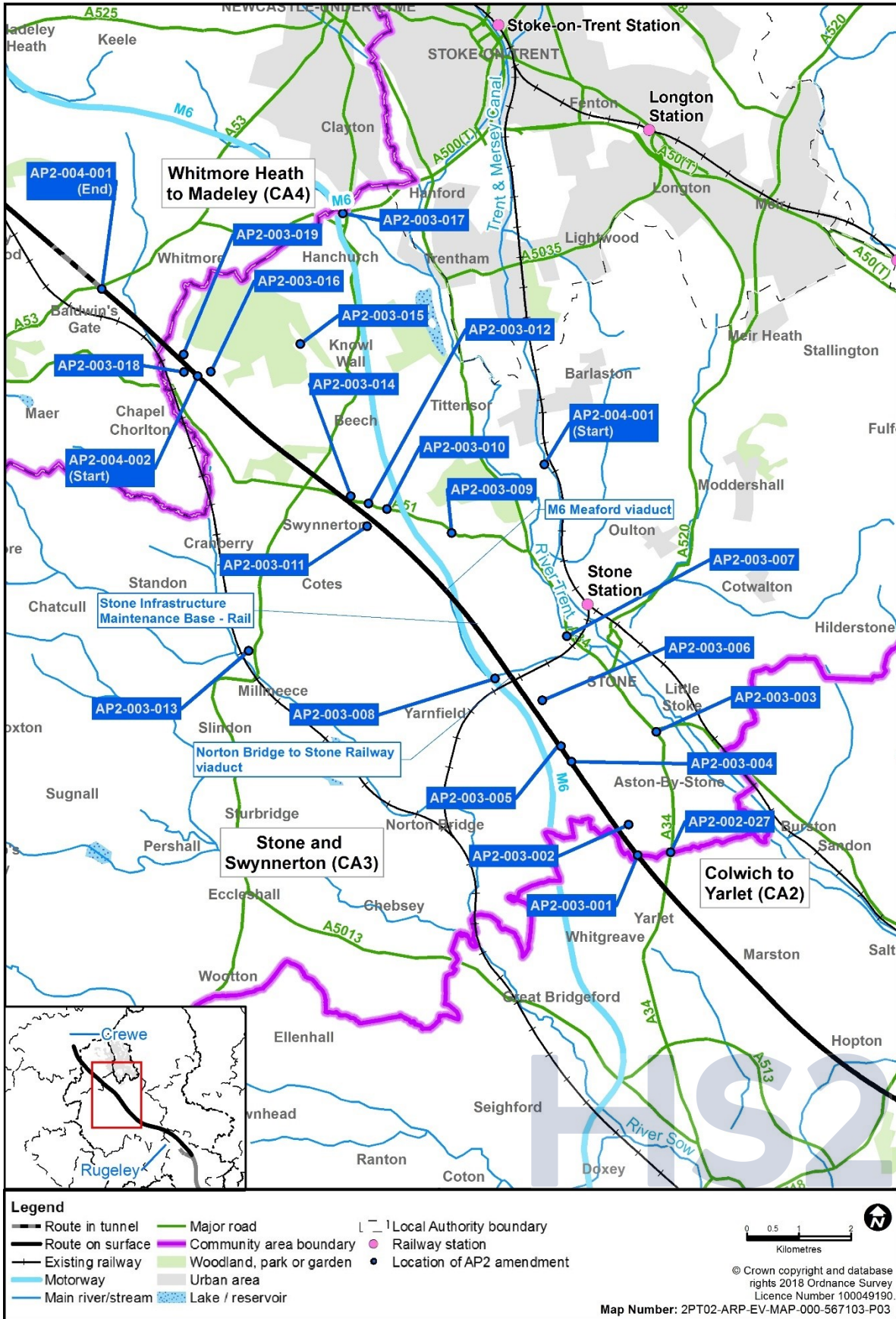
Name of the AP2 amendment	Description of the SES2 scheme (and AP1 revised scheme where relevant)	Description of the AP2 revised scheme
		<p>A new satellite construction compound adjacent to the west of the A519 Clayton Road will be provided for the management of these junction works.</p> <p>The majority of this amendment and all relevant potential receptors lie within the Stone and Swynnerton area, therefore a detailed description of the amendment and assessment of effects are reported below. Part of this amendment lies within the Whitmore Heath to Madeley area (CA4) and the works associated with this amendment in the Whitmore Heath to Madeley area are described in SES2 and AP2 ES, Volume 2, Community area 4, Whitmore Heath to Madeley.</p>
<p>Additional land required and a change to Bill powers for the stopping up of Bent Lane (South), 400m west of Dog Lane overbridge</p> <p>AP2-003-018</p> <p>Map CT-05-228a, D9, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>The existing Bent Lane would be split into the Bent Lane (North) diversion, for through traffic, and the Bent Lane (South) realignment, which would continue 350m into the Whitmore Heath to Madeley area (CA4) where it would be closed.</p> <p>Swynnerton Footpath 10 accommodation underbridge would provide non-motorised user and vehicle access to Shelton under Harley Farm by connecting the diverted Bent Lane (North) and the realigned Bent Lane (South). Bent Lane (South) would provide a connection between the existing Swynnerton Footpath 10 and the diverted Swynnerton Footpath 10 over a length of 75m.</p> <p>The AP1 revised scheme (AP1-003-006: Additional land permanently required for the provision of a roundabout at the junction of the realigned Dog Lane, the A51 The Rowe, Bent Lane and the A51 through Stableford), slightly modified the vertical and horizontal alignment of the Bent Lane (South) realignment at its southern end.</p>	<p>Additional land and a change to Bill powers will be required to permanently move the stopping up location of Bent Lane (South) south-east to a point 130m north of the junction of Bent Lane (South) and the realigned Dog Lane.</p> <p>Beyond the new turning head, Bent Lane (South) will no longer be a public road and will be retained as an HS2 maintenance access and an accommodation access. The Swynnerton Footpath 10 diversion will be extended 75m south-east along the Bent Lane (South) alignment to connect in to the existing Swynnerton Footpath 10.</p>
<p>A change to Bill powers for a new permanent diversion of G2084 Shelton under Harley Lane to form a new junction with Bent Lane (North) diversion</p> <p>AP2-003-019</p> <p>Map CT-06-228a, D5 to C5, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>Bent Lane would be diverted to the northern side of the HS2 main line, over a distance of 750m, to create Bent Lane (North), which would run parallel to the HS2 main line, and pass south of Shelton under Harley, before continuing into the Whitmore Heath to Madeley area (CA4), with an increase in journey length of 55m. A junction between the Bent Lane (North) diversion and the existing Green Lane, G2084 Shelton under Harley Lane, would be created close to the position of the existing junction between Bent Lane and G2084 Shelton under Harley Lane.</p>	<p>A change to the Bill powers will be required for a new permanent diversion of the G2084 Shelton under Harley Lane, approximately 130m in length, to create a new junction with the Bent Lane (North) diversion, approximately 150m south-east of the junction position in the original scheme. This revised junction arrangement would improve visibility for vehicles turning into the diverted Bent Lane (North) from the G2084 Shelton under Harley Lane. Amendments will be required to perimeter drainage, hedgerow planting and the shape of the Hatton North cutting satellite compound. Pedestrian and equestrian access will</p>

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Name of the AP2 amendment	Description of the SES2 scheme (and AP1 revised scheme where relevant)	Description of the AP2 revised scheme
	Hatton North cutting satellite compound, from which the works would be managed, is close to the diversion.	be maintained along the existing G2084, Shelton Under Harley Lane via a new bridleway.
<p>Additional land required and change to Bill powers for changes to the vertical and horizontal alignment between Hatton South cutting and Madeley Bridleway 1 accommodation green overbridge</p> <p>AP2-004-002</p> <p>Map CT-06-227, D6 to A5, and CT-06-228a, J6 to A5, in the SES2 and AP2 ES Volume 2, CA3 Map Book and Map CT-06-228b, J6 to A5, to Map CT-06-233, J6 to H6, in the SES2 and AP2 ES Volume 2, CA4 Map Book</p>	<p>The Bill provides for the HS2 route within the Hatton South cutting which would continue onto the Stableford South embankment. This section of the route would be within the Stone and Swynnerton area, before proceeding into the Whitmore Heath to Madeley area (CA4), west of Shelton under Harley Farm.</p>	<p>As part of this amendment, the vertical alignment between Hatton South cutting in the Stone and Swynnerton area, and River Lea viaduct in the Whitmore Heath to Madeley area (CA4) will be amended.</p> <p>The majority of this amendment and all relevant potential receptors lie within the Whitmore Heath to Madeley area, therefore a detailed description of the amendment and assessment of effects are reported in SES2 and AP2 ES, Volume, Community area 4, Whitmore Heath to Madeley. Part of this amendment lies within the Stone and Swynnerton area and the works associated with this amendment within the Stone and Swynnerton area are reported below.</p>

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Figure 4: Locations of AP2 engineering amendments in the Stone and Swynnerton area



- 4.2.3 Amendments in the Stone and Swynnerton area result in changes to waste arisings, which are reported in Volume 5: Appendix WM-001-000 of the SES2 and AP2 ES.
- 4.2.4 An assessment of the likely significant environmental effects associated with the disposal of construction, demolition, excavation and operational waste has been undertaken route-wide for the AP2 revised scheme. See Volume 3, Section 11 of the SES2 and AP2 ES for details of this assessment.

### 4.3 Minor utility amendments

- 4.3.1 Amendments to minor utilities will be required in the Stone and Swynnerton area to provide connections to construction compounds and to maintain continuity of supply in the area. This will result in changes to the land or Bill powers required for the SES2 scheme and separately the AP1 revised scheme where relevant. Typically, works associated with minor utility amendments will be small in scale and similar to the types of works undertaken routinely by utility providers in the normal course of their activities. The duration of minor utility works will generally be short term. Provision of access to adjacent properties will usually be maintained during the works with alternative access arrangements being made where necessary. Where relevant, the implementation of the works will be subject to appropriate traffic management measures to ensure that disruption to non-motorised users and vehicular traffic is reduced insofar as reasonably practicable. Table 6 provides a summary of the minor utility amendments and the changes to land or Bill powers required. Consideration has been given to the potential for new or different likely significant cumulative effects as a result of the minor utility amendments acting in combination with other SES2 changes and AP1 amendments and reported where relevant.
- 4.3.2 Figure 5 shows the general location of the minor utility amendments.

Table 6: Summary of AP2 minor utility amendments in the Stone and Swynnerton area

Name of the AP2 minor utility amendment	Description of the SES2 scheme (and AP1 revised scheme where relevant)	Description of the AP2 revised scheme
Additional land for the permanent overhead diversion of a Western Power Distribution 11kV overhead line near Pirehill Grange Farm AP2-003-101 Map CT-06-220b, C4 to C3, D7 to C7 and A7, and CT-06-221, I7 to H7, in the SES2 and AP2 ES Volume 2, CA3 Map Book	Land would be permanently required for the permanent underground diversion of a Western Power Distribution 11kV overhead line, 380m in length, parallel to the existing overhead line, crossing the HS2 route 30m south-east of Pirehill culvert.	Additional land will be required for the permanent diversion of a Western Power Distribution 11kV overhead line, 800m in length, parallel to the western side of the HS2 route, 250m north of Pirehill Grange Farm.
Additional land for the permanent underground diversion of a Western Power Distribution 11kV overhead line near North Pirehill Farm AP2-003-102 Map CT-06-221, H4 to G2, in the SES2 and AP2 ES Volume 2, CA3 Map Book	Land would be permanently required for the permanent underground diversion of a Western Power Distribution 11kV overhead line, 290m in length, parallel to the existing overhead line, 70m west of North Pirehill Farm.	Additional land will be required for the permanent underground diversion of a Western Power Distribution 11kV overhead line, 385m in length, crossing the HS2 route, 40m east of Pirehill Lane.



SES2 and AP2 ES Volume 2 – Community area 3, Stone and Swynnerton

Name of the AP2 minor utility amendment	Description of the SES2 scheme (and AP1 revised scheme where relevant)	Description of the AP2 revised scheme
<p>Additional land for the diversion of an underground Openreach telecommunications cable between Stafford motorway service area southbound and Pirehill Lane</p> <p>AP2-003-103</p> <p>Map CT-06-221, I10 to E1, and Map CT-06-221-R1, E10 to D7, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>No provision was made for the permanent diversion of an Openreach underground telecommunications cable between Stafford motorway service area southbound and Pirehill Lane.</p>	<p>Additional land will be required to enable the underground diversion of an Openreach telecommunication cable, 650m in length. Additional land between Stafford motorway service area (southbound) and Pirehill Lane will be temporarily required for access, and additional land crossing the HS2 route at the Stone Rural Footpath 32 accommodation overbridge will be permanently required.</p>
<p>Additional land and change to Bill powers for access to enable the removal of a Western Power Distribution 11kV underground cable and switchgear at Walton House Farm.</p> <p>AP2-003-104</p> <p>Map CT-05-221, D4 to B1, CT-05-222, J4 to I1, and CT-05-221-R1, B10 to B9, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>Land would be permanently required for the permanent underground diversion of a Western Power Distribution 11kV underground cable, 105m in length, from a pole located within Walton House Farm, to a location 40m north-east of the HS2 route.</p>	<p>Additional land and a change to Bill powers will be required for access to enable the permanent removal of a Western Power Distribution 11kV underground electricity cable and associated infrastructure, 105m in length, from a pole located within Walton House Farm, to a location 40m north-east of the HS2 route.</p>
<p>Additional land for the permanent diversion of an underground Zayo telecommunications cable along A34 The Fillybrooks and B5026 Eccleshall Road</p> <p>AP2-003-105</p> <p>Map CT-06-222-R1, I4 to C3, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>No provision was made for the permanent diversion of an existing underground Zayo telecommunications cable between Yarnfield Lane and the B5026 Eccleshall Road.</p> <p>The AP1 revised scheme (AP1-003-105: Additional land for the permanent removal of Zayo underground telecommunications cables near Yarnfield Lane) provides for the permanent removal of an existing Zayo telecommunications cable.</p>	<p>Additional land will be required for the permanent diversion of an underground Zayo telecommunications cable, 1.4km in length, running along the A34 The Fillybrooks, from the junction with Yarnfield Lane and the B5026 Eccleshall Road to the junction with Tilling Drive.</p> <p>This amendment is dependent on the AP1 revised scheme amendment (AP1-003-105: Additional land for the permanent removal of Zayo underground telecommunications cables near Yarnfield Lane) being approved, as part of the additional land included within the AP1 revised scheme is required for the utility works described in this AP2 amendment.</p>

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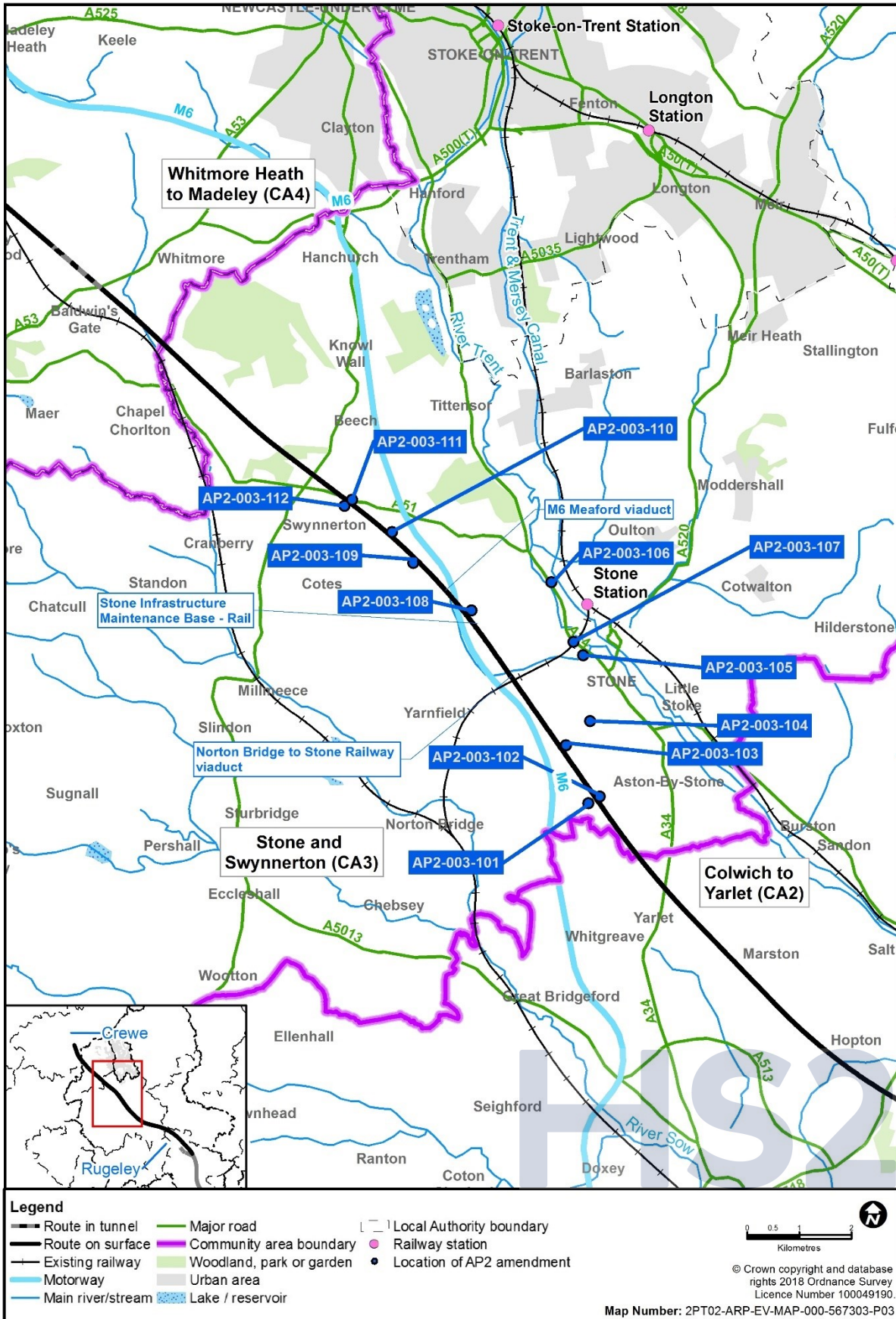
Name of the AP2 minor utility amendment	Description of the SES2 scheme (and AP1 revised scheme where relevant)	Description of the AP2 revised scheme
<p>Additional land for the permanent diversion of an underground Zayo telecommunications cable along the A34 The Fillybrooks and A51 Bury Bank</p> <p>AP2-003-106</p> <p>Map CT-06-222-R1, C4 to A2, Map CT-06-223-R1, J5 to A4, and Map CT-06-224-R1, J2 to C8, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>No provision was made for the permanent diversion of an existing underground Zayo telecommunications cable between Yarnfield Lane and the A51 Bury Bank.</p> <p>The AP1 revised scheme (AP1-003-106: Additional land and change in Bill powers for the permanent removal of a Zayo underground telecommunications cable between Yarnfield Lane and the A51 Bury Bank) provides for the permanent removal of an existing Zayo telecommunications cable.</p>	<p>Additional land will be required for the permanent diversion of an underground Zayo telecommunications cable, 3.5km in length, running along the A34 The Fillybrooks, from the junction with Yarnfield Lane and the A51 Bury Bank to a location 60m north-west of the Severn Trent Water Swynnerton Pumping Station.</p> <p>This amendment is dependent on the AP1 revised scheme amendment (AP1-003-106: Additional land and change in Bill powers for the permanent removal of a Zayo underground telecommunications cable between Yarnfield Lane and the A51 Bury Bank) being approved, as part of the additional land included within the AP1 revised scheme is also required for the utility works described in this AP2 amendment.</p>
<p>Additional land for the permanent diversion of an underground Zayo telecommunications cable along Yarnfield Lane</p> <p>AP2-003-107</p> <p>Map CT-06-223, I3 to I1, and Map CT-06-222-R1, A10 to B8 and B5 to C4, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>No provision was made for the permanent diversion of an existing underground Zayo telecommunications cable along Yarnfield Lane.</p> <p>The AP1 revised scheme (AP1-003-105: Additional land for the permanent removal of Zayo underground telecommunications cables near Yarnfield Lane) provides for the permanent removal of an existing Zayo telecommunications cable.</p>	<p>Additional land will be required for the permanent diversion of an underground Zayo telecommunications cable, 2.2km in length, along Yarnfield Lane from the junction with the A34 The Fillybrooks, crossing the HS2 route at Yarnfield Lane underbridge, to the junction with Moss Lane.</p> <p>This amendment is dependent on amendment AP1-003-105 (Additional land for the permanent removal of Zayo underground telecommunications cables near Yarnfield Lane) being approved, as part of the additional land included within the AP1 revised scheme is also required for the utility works described in this AP2 amendment.</p>
<p>Additional land for the permanent underground diversion of a Western Power Distribution 11kV overhead line near the M6 Meaford viaduct</p> <p>AP2-003-108</p> <p>Map CT-06-223, D6 to D5, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>Land would be permanently required for the permanent underground diversion of a Western Power Distribution 11kV overhead line, 220m in length, from an existing Western Power Distribution pole 240m east of the M6, crossing the HS2 route 320m south of the M6 Meaford viaduct, to a Highways England electricity cabinet adjacent to the M6.</p>	<p>Additional land will be required for the permanent underground diversion of a Western Power Distribution 11kV overhead line near the M6 Meaford viaduct, 350m in length. The diversion will run from an existing Western Power Distribution pole 240m east of the M6, crossing the HS2 route 320m south of the M6 Meaford viaduct, to a Highways England electricity cabinet.</p>

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Name of the AP2 minor utility amendment	Description of the SES2 scheme (and AP1 revised scheme where relevant)	Description of the AP2 revised scheme
<p>Additional land for the provision of a new temporary underground Openreach telecommunications cable to Meaford North embankment satellite compound</p> <p>AP2-003-109</p> <p>Map CT-06-224, E8 to E7, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>Land would be permanently required for a new temporary underground Openreach telecommunications cable to Meaford North embankment satellite compound, 380m in length, from Swynnerton Footpath 27 to Meaford North embankment satellite compound.</p>	<p>Additional land will be required for a new temporary underground Openreach telecommunications cable, 600m in length, from Hall Lane to Meaford North embankment satellite compound.</p>
<p>Additional land and change to Bill powers for the permanent overhead and underground diversion of a Western Power Distribution 33kV overhead line south-west of Sandyford Farm</p> <p>AP2-003-110</p> <p>Map CT-06-225, J4 and D6 to D7, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>Land would be permanently required for the permanent underground diversion of a Western Power Distribution 33kV overhead line, 1.2km in length, from an existing Western Power Distribution pole to the south-west of the HS2 route. The northern section of the diversion, 200m in length, would cross the HS2 route 190m west of the A51 Stone Road. The southern section of the diversion, 180m in length, would run as an overhead line to the south of the HS2 route.</p>	<p>Additional land and change to Bill powers will be required for the permanent underground and overhead diversion of a Western Power Distribution 33kV overhead line, 1.3km in length, crossing the HS2 route at Swynnerton Estate South underbridge, running parallel to the south-west of the HS2 route and crossing the diverted Tittensor Road. Two sections of the diversion will be an underground cable totalling 300m in length and one section of the diversion will be an overhead line, 1km in length.</p>
<p>Additional land for the permanent underground diversion of two Western Power Distribution 33kV underground electricity cables along A51 Stone Road diversion and A519 Newcastle Road</p> <p>AP2-003-111</p> <p>Map CT-06-226, F8, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>Land would be permanently required for the permanent underground diversion of two Western Power Distribution 33kV underground cables, 660m in length, crossing the HS2 route, along the A51 Stone Road, from the junction with Tittensor Road diversion, to 160m west of the A51 Stone Road stopping up point.</p>	<p>Additional land will be required for the permanent underground diversion of two Western Power Distribution 33kV underground electricity cables, 1.8km in length, along the A51 Stone Road diversion, the A519 Newcastle Road and crossing the HS2 route along the A519 Newcastle Road overbridge to reconnect on the southern side of the A51/A519 roundabout.</p>
<p>Additional land for the permanent diversion of three Severn Trent Water water mains supplies near the A51 Stone Road and Stab Lane</p> <p>AP2-003-112</p> <p>Map CT-06-225, C7 to A6, and CT-06-226, J7 to H6, in the SES2 and AP2 ES Volume 2, CA3 Map Book</p>	<p>No provision was made for the permanent diversion of three Severn Trent Water water mains supplies near the A51 Stone Road and Stab Lane.</p>	<p>Additional land will be required for the permanent diversion of three Severn Trent Water water mains supplies (150mm, 300mm and 9" diameter mains), each 650m in length, from Stab Lane running parallel to the HS2 route, to the A51 Stone Road.</p>

# SES2 and AP2 ES Volume 2 – Community area 3, Stone and Swynnerton

Figure 5: Locations of AP2 minor utility amendments in the Stone and Swynnerton area



## 5 Assessment of engineering amendments in the Stone and Swynnerton area

### 5.1 Additional land required for a revised high pressure National Grid Gas Transmission Line diversion under Yarlet central cutting and a new temporary utility compound (AP2-003-001)

- 5.1.1 The majority of this amendment and all relevant potential receptors lie within the Stone and Swynnerton area, therefore a detailed description of the amendment and assessment of effects is reported below. Part of this amendment lies within the Colwich to Yarlet area (CA2) and the works associated with this amendment within the Colwich to Yarlet area are described in SES2 and AP2 ES Volume 2, Community area 2, Colwich to Yarlet.
- 5.1.2 The Bill provides for the permanent diversion of a 900mm diameter National Grid high-pressure gas pipeline, 330m in length, to cross under the HS2 route, 30m south-east of its existing alignment under Yarlet central cutting. See Map CT-06-220b, H4 to H7, in the main ES Volume 2, CA3 Map Book. An ecological mitigation pond, to provide replacement habitat for reptiles and amphibians, would be provided within an area of grassland habitat creation, in proximity to the diversion to the north-east of the HS2 route. See Map CT-06-220b, H5, in the main ES Volume 2, CA3 Map Book. Construction of the gas pipeline diversion would take one year to complete, commencing in 2021, and would be managed from Yarlet embankment satellite compound.
- 5.1.3 Since submission of the Bill, further engagement with the utility provider has identified a requirement to reposition the locations where the diverted and existing pipelines connect, realign a 350m long section of the pipeline, and provide a new utility compound for the management of the diversion works.
- 5.1.4 The eastern connection point will be repositioned 45m south-west of the location identified in the original scheme. As part of the amendment, a 350m long section of the pipeline will be diverted and will cross the HS2 route 20m further south than the location identified in the original scheme and 55m south-east of its existing alignment. It will continue in a south-west direction before turning to the west and reconnecting with the existing pipeline alignment in approximately the same location identified in the original scheme. In total, the pipeline will be diverted up to 75m south of its existing alignment. See Map CT-06-220b, H7 to H5, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.1.5 To accommodate the pipeline diversion works, the ecological mitigation pond proposed in the original scheme will be relocated 350m south-east, to an existing area of grassland habitat creation on the same side of the route, within the Colwich to Yarlet area, adjacent to the boundary with the Stone and Swynnerton area. See Map CT-06-220b, J5, in the SES2 and AP2 ES Volume 2, CA3 Map Book. Approximately 185m<sup>2</sup> of grassland habitat creation and 120m of hedgerow habitat creation provided around the pond in the original scheme will no longer be required.
- 5.1.6 A new utility compound (Yarlet utility compound) will be provided to manage the pipeline diversion. See Map CT-05-220b, I5, in the SES2 and AP2 ES, Volume 2 CA3

Map Book. Yarlet Utility compound will be located 500m south-east of the revised location of Stone Rural Footpath 28 accommodation overbridge, provided for in amendment AP2-003-002: Additional land required and a change to Bill powers for the relocation of Stone Rural Footpath 28 accommodation overbridge.

- 5.1.7 Yarlet Utility compound will be operational for nine months, commencing during 2023, and will support an average of 15 workers per day (20 workers at peak times). Access to the new compound will be from the site haul road and the A34 Stone Road.
- 5.1.8 The pipeline diversion works will be undertaken over a period of up to nine months, commencing in 2023.
- 5.1.9 The working area required for the amended pipeline diversion is outside the limits of the Bill. This amendment will result in the requirement for an additional 2.7ha of land, some of which will be from New House Farm (CA3/1). See Map CT-06-220b, I7 to H4, in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that all of the additional land will be returned to its existing use following construction.

### Topics included in the AP2 assessment

- 5.1.10 Within the Stone and Swynnerton area, this amendment is considered to require reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, for landscape and visual. This is reported within this section.
- 5.1.11 The assessment of the changes to construction traffic flows and traffic related effects as a result of this AP2 amendment, in combination with all SES2 changes and AP2 amendments, is reported in Section 7.

### Landscape and visual

#### *Scope, assumptions and limitations*

- 5.1.12 The assessment scope, key assumptions and limitations for landscape and visual are as set out in Volume 1, the Scope and Methodology Report (SMR)<sup>14</sup> and SMR Addendum<sup>15</sup> of the main ES.
- 5.1.13 The amendment has the potential to result in new or different significant construction visual effects only. Therefore, there is no construction assessment for landscape and no operational assessment for landscape and visual.

#### *Existing environmental baseline*

- 5.1.14 The baseline landscape and visual information for the Stone to Swynnerton area is as described in Volume 2, CA3, Section 11 of the main ES.

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<sup>14</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report (Appendix CT-001-001). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>15</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report Addendum (Appendix CT-001-002). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

### **Visual baseline**

- 5.1.15 The amendment has the potential to affect one viewpoint, which is described in the Volume 5: Appendix LV-001-003 in the main ES and summarised below.

#### *View west from A34 Stone Road (viewpoint 014.04.006)*

- 5.1.16 Users of the A34 Stone Road currently have views along the road corridor which is bounded by mature hedgerows and hedgerow trees. This roadside vegetation filters many longer views, although to the south-west there are glimpses of hedged pastures, with The Bungalow residence and skyline views of New Plantation to the south.

### *Future environmental baseline*

#### **Operation (2027)**

- 5.1.17 The future baseline for operation in 2027 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### *Temporary effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.1.18 No avoidance or mitigation measures additional to those reported in the main ES and draft Code of Construction Practice (CoCP)<sup>16</sup> are identified.

#### **Assessment of impacts and effects**

#### *View west from A34 Stone Road (viewpoint 014.04.006)*

- 5.1.19 The main ES reported a moderate adverse significant construction effect at viewpoint 014.04.006. The amendment will introduce new construction activities into the view. These will, however, be minimal when seen alongside the wider construction activity in the area, which will be extensive. The amendment will therefore not give rise to any new or different significant effects at viewpoint 014.04.006 and will not change the moderate adverse significant effect reported in the main ES.
- 5.1.20 For further information see SES2 and AP2 ES Volume 5: Appendix LV-001-003 and SES2 and AP2 ES Volume 5: Landscape and visual Map Book.

#### **Cumulative effects**

- 5.1.21 There are no new or different likely significant cumulative effects for landscape and visual as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments.

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<sup>16</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at <https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a>

## **5.2 Additional land and a change to Bill powers required along the A34 Stone Road for the provision of a new access to Yarlet School (AP2-002-027)**

- 5.2.1 The majority of this amendment and all relevant potential receptors lie within the Colwich to Yarlet area (CA2), therefore a detailed description of the amendment and assessment of effects are reported in SES2 and AP2 ES Volume 2, Community area 2, Colwich to Yarlet. Part of this amendment lies within the Stone and Swynnerton area and the works associated with this amendment within the Stone and Swynnerton area are reported below.
- 5.2.2 The Bill provides for the temporary offline diversion of the A34 Stone Road, for 750m in length and up to 100m west of its existing alignment, during construction of the A34 Stone Road overbridge. At its southern end, the diversion would tie-in to the existing highway, 260m south of the A34 Stone Road and Yarlet Lane junction. At the northern end, the diversion would tie in to the existing highway, 240m north of the Yarlet School access road.
- 5.2.3 Since the submission of the SES1 and AP1 ES, further engagement has taken place with the Yarlet Trust, which owns and operates Yarlet School. This has resulted in the identification of an alternative access to the school on the eastern side of the A34 Stone Road, which will enable access from both carriageways to the school during construction of the works, and which will be retained permanently.
- 5.2.4 Within the Stone and Swynnerton area, the amendment will require tie-in works with the A34 Stone Road, on the northern side of the HS2 route, to be extended 650m north of its location in the original scheme, 890m north of the existing Yarlet School access road. See Map CT-06-219b, D2 to C1, and Map CT-06-220b-R1, J10 to J8, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.2.5 The amendment will be constructed over a period of one year and six months, commencing in 2020. Works will be managed from Yarnfield North Embankment satellite compound.
- 5.2.6 The works to provide a new access for Yarlet School are outside the limits of the Bill. This amendment will result in a requirement for an additional 3.8ha of land, almost all of which is within the Colwich to Yarlet area (CA2).

### **Topics included in the AP2 assessment**

- 5.2.7 This amendment is not considered to require a reassessment of the environmental effects or mitigation within the Stone and Swynnerton area as set out in the main ES, as amended by SES1 and SES2, with respect to any environmental topics.

## **5.3 Additional land required and a change to Bill powers for the relocation of Stone Rural Footpath 28 accommodation overbridge (AP2-003-002)**

- 5.3.1 The Bill provides for the permanent realignment of Stone Rural Footpath 28, 125m north-west of its existing alignment, to cross over the HS2 route on the Stone Rural Footpath 28 accommodation overbridge, increasing the length of journey by 240m. A temporary diversion of the Stone Rural Footpath 28, 450m in length, would be



required to the south of the HS2 route during construction for a period of one year and six months. See Map CT-06-220b, H4 to G6, in the main ES Volume 2, CA3 Map Book.

- 5.3.2 Since submission of the Bill, further engagement with a landowner has identified a requirement to relocate the Stone Rural Footpath 28 accommodation overbridge, 330m north-west of the location in the original scheme, to allow a landowner to retain agricultural operations across the HS2 route. The overbridge will cross the HS2 route at existing ground level, 11m in height above track level. This relocation will require a diversion of Stone Rural Footpath 28, 1km in length, from a location 520m north-east of the HS2 route to cross over the route via the relocated Stone Rural Footpath 28 accommodation overbridge, and will connect into the proposed Whitgreave Footpath 3 diversion to the south of the HS2 route. The Whitgreave Footpath 3 diversion will be 340m in length. A 380m section of the existing Stone Rural Footpath 28 will be permanently closed to the north of the HS2 route. On the southern side of the HS2 route, a further 70m section of Stone Rural Footpath 28 and a 75m section of Whitgreave Footpath 3 will be permanently closed. This amendment will result in an increase in journey length by 425m to that of the original scheme. Areas of woodland habitat creation and hedgerow habitat creation will be repositioned to enable the relocation of the Stone Rural Footpath 28 accommodation overbridge. See Map CT-06-220b, I7 to F6, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.3.3 This amendment will result in the temporary diversion of Stone Rural Footpath 28 during construction no longer being required, as Stone Rural Footpath 28 and Whitgreave Footpath 3 will be diverted outside of the area required for construction.
- 5.3.4 This amendment will be constructed over a period of one year and six months, commencing in 2021. Works will be managed from the Yarlet Embankment satellite compound.
- 5.3.5 The relocation of Stone Rural Footpath 28 accommodation overbridge is outside the limits of the Bill. This amendment will result in a change to Bill powers and a requirement for an additional 1.9ha of land, some of which will be from the following agricultural holdings: Aston Pool Farm (CA3/3); Aston Hill Farm (CA3/2); and New House Farm (CA3/1). See Map CT-06-220b, H7 to G2, in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that 1.7ha of the additional land will be returned to its existing use following construction.

### **Topics included in the AP2 assessment**

- 5.3.6 This amendment is considered to require reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, for traffic and transport. This is reported within this section.

## Traffic and transport

### *Scope, assumptions and limitations*

- 5.3.7 The assessment scope, key assumptions and limitations for traffic and transport are as set out in Volume 1, the Scope and Methodology Report<sup>17</sup> (SMR) and SMR Addendum<sup>18</sup> of the main ES.
- 5.3.8 This amendment has the potential to result in new or different significant construction and operational effects for traffic and transport. Therefore, both construction and operational phases are considered in this assessment.

### *Existing environmental baseline*

- 5.3.9 The baseline traffic and transport information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 14 of the main ES.
- 5.3.10 There are pedestrian footways adjacent to many of the roads in the built-up areas of Stone and Walton. Footways vary in width and condition within these areas. Where there is no formal footway provision adjacent to a road, non-motorised user numbers are generally low. There are a number of public rights of way (PRoW) in the area including Stone Rural Footpath 28 and Whitgreave Footpath 3, which provide a non-motorised user route between the A34 Stone Road via Aston Lane, to the north of the HS2 route, to Green Lane, to the south of the HS2 route.

### *Future environmental baseline*

#### **Construction (2023) and operation (2027 and 2041)**

- 5.3.11 The future baseline for construction in 2023 and operation in 2027 and 2041 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### *Effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.3.12 No avoidance or mitigation measures additional to those reported in the main ES and draft Code of Construction Practice (CoCP)<sup>19</sup> are required.

#### **Assessment of impacts and effects**

- 5.3.13 The main ES reported that the temporary diversion of Stone Rural Footpath 28 during construction would give rise to a temporary adverse minor significant severance effect on non-motorised users of Stone Rural Footpath 28, due to an increase in distance of up to 250m.

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<sup>17</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report (Appendix CT-001-001). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>18</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report Addendum (Appendix CT-001-002). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>19</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at <https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a>

5.3.14 The amendment removes the need for the temporary diversion as non-motorised users will be diverted during construction on to the permanent alignment, which is described under 'effects arising from operation'. The amendment will remove the temporary adverse minor severance significant effect on non-motorised users of Stone Rural Footpath 28, as reported in the main ES.

5.3.15 For further information see SES2 and AP2 ES Volume 5: Appendix TR-001-000, and the SES2 and AP2 ES Volume 5: Traffic and transport Map Book.

### **Mitigation and residual effects**

#### *Other mitigation measures*

5.3.16 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

#### *Summary of likely residual significant effects*

5.3.17 The amendment will remove the temporary likely residual adverse minor severance significant effect on non-motorised users of Stone Rural Footpath 28 as the temporary diversion of Stone Rural Footpath 28 is removed.

### **Cumulative effects**

5.3.18 There are no new or different likely significant cumulative effects for traffic and transport as a result of the amendment acting in combination with any other AP2 amendments, AP1 amendments or any relevant committed development.

#### *Effects arising from operation*

### **Avoidance and mitigation measures**

5.3.19 No avoidance or mitigation measures, additional to those reported in the main ES, are required.

### **Assessment of impacts and effects**

5.3.20 The main ES reported that the permanent diversion of Stone Rural Footpath 28 via the Stone Rural Footpath 28 accommodation overbridge would result in minor adverse significant severance effect on non-motorised users of Stone Rural Footpath 28, due to an increase in travel distance of up to 250m.

5.3.21 The amendment will relocate the Stone Rural Footpath 28 accommodation overbridge further north and will require a change to the permanent alignment of Stone Rural Footpath 28, included in the original scheme, with the diversion of Whitgreave Footpath 3 maintaining continuity of the route. This amendment will remove the permanent minor adverse significant severance effect on non-motorised users of Stone Rural Footpath 28 reported in the main ES. However, as Stone Rural Footpath 28 and Whitgreave Footpath 3 are part of a continuous route for non-motorised users, the amendment will increase the distance for users of this route by 600m and will give rise to a new permanent moderate adverse severance effect on non-motorised users of Stone Rural Footpath 28 and Whitgreave Footpath 3, which is significant.

- 5.3.22 For further information see SES2 and AP2 ES Volume 5: Appendix TR-001-000, and the SES2 and AP2 ES Volume 5: Traffic and transport Map Book.

### **Mitigation and residual effects**

#### *Other mitigation measures*

- 5.3.23 No mitigation measures, additional to those reported in the main ES, are required.

#### *Summary of likely residual significant effects*

- 5.3.24 The amendment will remove the minor adverse significant effect reported in the main ES, on non-motorised users of Stone Rural Footpath 28. The amendment will give rise to a new permanent moderate adverse significant severance effect on users of Stone Rural Footpath 28 and Whitgreave Footpath 3 due to an increase in distance of up to 600m.

### **Cumulative effects**

- 5.3.25 There are no new or different likely significant cumulative effects for traffic and transport as a result of the amendment acting in combination with any other AP2 amendments, AP1 amendments or any relevant committed development.

### **Monitoring**

- 5.3.26 Volume 1 of the main ES sets out the general approach to environmental monitoring during operation of the original scheme.
- 5.3.27 There are no changes to the monitoring requirements identified in the main ES for traffic and transport as a result of the amendment.

## **5.4 Additional land required for the provision of a new permanent left turn filter lane on the roundabout connecting the A51 Stone Bypass to the south-eastern arm of the A34 Stafford Road (AP2-003-003)**

- 5.4.1 The original scheme provided for construction traffic routes on the A34 Stafford Road in both directions through an existing roundabout junction of the A34 Stafford Road, the A51 Stone Bypass and Brooms Road, 1.7km north-east of the HS2 route. No changes to the roundabout itself were proposed as part of the original scheme.
- 5.4.2 The SES2 scheme provides for an additional construction traffic route (SES2-002-010: New construction traffic route along the A51 from Stone to Weston via Sandon) which introduces HS2 construction traffic onto the A51 Stone Bypass through this roundabout. See Map CT-05-220-R2, A10, in the SES2 and AP2 ES Volume 2, CA3 Map Book. The new construction traffic route is provided for in the Colwich to Yarlet area (CA2), and works are described in the SES2 and AP2 ES, Volume 2, Community area 2, Colwich to Yarlet.
- 5.4.3 Since submission of the Bill, it has been identified that there is a need to improve traffic flow through this roundabout to mitigate HS2 construction traffic effects. A left turn filter lane will be provided to allow traffic turning left from the westbound A51 Stone Bypass into the southbound A34 Stafford Road to do so without needing to give

way to traffic on the roundabout. See Map CT-06-220-R2, B10 to A9, in the SES2 and AP2 ES Volume 2, CA3 Map Book.

- 5.4.4 The carriageways of the A51 Stone Bypass and A34 Stafford Road will be widened by up to 8m in the vicinity of the roundabout to accommodate the new left turn filter lane, which will be 280m in length.
- 5.4.5 The proposed left turn filter lane coincides with the existing footway that runs alongside the westbound A34 Stafford Road to a crossing point on the A51 Stone Bypass. This footway provision will be replicated alongside the left turn filter lane to maintain the pedestrian route. The existing hedgerow along the line of the left turn lane, 220m in length, will be removed to accommodate the carriageway widening, verge, and new footway, and to provide compliant visibility for vehicles. It will be replaced with 260m of new permanent hedgerow, which will be located alongside the left turn filter lane and the widened carriageways of the A51 Stone Bypass and A34 Stafford Road.
- 5.4.6 The modifications proposed as part of this AP2 amendment will be in addition to improvements to the junction of the A34 Stafford Road and A51 Stone Bypass, associated with the Walton Hill residential development (planning application 13/19002/OUT), which were implemented in 2018 to modify the existing roundabout to improve the capacity and operation of the junction. This includes flaring of the A51 Stone Bypass approach from three lanes to four lanes and improvements to the circulatory carriage capacity.
- 5.4.7 This amendment will be constructed over a period of up to three months, subject to utility works, commencing in 2020, and will be managed locally within the highway.
- 5.4.8 The land required for the new left turn filter lane is outside the limits of the Bill. This amendment will result in the requirement for an additional 1ha of land, the majority of which is within the highway boundary, however some will be from Forge Farm. See Map CT-05-220-R2, B10 to A9, in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that up to 0.8ha of the additional land will be returned to its existing use following construction.

### **Topics included in the AP2 assessment**

- 5.4.9 This amendment is considered to require reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, for traffic and transport. This is reported within this section.
- 5.4.10 The assessment of the changes to construction traffic flows and traffic related effects as a result of this AP2 amendment in combination with all SES2 changes and AP2 amendments, is reported in Section 7.

## Traffic and transport

### *Scope, assumptions and limitations*

- 5.4.11 The assessment scope, key assumptions and limitations for traffic and transport are as set out in Volume 1, the Scope and Methodology Report (SMR)<sup>20</sup> and SMR Addendum<sup>21</sup> of the main ES.
- 5.4.12 This amendment has the potential to result in new or different significant construction and operational effects for traffic and transport. Therefore, both construction and operational phases are considered in this assessment.
- 5.4.13 The assessment of the changes to construction traffic flows as a result of this amendment in combination with all SES2 changes and AP2 amendments is reported in Section 7.

### *Existing environmental baseline*

- 5.4.14 The baseline traffic and transport information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 14 of the main ES.
- 5.4.15 The main local road in this area is the A34 Stafford Road, a dual carriageway which connects Stafford in the south to Stone in the north and onwards to Trentham. The A51 Stone Bypass connects the A34 Stafford Road south of Stone to Lichfield via Weston to the south-east. The junction of the A34 Stafford Road and A51 Stone Bypass is a four-arm roundabout, the western approach of which is Brooms Road and which provides access to Stone Business Park and Walton Industrial Estate. The road network in this area generally operates well although delays can be experienced, particularly at peak times.

### *Future environmental baseline*

#### **Construction (2023) and operation (2027 and 2041)**

- 5.4.16 SES2 and AP2 ES Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2023 for construction and 2027 and 2041 for operation, additional to those identified in the main ES Volume 5: Appendix CT-004-000.
- 5.4.17 Provision of improvements to the junction of the A34 Stafford Road and A51 Stone Bypass associated with the Walton Hill residential development (planning application 13/19002/OUT) is relevant to the assessment of traffic and transport. This scheme included in the future baseline, modifies the existing roundabout to improve the capacity and operation of the junction although the overall form of the junction is not

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<sup>20</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report (Appendix CT-001-001). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>21</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report Addendum (Appendix CT-001-002). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

materially altered. This includes flaring of the A51 Stone Bypass approach from three lanes to four lanes and improvements to the circulatory carriage capacity.

### *Effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.4.18 No avoidance or mitigation measures, additional to those reported in the main ES and draft Code of Construction Practice (CoCP)<sup>22</sup>, are identified.

#### **Assessment of impacts and effects**

- 5.4.19 The main ES reported that construction of the original scheme would result in queues and delays for vehicle occupants at the A34 Stafford Road/A51 Stone Bypass junction, which would give rise to a major adverse significant traffic congestion and delay effect.
- 5.4.20 Although the amendment will reduce the impacts of construction traffic at the junction (considered in combination with all SES2 changes and AP2 amendments in Section 7), the temporary construction works associated with the modifications of the A34 Stafford Road/A51 Stone Bypass junction and associated traffic management measures will be likely to result in a temporary reduction in capacity and some delays at the junction during its construction. Although once completed the changes will reduce congestion and delays, this amendment will give rise to a new temporary minor adverse effect on traffic flows and delays for road users during its construction, which is significant.
- 5.4.21 For further information see SES2 and AP2 ES Volume 5: Appendix TR-001-000, and the SES2 and AP2 ES Volume 5: Traffic and transport Map Book.

#### **Mitigation and residual effects**

##### *Other mitigation measures*

- 5.4.22 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

##### *Summary of likely residual significant effects*

- 5.4.23 During the junction works, this amendment will give rise to a new likely residual temporary minor adverse significant effect on traffic flows and delays for road users at the junction of the A34 Stafford Road and A51 Stone Road.

#### **Cumulative effects**

- 5.4.24 There are no new or different likely significant cumulative effects for traffic and transport as a result of the amendment acting in combination with any other AP2 amendments, AP1 amendments or any relevant committed development.

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<sup>22</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at <https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a>

### *Effects arising from operation*

#### **Avoidance and mitigation measures**

- 5.4.25 No avoidance or mitigation measures additional to those reported in the main ES are required.

#### **Assessment of impacts and effects**

- 5.4.26 Whilst the amendment is not required to support the AP2 revised scheme in the operational phase, as the scheme does not add any substantial permanent traffic to the area, the amendment will be retained following construction.
- 5.4.27 The main ES reported that regardless of HS2 traffic the existing junction operates at capacity with queues and delays at the junction, particularly in the AM peak. In the absence of any changes, the junction is forecast to operate over-capacity in the future assessment years of 2027 and 2041. The transport improvements to the junction, associated with the Walton Hill residential development (planning application 13/19002/OUT), implemented in 2018, improves the operation of the junction but queues and delays are still forecast to develop at the junction in the future assessment years of 2027 and 2041, particularly in the AM peak. This is a consequence of traffic growth associated with wider development in the area.
- 5.4.28 The amendment will substantially reduce the queues and delays to the junction in both the 2027 and 2041 future assessment years and the junction is forecast to operate within capacity. This amendment will give rise to a new moderate permanent beneficial traffic effect for vehicle occupants in the future assessment years of 2027 and 2041, which is significant, at the junction of the A34 Stafford Road and A51 Stone.
- 5.4.29 For further information see SES2 and AP2 ES Volume 5: Appendix TR-001-000 and the SES2 and AP2 ES Volume 5: Traffic and transport Map Book.

#### **Mitigation and residual effects**

##### *Other mitigation measures*

- 5.4.30 No mitigation measures, additional to those reported in the main ES, are required.

##### *Summary of likely residual significant effects*

- 5.4.31 The amendment will give rise to a new likely residual permanent moderate beneficial significant traffic effect for vehicle occupants in the future assessment years of 2027 and 2041 at the junction of the A34 Stafford Road and A51 Stone Road.

#### **Cumulative effects**

- 5.4.32 There are no new or different likely significant cumulative effects for traffic and transport as a result of the amendment acting in combination with any other AP2 amendments, AP1 amendments or any relevant committed development.

#### **Monitoring**

- 5.4.33 Volume 1 of the main ES sets out the general approach to environmental monitoring during operation of the original scheme.



- 5.4.34 There are no changes to the monitoring requirements identified in the main ES for traffic and transport as a result of the amendment.

## **5.5 Additional land required for the realignment of Stone Rural Footpath 32 diversion (AP2-003-004)**

- 5.5.1 The Bill provides for the diversion of Stone Rural Footpath 32 over a distance of 1.4km. The diverted Stone Rural Footpath 32 would cross the HS2 route 500m south-east of its existing alignment via the Stone Rural Footpath 32 accommodation overbridge. The diverted footpath would be 50m to the east of Walton Heath Farm and Walton House Farm. See Map CT-06-221, E8 to B4, in the main ES Volume 2, CA3 Map Book.
- 5.5.2 Since submission of the Bill, further engagement with the owners of Walton Heath Farm has identified a requirement to realign part of the diversion of Stone Rural Footpath 32, for 450m in length, 120m further east of the location of the original scheme diversion from the eastern side of Walton Heath Farm. This extension will increase the overall footpath diversion length by 200m from the original scheme, to have a total length of 1.6km. Approximately 5m of hedgerow will be permanently removed where this diversion crosses field boundaries and joins the existing Stone Rural Footpath 32. See Map CT-06-221, E4 to D3, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.5.3 The amendment will be constructed within the overall period set out for Stone Rural Footpath 32 accommodation overbridge and realignment, of one year and three months, commencing in 2023. Works will be managed from the Yarlet North cutting satellite compound.
- 5.5.4 The land required to realign the footpath is outside the limits of the Bill. This amendment will result in a requirement of an additional 0.4ha of land, some of which will be from the following agricultural holdings: Walton House Farm (CA3/6) and Walton Heath Farm (CA3/7). See Map CT-05-221, E4 to D3, in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that all of the additional land will be returned to its existing use following construction.

### **Topics included in the AP2 assessment**

- 5.5.5 This amendment is not considered to require reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, with respect to any environmental topics.
- 5.5.6 Traffic and transport is not considered in this section, as the change in length of the footpath diversion will not result in a change in the level of severance for the relatively few users of Stone Rural Footpath 32.

## **5.6 A change to Bill powers to provide permanent accommodation access for Walton Heath Farm (AP2-003-005)**

- 5.6.1 The Bill provides for the realignment of Stone Rural Footpath 32, 500m south-east of its existing alignment, to cross over the HS2 route on the Stone Rural Footpath 32 accommodation overbridge, close to Walton House Farm. See Map CT-06-221, E8 to B4, in the main ES Volume 2, CA3 Map Book. The overbridge would also provide vehicular access across the HS2 route for Walton House Farm, connecting an existing

farm track from the farm buildings to the north-east of the HS2 route to an HS2 and accommodation access road to the south-west of the HS2 route.

- 5.6.2 The realignment of Stone Rural Footpath 32 would largely follow existing farm tracks to re-join the existing Stone Rural Footpath 32 to the north-west of Walton Heath Farm. The only section of the realigned Stone Rural Footpath 32 that would not follow an existing farm track would be the section to the east of Walton House Farm, where the footpath would follow a field boundary over a length of 140m. See Map CT-06-221, E5 to D4, in the main ES Volume 2, CA3 Map Book.
- 5.6.3 Since submission of the Bill, a requirement has been identified to provide permanent accommodation access across the HS2 route for Walton Heath Farm, whose land is severed by the HS2 route. To provide this, a length of realigned Stone Rural Footpath 32 to the east of Walton House Farm, where the realigned footpath would follow a field boundary over 140m in the original scheme, is to be permanently upgraded to an accommodation access track 3.5m in width with verge widths up to 0.3m. The 140m section of Stone Rural Footpath 32 diversion will be further diverted 120m to the east of the proposed accommodation access track and is provided for in amendment AP2-003-004: Additional land required for the realignment of Stone Rural Footpath 32.
- 5.6.4 No additional land is required as works will be within land required for the original scheme. See Map CT-05-221, E4 to D3, in the SES2 and AP2 ES Volume 2, CA3 Map Book. This amendment will provide an extension of the accommodation access crossing Stone Rural Footpath 32 accommodation overbridge to meet the existing farm track to the north-east of Walton House Farm and will provide a continuous route for farm vehicles from Walton Heath Farm to Stone Rural Footpath 32 accommodation overbridge, without the need for the vehicles to follow an existing farm track between the farm buildings at Walton House Farm.
- 5.6.5 Construction of the accommodation access will take place prior to Stone Rural Footpath 32 being diverted from its existing route to the north-west of Walton Heath Farm, so a temporary diversion or closure of the footpath is not necessary as a result of this amendment.
- 5.6.6 This amendment will be constructed within the overall period set out for Stone Rural Footpath 32 accommodation overbridge and realignment, of one year and three months, commencing in 2023.
- 5.6.7 The provision of permanent accommodation access requires a change to Bill powers. See Map CT-05-221, E4 to D3, in the SES2 and AP2 ES Volume 2, CA3 Map Book.

### **Topics included in the AP2 assessment**

- 5.6.8 This amendment is considered to require reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, for agriculture, forestry and soils. This is reported within this section.

## Agriculture, forestry and soils

### *Scope, assumptions and limitations*

- 5.6.9 The assessment scope, key assumptions and limitations for agriculture, forestry and soils are as set out in Volume 1, the Scope and Methodology Report (SMR)<sup>23</sup> and SMR Addendum<sup>24</sup> of the main ES.
- 5.6.10 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for agriculture, forestry and soils.

### *Existing environmental baseline*

- 5.6.11 The baseline agriculture, forestry and soils information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 4 of the main ES.
- 5.6.12 The area of land required for the amendment has soil in the Whimple 3 association, as described in Volume 2, CA3, Section 4 of the main ES. Whimple 3 association comprises clay loam, silty clay loam or sandy clay loam topsoils over clay loam or clay subsoils. This land is classified as good quality land in Subgrade 3a<sup>25</sup>.
- 5.6.13 One farm, already affected by the original scheme, will be further affected by the amendment. Walton Heath Farm (CA3/7) is a 67ha dairy farm of high sensitivity to change.

### *Future environmental baseline*

#### **Construction (2020)**

- 5.6.14 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### *Effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.6.15 No avoidance or mitigation measures, additional to those reported in the main ES and draft Code of Construction Practice (CoCP)<sup>26</sup>, are required.

#### **Assessment of impacts and effects**

- 5.6.16 The amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES on best and

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<sup>23</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report (Appendix CT-001-001). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>24</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report Addendum (Appendix CT-001-002). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>25</sup> The quality of agricultural land in England and Wales is assessed according to the Agricultural Land Classification (ALC) system, which classifies agricultural land into five grades from excellent quality Grade 1 land to very poor quality Grade 5 land. Grade 3 is subdivided into Subgrades 3a and 3b. Grades 1, 2 and 3a are defined as the best and most versatile (BMV) land. The ALC methodology is contained in: Ministry of Agriculture, Fisheries and Food (1988), *Agricultural Land Classification of England and Wales – Revised guidelines and criteria for grading the quality of agricultural land*. Available online at: <http://publications.naturalengland.org.uk/publication/6257050620264448>

<sup>26</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at <https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a>

most versatile (BMV) agricultural land or forestry land within the Stone and Swynnerton area as it is not of a scale to change the magnitude of impact. The route-wide effects on BMV land and forestry land are reported in Volume 3 of the SES2 and AP2 ES.

- 5.6.17 The main ES reported both a temporary and a permanent major adverse effect on Walton Heath Farm (CA3/7), which is significant. Construction of the original scheme would result in the temporary and permanent severance of land parcels associated with the land holding, which is a high and medium impact respectively. The amendment will reduce the temporary and permanent severance on the land holding to a low impact, as access will be available to severed land via the upgrade of a short section of the realigned Stone Rural Footpath 32. The amendment will not, however, change the level of significance of the effects on the land holding reported in the main ES due to the high proportion of land required temporarily and permanently and the impact on farm infrastructure as a result the original scheme.

### **Mitigation and residual effects**

#### *Other mitigation measures*

- 5.6.18 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

#### *Summary of likely residual significant effects*

- 5.6.19 The amendment will not give rise to a new or different likely residual significant effect and will not change the level of significance of the effects reported in the main ES.

### **Cumulative effects**

- 5.6.20 There are no new or different likely significant cumulative effects for agriculture, forestry and soils as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments.

## **5.7 Additional land required for realignment of B5026 Eccleshall Road and associated field access (AP2-003-006)**

- 5.7.1 The Bill provides for the realignment of the B5026 Eccleshall Road for 900m, passing Micklow Bungalow to the north. The realigned B5026 Eccleshall Road would cross the HS2 route, 25m north-west of its existing alignment, via the B5026 Eccleshall Road overbridge and reconnect into the existing alignment of the B5026 Eccleshall Road to the east of the M6. See Map CT-06-222, H1 to G7, and Map CT-06-222-R1, H9 to H10, in the main ES Volume 2, CA3 Map Book.
- 5.7.2 The AP1 revised scheme (amendments AP1-003-102: Additional land for the permanent diversion of BT Openreach and Zayo underground telecommunications cables along the B5026 Eccleshall Road; AP1-003-103: Additional land for the permanent diversion of BT Openreach overhead telecommunications cable along the realigned B5026 Eccleshall Road; and AP1-003-104: Additional land for the permanent diversion of Western Power Distribution overhead lines parallel to the HS2 main line and connection to Micklow House Farm) included the provision for additional land on both sides of the realigned B5026 Eccleshall Road, to the east of the HS2 route, for the

permanent diversion of overhead and buried minor utilities. See Map CT-05-222, H5 to G4, in the SES and AP ES Volume 2, CA3 Map Book.

- 5.7.3 Since submission of SES1 and AP1 ES, further engagement with the owners of Micklow House Farm and Walton Heath Farm has identified the need to realign the B5026 Eccleshall Road to avoid severance of Micklow Bungalow and to provide agricultural access to land owned by Walton Heath Farm. The B5026 Eccleshall Road will cross over the Stone Infrastructure Maintenance Base - Rail (IMB-R) headshunt<sup>27</sup> and the HS2 route via the B5026 Eccleshall Road overbridge, on the same alignment as the original scheme. The B5026 Eccleshall Road will then be realigned to the east of the HS2 route, to tie into the existing B5026 Eccleshall Road to the south of Micklow Bungalow and enable the existing access to Micklow Bungalow and Micklow House Farm to be retained. See Map CT-06-222, H1 to E4, and Map CT-06-222-R1, H10 to H9, in the SES2 and AP2 ES Volume 2, CA3 Map Book. A new permanent field access will be provided from the realigned B5026 Eccleshall Road to land at Walton Heath Farm. See Map CT-06-222, H4, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.7.4 This amendment will require additional land for 380m<sup>2</sup> of landscape mitigation planting on the south-eastern side of the realigned B5026 Eccleshall Road. A total of 1.7ha of landscape mitigation planting and 0.2ha of grassland habitat creation, that was included within the original scheme, will no longer be required due to a 470m reduction in the proposed length of highway realignment. A 555m section of hedgerow habitat creation adjacent to the realigned B5026 Eccleshall Road, included in the original scheme, will also no longer be required, as well as an area of landscape mitigation planting within the area designated for the Langton Green housing development. See Map CT-06-222, G5 to H1, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.7.5 The existing utilities located within the B5026 Eccleshall Road will be diverted to accommodate the new realignment of the highway. See Map CT-06-222, H3 to G7, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.7.6 The amendment will be constructed as part of the Eccleshall Road overbridge and realignment, over a period of one year and nine months, commencing in 2021. Works will be managed from the Yarlet North cutting satellite compound, which will be reconfigured within the land provided in the original scheme to accommodate the realigned B5026 Eccleshall Road. See Map CT-05-222, G5 to G4, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.7.7 The amendment will result in 3.9ha of land included in the original scheme no longer being required on either side of Eccleshall Road. The provision of landscape mitigation planting associated with this amendment is outside the limits of the Bill. This amendment will result in a requirement for an additional 915m<sup>2</sup> of land on the southern side of Eccleshall Road, some of which will be from Walton Heath Farm (CA3/7). See Map CT-05-222, H4 to H2, in the SES2 and AP2 ES, Volume 2, CA3 Map Book. It is assumed that none of the additional land will be returned to its existing use following construction. The amendment, if enacted, will result in the following

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<sup>27</sup> A headshunt is a length of track provided to release trains in the direction in which they originated, as well as allowing trains to change tracks and direction.

amendments in the AP1 revised scheme no longer being required due to the realignment of the B5026 Eccleshall Road away from these utilities:

- AP1-003-102: Additional land for the permanent diversion of BT Openreach and Zayo underground telecommunications cables along the B5026 Eccleshall Road; and
- AP1-003-103: Additional land for the permanent diversion of BT Openreach overhead telecommunications cable along the realigned B5026 Eccleshall Road.

## Topics included in the AP2 assessment

- 5.7.8 This amendment is considered to require reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, for the following topics: agriculture, forestry and soils; ecology and biodiversity; landscape and visual; and water resources and flood risk. These are reported within this section.

### Agriculture, forestry and soils

#### *Scope, assumptions and limitations*

- 5.7.9 The assessment scope, key assumptions and limitations for agriculture, forestry and soils are as set out in Volume 1, the Scope and Methodology Report (SMR)<sup>28</sup> and SMR Addendum<sup>29</sup> of the main ES.
- 5.7.10 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for agriculture, forestry and soils.

#### *Existing environmental baseline*

- 5.7.11 The baseline agriculture, forestry and soils information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 4 of the main ES.
- 5.7.12 The area of land required for the amendment has soil in the Whimple 3 association, as described in Volume 2, CA3, Section 4 of the main ES. Whimple 3 association comprises clay loam, silty clay loam or sandy clay loam topsoils over clay loam or clay subsoils. This land is classified as good quality land in Subgrade 3a<sup>30</sup>.
- 5.7.13 There will be a reduction in the land required from one farm holding affected by the original scheme. Micklow House Farm (CA3/11) is a 332ha arable, beef cattle and sheep holding of medium sensitivity to change.

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<sup>28</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe). Environmental Statement. Volume 5: Appendix CT-001-001, Environmental Impact Assessment Scope and Methodology Report*. Available online at <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>29</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe). Environmental Statement. Volume 5: Appendix CT-001-002, Environmental Impact Assessment Scope and Methodology Report Addendum*. Available online: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>30</sup> The quality of agricultural land in England and Wales is assessed according to the Agricultural Land Classification (ALC) system, which classifies agricultural land into five grades from excellent quality Grade 1 land to very poor quality Grade 5 land. Grade 3 is subdivided into Subgrades 3a and 3b. Grades 1, 2 and 3a are defined as the best and most versatile (BMV) land. The ALC methodology is contained in: Ministry of Agriculture, Fisheries and Food (1988), *Agricultural Land Classification of England and Wales – Revised guidelines and criteria for grading the quality of agricultural land*. Available online at: <http://publications.naturalengland.org.uk/publication/6257050620264448>

### *Future environmental baseline*

#### **Construction (2020)**

- 5.7.14 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### *Effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.7.15 No avoidance or mitigation measures, additional to those reported in the main ES and draft Code of Construction Practice (CoCP)<sup>31</sup>, are required.

#### **Assessment of impacts and effects**

- 5.7.16 The amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES on best and most versatile (BMV) agricultural land or forestry land within the Stone and Swynnerton area as it is not of a scale to change the magnitude of impact. The route-wide effects on BMV land and forestry land are reported in Volume 3 of the SES2 and AP2 ES.
- 5.7.17 The main ES reported a temporary moderate adverse effect on Micklow House Farm (CA3/11), which is significant. Approximately 34.3ha (10% of the total area of the land holding) would be required temporarily, resulting in a medium impact. The amendment will reduce the area of land required temporarily from the land holding by 3.2ha, resulting in a total area of land required temporarily of 31.1ha (9% of the land holding). The amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.
- 5.7.18 The main ES reported a permanent minor adverse effect on Micklow House Farm, which is not significant. Approximately 26.4ha (8% of the total area of the land holding) would be required permanently, resulting in a low impact. The amendment will reduce the area of land required permanently from the land holding by 3.2ha, resulting in a total area of land required permanently of 23.2ha (7% of the total area of the land holding). The amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

#### **Mitigation and residual effects**

##### *Other mitigation measures*

- 5.7.19 The land required temporarily for construction will be restored to its former agricultural condition once the works are completed, following good practice techniques in handling, storing and reinstating soils on that land, as set out in the draft CoCP. No other mitigation has been identified.

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<sup>31</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at <https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a>

### *Summary of likely residual significant effects*

- 5.7.20 The amendment will not give rise to a new or different likely residual significant effect and will not change the level of significance of the effects reported in the main ES.

### **Cumulative effects**

- 5.7.21 There are no new or different likely significant cumulative effects for agriculture, forestry and soils as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments.

## **Ecology and biodiversity**

### *Scope, assumptions and limitations*

- 5.7.22 The assessment scope, key assumptions and limitations for ecology and biodiversity are as set out in Volume 1, the SMR, SMR Addendum of the main ES and SMR Addendum 2 (see SES2 and AP2 ES Volume 5: Appendix CT-001-000).
- 5.7.23 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for ecology and biodiversity.
- 5.7.24 Where data are limited, a precautionary baseline has been built up according to the guidance provided in the SMR and SMR Addendum. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 5.7.25 The precautionary approach to the assessment that has been adopted identifies the likely significant environmental effects of the amendment.

### *Existing environmental baseline*

- 5.7.26 The ecological baseline of the area subject to the amendment has been based on field data collated for the main ES and SES1, aerial photography, and relevant information from regional and local sources.
- 5.7.27 A summary of the baseline information relevant to the assessment of the amendment is provided below. Further detail on the relevant new or updated baseline information is provided in BID-EC-019-000, including Map Series EC-02 which accompanies the SES2 and AP2 ES.
- 5.7.28 For those receptors described in the main ES, further details are provided in Volume 2, CA3, Section 8, and Volume 5: Appendix EC-001-000, including Map Series EC-01. Baseline ecology reports that accompanied the main ES are provided in BID-EC-002-000 to BID-EC-014-000, including Map Series EC-02 to EC-12<sup>32</sup>.
- 5.7.29 For those receptors described in SES1, further details are provided in Volume 2, CA3, Section 8. The baseline ecology report that accompanied SES1 and AP1 ES is provided

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<sup>32</sup> HS2 Ltd (2017). *High Speed Two (HS2) Phase 2a (West Midlands - Crewe), Background Information and Data*, Available online at: <https://www.gov.uk/government/publications/hs2-phase-2a-background-information-and-data-ecology-and-biodiversity>



in BID EC-004-000, including Map Series EC-02, EC-04, EC-05, EC-10, EC-11 and EC-12<sup>33</sup>.

### Designated sites

5.7.30 There are no designated sites of relevance to the assessment of the amendment.

### Habitats

5.7.31 Habitats within the area subject to the amendment include amenity grassland, improved grassland, arable, buildings, species-rich hedgerows and ponds. The habitats of relevance to the assessment of the amendment are described in further detail below.

5.7.32 There is one pond within the area subject to the amendment to the north of the B5026 Eccleshall Road at Micklow. On a precautionary basis it is assumed that this pond qualifies as a habitat of principal importance in Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006)<sup>34</sup> and a conservation priority of the Staffordshire Biodiversity Action Plan (BAP)<sup>35</sup>. The pond is of up to district/borough value.

5.7.33 Hedgerows within the area subject to the amendment are predominantly species-rich. Hedgerow with at least 80% cover of native woody species is a habitat of principal importance and a conservation priority of the Staffordshire BAP. These contribute towards a wider hedgerow network within the Stone and Swynnerton area that is of district/borough value.

### Species

5.7.34 Protected and/or notable species that are known or assumed to occur within the area subject to the amendment include bats, great crested newts, barn owl, common amphibian species, badger, polecat, European hedgehog, brown hare and common reptile species.

5.7.35 The main ES, as amended by SES1, reported a bat assemblage associated with habitats at Pool House Wood and its surrounds. Field surveys in this area recorded a series of trees and buildings with potential to support roosting bats. The area subject to the amendment includes potential bat foraging and roosting habitats. Buildings at Micklow House Farm, approximately 150m from the area subject to the amendment, exhibit high potential to support roosting bats. The bat assemblage potentially includes species of principal importance and species that are conservation priorities of the Staffordshire BAP. The bat assemblage associated with habitats at Pool House Wood and its surrounds is of up to county value.

5.7.36 The main ES, as amended by SES1, reported the assumed presence of breeding populations of great crested newt in ponds where the presence or absence of great

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<sup>33</sup> HS2 Ltd (2018). *High Speed Two (HS2) Phase 2a (West Midlands - Crewe), Background information and data*, Supplementary ecological baseline data (BID EC-004-000), Available online at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/692664/G33\\_Ecological\\_baseline\\_BID-EC-004-000\\_WEB.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/692664/G33_Ecological_baseline_BID-EC-004-000_WEB.pdf)

<sup>34</sup> Natural Environment and Rural Communities Act 2006 (2006 CHAPTER 16). Her Majesty's Stationery Office, London.

<sup>35</sup> Staffordshire Biodiversity Partnership. Staffordshire Biodiversity Action Plan [online]. Available at: <http://www.sbap.org.uk/>

crested newts had not been confirmed. The area subject to the amendment includes one of these ponds and another one of these ponds is located 50m from the area subject to the amendment. The grassland and hedgerows within the area subject to the amendment are assumed to offer terrestrial habitat for the assumed great crested newt populations within the ponds. Great crested newt is an Annex 2<sup>36</sup> species, a species of principal importance, and a conservation priority of the Staffordshire BAP. The assumed great crested newt populations are of up to county value.

- 5.7.37 The main ES reported a population of barn owl at Yarnfield at a non-specified location along the B5026 Eccleshall Road, identified through desk study records. The area subject to the amendment includes grassland habitats that are likely to be used by foraging barn owls, and nearby farm buildings which may be used by nesting barn owls. Barn owl are a conservation priority of the Staffordshire BAP. The barn owl populations at Yarnfield are of county value.
- 5.7.38 The main ES reported populations of amphibian species including palmate newt, smooth newt, common toad and common frog, identified through field surveys, within ponds throughout the Stone and Swynnerton area. The area subject to the amendment includes ponds, grassland and hedgerow habitats that are likely to be used by these species. Common toad is a species of principal importance. The populations of common amphibians throughout Stone and Swynnerton are of local/parish value.
- 5.7.39 The main ES, as amended by SES<sub>1</sub>, reported at least 12 social groups of badger throughout the Stone and Swynnerton area, identified through field surveys. The area subject to the amendment includes suitable sett building and foraging habitats for badgers. The badger populations throughout the Stone and Swynnerton area are of local/parish value.
- 5.7.40 The main ES reported populations of other mammals including polecat, European hedgehog and brown hare, identified through desk study records, as being potentially present throughout the Stone and Swynnerton area. The area subject to the amendment includes suitable habitats for these species. If present, these populations are of local/parish value.
- 5.7.41 The main ES reported populations of common reptile species such as grass snake and slow-worm, identified through desk study records, as being potentially present at low numbers throughout the Stone and Swynnerton area. Grass snake and slow-worm are both species of principal importance. Grass snake is also a conservation priority of the Staffordshire BAP. The area subject to the amendment includes suitable habitats for these species. If present, these populations are of local/parish value.

### *Future environmental baseline*

#### **Construction (2020)**

- 5.7.42 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

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<sup>36</sup> Annex 2 of the EU's Habitats Directive (1992) lists priority species whose conservation requires the designation of Special Areas of Conservation (SAC).

### *Effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.7.43 The assessment assumes implementation of the measures set out within the draft CoCP.
- 5.7.44 No avoidance or mitigation measures additional to those reported in the main ES and draft CoCP are identified.

#### **Assessment of impacts and effects**

##### *Habitats*

- 5.7.45 The main ES reported the loss of ponds within the land required for the original scheme which would result in a permanent adverse effect on the conservation status of ponds that is significant, in each case, at up to district/borough level. One pond falls within the area subject to the amendment, however this land is required for grassland habitat creation only. Therefore, the pond will be retained and protected through implementation of measures as detailed in the draft CoCP. The amendment will not result in the loss of additional ponds. Indirect effects to ponds adjacent to the area subject to the amendment will be controlled through implementation of measures as detailed within the draft CoCP. The amendment will not result in a new or different significant effect on ponds and will not change the level of significance of the effects reported in the main ES.
- 5.7.46 On a precautionary basis, the main ES reported a loss of 44.8km of hedgerow habitats within the Stone and Swynnerton area, which would result in a permanent adverse effect that is significant at the district/borough level. The amendment will reduce the loss of species-rich hedgerow by 220m. In the context of the hedgerow network within the Stone and Swynnerton area, this reduced loss does not represent a new or different significant effect.
- 5.7.47 It is not likely that any other effects on habitats of relevance at more than the local/parish level will occur as a result of the amendment. Additional local/parish level effects arising from the AP2 revised scheme are listed in SES2 and AP2 ES Volume 5: Appendix EC-016-000.

##### *Species*

- 5.7.48 The main ES reported a direct loss of bat roosts and a loss of foraging and commuting habitats used by the bat assemblage associated with Pool House Wood and its surrounds, which would result in a permanent adverse effect that is significant at up to county level. The amendment will reduce the loss of grassland and hedgerow habitats within proximity to the buildings and trees at Micklow House Farm, which have high potential to support roosting bats. The reduced loss of bat foraging and commuting habitats in close proximity to assumed roosts represents a different significant effect on the bat assemblage associated with Pool House Wood and its surrounds. However, this will not change the level of significance of the effect as reported in the main ES.
- 5.7.49 The main ES reported that the loss of any pond supporting great crested newts would result in a permanent adverse effect on great crested newts that is significant at up to the county level. The amendment will not result in the loss of the pond to the north of

the B5026 Eccleshall Road at Micklow or the loss of associated terrestrial habitats. The amendment will not give rise to a new or different significant effect upon assumed great crested newt populations and will not change the level of significance of the effect as reported in the main ES.

- 5.7.50 The main ES reported the loss of barn owl foraging habitat and potential roosting sites within mature trees associated with barn owl populations at Yarnfield, which would result in a permanent adverse effect that is significant at up to county level. The amendment will not result in the loss of additional potential barn owl roosting or foraging sites. The amendment will reduce the loss of grassland and hedgerow habitats directly adjacent to the farm buildings at Micklow House Farm which may offer roosting opportunities for barn owl. The reduction in loss of foraging habitats represents a different significant effect on the barn owl population at Yarnfield. However, this will not change the level of significance of the effect as reported in the main ES.
- 5.7.51 It is not likely that any other effects on species of relevance at more than the local/parish level will occur as a result of the amendment. Additional local/parish level effects arising from the AP2 revised scheme are listed in SES2 and AP2 ES Volume 5: Appendix EC-016-000.

### **Mitigation and residual effects**

#### *Other mitigation measures*

- 5.7.52 The amendment will result in a change in the extent and distribution of grassland habitat creation. Approximately 0.2ha of grassland habitat creation to the south of the realigned B5026 Eccleshall Road, within the original scheme, will no longer be provided. The grassland habitat creation area, which was designed to integrate an accommodation access track into the landscape while also forming part of the route-wide approach to compensate for the loss of grassland, will be removed entirely. The small reduction in grassland habitat creation as a result of the amendment will not give rise to a new or different significant effect and will not change the level of significance of the effect as reported in the main ES.
- 5.7.53 The amendment will result in a change in the extent and distribution of hedgerow habitat creation. Approximately 550m of hedgerow habitat creation along the realigned B5026 Eccleshall Road will no longer be provided. The amendment will also result in 220m less of existing hedgerow being removed. The combined result of these changes will be a 330m net reduction in the length of hedgerow to be lost, after the implementation of mitigation, in comparison to the original scheme. In the context of the hedgerow network within the Stone and Swynnerton area, the net reduction in hedgerow within the land required for the amendment after mitigation does not represent a new or different significant effect.

#### *Summary of likely residual significant effects*

- 5.7.54 With the implementation of the mitigation proposed, the ecological effects arising from the amendment are reduced to a level where they are not considered to be significant. The significant effects of the amendment in this area are therefore unchanged from those reported in the main ES.

## **Cumulative effects**

- 5.7.55 There are no new or different likely significant cumulative effects for ecology and biodiversity as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments. The combined effect on hedgerows as a result of the AP2 revised scheme is reported at a route-wide level in SES2 and AP2 ES, Volume 3, Route-wide effects.

## **Landscape and visual**

### *Scope, assumptions and limitations*

- 5.7.56 The assessment scope, key assumptions and limitations for landscape and visual are as set out in Volume 1, the SMR and SMR Addendum of the main ES.
- 5.7.57 The amendment has the potential to result in new or different significant operational visual effects only. Therefore, there is no construction assessment for landscape and visual and no operational assessment for landscape.

### *Existing environmental baseline*

- 5.7.58 The baseline landscape and visual information for the Stone to Swynnerton area is as described in Volume 2, CA3, Section 11 of the main ES, and Section 5 of the main ES.

## **Visual baseline**

- 5.7.59 The amendment has the potential to affect one viewpoint, which is described in Volume 5: Appendix LV-001-003 of the main ES and summarised below.

### *View south-west from Walton Heath Farm (viewpoint 015.02.009)*

- 5.7.60 This viewpoint represents the views experienced by residents at Walton Heath Farm and users of Stone Rural Footpath 32. The view is of relatively flat medium scale pastures with hedgerows and hedgerow trees. The Stafford Motorway Service Area (southbound) is partly visible through the surrounding trees in the middle distance. Wood pole overhead lines cross the view in the foreground. A wind turbine is visible on the horizon.

### *Future environmental baseline*

## **Operation (2027)**

- 5.7.61 SES2 and AP2 ES Volume 5: Appendix CT-004-003 provides details of the developments which are assumed to have been implemented by 2027 for operation, additional to those identified in the main ES Volume 5: Appendix CT-004-000.
- 5.7.62 The development relevant to the assessment of landscape and visual is an application for 81 dwellings (planning application 18/28191/REM) at Walton Hill, West of Longhope Drive, Stone, Staffordshire. The Anwyl Homes development has the potential to affect the assessment of the AP2 revised scheme's likely operational visual impacts. The housing development will extend the western edge of Walton and will be visible in filtered north-westerly views from this viewpoint.

### *Permanent effects arising during operation*

#### **Avoidance and mitigation measures**

- 5.7.63 No avoidance or mitigation measures additional to those reported in the main ES are identified.

#### **Assessment of impacts and effects**

##### *View south-west from Walton Heath Farm (viewpoint 015.02.009)*

- 5.7.64 The main ES reported a moderate adverse significant effect at year 1, reducing to minor adverse significant at year 15 and year 60. This was because there would be close and middle distance views of the top of Yarlet North cutting, B5026 Eccleshall Road overbridge, Stone Rural Footpath 32 overbridge and the overhead line equipment. However, views would be partially screened and filtered by intervening vegetation.
- 5.7.65 At year 1, the amendment will result in residents having close and middle distance south-westerly views towards the realigned B5026 Eccleshall Road and B5026 Eccleshall Road overbridge. Due to the screening and filtering of the view by intervening vegetation, only a small part of the view will be affected. Yarlet North cutting will be unobtrusive. The amendment will therefore give rise to a different significant effect. However, the level of significance of the effect will remain moderate adverse significant as reported in the main ES. At year 15 and year 60, the amendment will remain non-significant as reported in the main ES.
- 5.7.66 For further information see SES2 and AP2 ES Volume 5: Appendix LV-001-003 and SES2 and AP2 ES Volume 5: Landscape and visual Map Book.

#### **Cumulative effects**

- 5.7.67 There are no new or different likely significant cumulative effects for landscape and visual as a result of the amendment acting in combination with any other AP2 amendments, AP1 amendments or any other relevant committed development.

#### **Monitoring**

- 5.7.68 Volume 1 of the main ES sets out the general approach to environmental monitoring during operation of the original scheme.
- 5.7.69 There are no changes to the monitoring requirements identified in the main ES for landscape and visual as a result of the amendment.

### **Water resources and flood risk**

#### *Scope, assumptions and limitations*

- 5.7.70 The assessment scope, key assumptions and limitations for water resources and flood risk are as set out in Volume 1, the SMR and SMR Addendum of the main ES and SMR Addendum 2 (see SES2 and AP2 ES Volume 5: Appendix CT-001-000).
- 5.7.71 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for water resources and flood risk.

### *Existing environmental baseline*

- 5.7.72 The baseline water resources information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 15 of the main ES. Further details relating to water resources and flood risk for this area are provided in Volume 5: Appendix WR-002-003 and Appendix WR-003-003 and the Volume 5: Water resources and flood risk Map Book of the main ES.
- 5.7.73 This amendment is located near an unlicensed groundwater abstraction at Micklow House Farm, which is a high value receptor. This amendment will involve construction activities of a nature and scale that have potential water quality implications.

### *Future environmental baseline*

#### **Construction (2020)**

- 5.7.74 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### *Effects arising during construction*

- 5.7.75 The main ES reported no significant effects on groundwater quality due to site runoff and increased pollution risk in the vicinity of this amendment. This amendment has the potential to give rise to temporary adverse impacts on groundwater quality which could affect the water environment and the nearby groundwater abstraction. However, the amendment will be constructed in accordance with the measures specifically designed to safeguard water resources outlined in the draft CoCP.
- 5.7.76 Therefore, the amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

#### **Cumulative effects**

- 5.7.77 There are no new or different likely significant cumulative effects for water resources and flood risk as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments.

## **5.8 Additional land required for the provision of new permanent traffic signals at the junction of Yarnfield Lane and the A34 The Fillybrooks (AP2-003-007)**

- 5.8.1 The original scheme provided for construction traffic routes in both directions along the A34 The Fillybrooks and Yarnfield Lane, including the existing junction where they meet, which is outside of the land required for the original scheme. No changes to the junction itself were proposed as part of the original scheme. See Map CT-05-222-R1, C4 to C3, in the main ES Volume 2, CA3 Map Book. The existing junction currently operates with a gap in a central reservation area on the A34 The Fillybrooks to allow traffic to turn right into Yarnfield Lane from the A34 The Fillybrooks, and right out of Yarnfield Lane into the A34 The Fillybrooks under priority control.
- 5.8.2 Since submission of the Bill, further design refinement and engagement with Staffordshire County Council has been undertaken to mitigate the impact of the additional construction traffic movements using the junction. The amendment will

provide permanent traffic signals at the junction of Yarnfield Lane and the A34 The Fillybrooks to enable safer turning movements between the A34 The Fillybrooks and Yarnfield Lane, and to manage potential traffic conflicts. The amendment requires the existing traffic lanes to be permanently realigned within the carriageway on both roads to allow for a dedicated right turn lane at the junction for traffic turning from the A34 The Fillybrooks into Yarnfield Lane. Adjustments to kerb lines and road markings will form part of the change to the layout of the junction, however, the majority of these works will be accommodated within the existing highway boundary.

- 5.8.3 Replacement hedgerow mitigation planting, 25m in length, is proposed to replace the existing shrubs and trees at the boundary of a property along the northern side of Yarnfield Lane on the approach to the junction which will be lost to accommodate the works. See Map CT-06-222-R1, C4, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.8.4 The amendment will be undertaken over a period of approximately six months, commencing in 2020 and will be managed locally within the highway.
- 5.8.5 The land required for the junction modifications is outside the limits of the Bill. This amendment will result in a requirement for an additional 0.9ha of land, the majority of which is assumed to be within the existing highway boundary. See Map CT-05-222-R1, C4 to B3, in the SES and AP ES Volume 2, CA3 Map Book.

### Topics included in the AP2 assessment

- 5.8.6 This amendment is considered to require reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, for the following topics: ecology and biodiversity; and traffic and transport. These are reported within this section.
- 5.8.7 The assessment of the changes to construction traffic flows and traffic related effects as a result of this AP2 amendment in combination with all SES2 changes and AP2 amendments, is reported in Section 7.

### Ecology and biodiversity

#### *Scope, assumptions and limitations*

- 5.8.8 The assessment scope, key assumptions and limitations for ecology and biodiversity are as set out in Volume 1, the Scope and Methodology Report (SMR)<sup>37</sup> and SMR Addendum<sup>38</sup> of the main ES and SMR Addendum 2 (see SES2 and AP2 ES Volume 5: Appendix CT-001-000).
- 5.8.9 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for ecology and biodiversity.

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<sup>37</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report (Appendix CT-001-001). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>38</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report Addendum (Appendix CT-001-002). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>



- 5.8.10 Where data are limited, a precautionary baseline has been built up according to the guidance provided in the SMR and SMR Addendum. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 5.8.11 The precautionary approach to the assessment that has been adopted identifies the likely significant environmental effects of the amendment.

### *Existing environmental baseline*

- 5.8.12 The ecological baseline of the area subject to the amendment has been based on field data collated for the main ES and SES1, aerial photography, and relevant information from regional and local sources. In addition, the baseline has been informed by additional Phase 1 habitat survey.
- 5.8.13 A summary of the baseline information relevant to the assessment of the amendment is provided below. Further detail on the relevant new or updated baseline information is provided in BID-EC-019-000, including Map Series EC-02 which accompanies the SES2 and AP2 ES.
- 5.8.14 For those receptors described in the main ES, further details are provided in Volume 2, CA3, Section 8, and Volume 5: Appendix EC-001-000, including Map Series EC-01. Baseline ecology reports that accompanied the main ES are provided in BID-EC-002-000 to BID-EC-014-000, including Map Series EC-02 to EC-12<sup>39</sup>.
- 5.8.15 For those receptors described in SES1, further details are provided in Volume 2, CA3, Section 3. The baseline ecology report that accompanied SES1 and AP1 ES is provided in BID EC-004-000, including Map Series EC-02, EC-04, EC-05, EC-10, EC-11 and EC-12<sup>40</sup>.

### **Designated sites**

- 5.8.16 There is one Local Nature Reserve (LNR) of relevance to the assessment of the amendment, which is of county value. Stone Meadows LNR, covering an area of approximately 14.4ha, is designated for three separate meadows next to the River Trent that support botanically rich floodplain meadow grasslands. Stone Meadows LNR is located to the west of Stone adjacent to the River Trent, partially within the area subject to the amendment.

### **Habitats**

- 5.8.17 Habitats within the area subject to the amendment include semi-natural broadleaved woodland, broadleaved plantation, amenity grassland, floodplain grazing marsh, hedgerows and the River Trent. The habitats of relevance to the assessment of the amendment are described in further detail below.

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<sup>39</sup> HS2 Ltd (2017). *High Speed Two (HS2) Phase 2a (West Midlands - Crewe), Background Information and Data*, Available online at: <https://www.gov.uk/government/publications/hs2-phase-2a-background-information-and-data-ecology-and-biodiversity>

<sup>40</sup> HS2 Ltd (2018). *High Speed Two (HS2) Phase 2a (West Midlands - Crewe), Background Information and Data*, Supplementary ecological baseline data (BID EC-004-000), Available online at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/692664/G33\\_Ecological\\_baseline\\_BID-EC-004-000\\_WEB.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/692664/G33_Ecological_baseline_BID-EC-004-000_WEB.pdf)

- 5.8.18 Woodland is present on either side of the A34 The Fillybrooks at the junction with Yarnfield Lane. The semi-natural areas may qualify as lowland mixed deciduous woodland, a habitat of principal importance listed under the provisions of Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006)<sup>41</sup>, and a conservation priority of the Staffordshire Biodiversity Action Plan (BAP)<sup>42</sup>. The woodland is located partially within the area subject to the amendment. The woodland is of up to county value.
- 5.8.19 Broadleaved plantation woodland is present on either side of the A51 Bury Bank Road and on either side of the M6 at Sandyford. The woodland is located partially within the area subject to the amendment. The woodland is of local/parish value.
- 5.8.20 An extensive area of floodplain grazing marsh, covering an area of approximately 43.5ha, occurs along the River Trent on either side of the A34 Fillybrooks and is partially within Stone Meadows LNR. Floodplain grazing marsh is a habitat of principal importance and a conservation priority of the Staffordshire BAP. The floodplain grazing marsh is located partially within the area subject to the amendment. The floodplain grazing marsh is of county value.
- 5.8.21 Hedgerows within the area subject to the amendment are assumed to be predominantly species-rich. Hedgerow with at least 80% cover of native woody species is a habitat of principal importance and a conservation priority of the Staffordshire BAP. These contribute towards a wider hedgerow network within the Stone and Swynnerton area that is of district/borough value.
- 5.8.22 The River Trent crosses the area subject to the amendment. The River Trent may qualify as a habitat of principal importance and is a conservation priority of the Staffordshire BAP. The River Trent is of county value.

### Species

- 5.8.23 Protected and/or notable species that are known or assumed to occur within the area subject to the amendment include bats, great crested newt, barn owl, otter, badger, polecat, harvest mouse, European hedgehog, brown hare, common amphibian species and common reptile species.
- 5.8.24 The floodplain grazing marsh, River Trent and woodland within the area subject to the amendment offer suitable habitats for bats, but do not form part of an existing bat assemblage reported within the main ES or SES1. These habitats have not been subject to survey and therefore, on a precautionary basis, are assumed to provide roosting, foraging and commuting habitat for an assemblage of bats. The assumed bat assemblage associated with the habitats along the River Trent is of up to county value.
- 5.8.25 The woodland within the area subject to the amendment is located within 100m of a pond. This pond has not been subject to survey and therefore, on a precautionary basis, is assumed to support a breeding population of great crested newt that does not form part of an existing metapopulation reported within the main ES or SES1.

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<sup>41</sup> Natural Environment and Rural Communities Act 2006 (2006 CHAPTER 16). Her Majesty's Stationery Office, London.

<sup>42</sup> Staffordshire Biodiversity Partnership. Staffordshire Biodiversity Action Plan [online]. Available at: <http://www.sbap.org.uk/>

The woodland is assumed to offer terrestrial habitat for the assumed great crested newt population within the pond. Great crested newt is an Annex 2<sup>43</sup> species, a species of principal importance and a conservation priority of the Staffordshire BAP. The assumed great crested newt population is of up to county value.

- 5.8.26 The main ES reported a population of barn owl at Yarnfield, identified through field surveys and desk study records. The area subject to the amendment includes grassland habitats, that are likely to be used by foraging barn owls, and suitable trees, which may be used by nesting barn owls. Barn owls are a conservation priority of the Staffordshire BAP. The barn owl population at Yarnfield is of county value.
- 5.8.27 The main ES reported the presence of a population of otter on the River Trent, identified through desk study records. The area subject to the amendment includes the River Trent and suitable adjacent habitats that may offer shelter, foraging and dispersal opportunities for otter. Otter is an Annex 2 species, a species of principal importance and a conservation priority of the Staffordshire BAP. The population of otter is of district/borough value.
- 5.8.28 The main ES reported populations of amphibian species including palmate newt, smooth newt, common toad and common frog, identified through field surveys, within ponds throughout the Stone and Swynnerton area. Amphibian species are assumed to be present in ponds that have not yet been surveyed. The area subject to the amendment includes floodplain grazing marsh, hedgerow and woodland habitats that are likely to be used by these species. Common toad is a species of principal importance. The population of common amphibians throughout Stone and Swynnerton is of local/parish value.
- 5.8.29 The main ES, as amended by SES1, reported at least 12 social groups of badgers throughout the Stone and Swynnerton area, identified through field surveys. The area subject to the amendment includes suitable sett building and foraging habitats for badgers. The badger populations throughout the Stone and Swynnerton area are of local/parish value.
- 5.8.30 The main ES reported populations of other mammals including polecat, harvest mouse, European hedgehog and brown hare, identified through desk study records, as being potentially present throughout the Stone and Swynnerton area. The area subject to the amendment includes suitable habitats for these species. If present, these populations are of local/parish value.
- 5.8.31 The main ES reported populations of common reptile species such as grass snake and slow-worm, identified through desk study records, as being potentially present at low numbers throughout the Stone and Swynnerton area. Grass snake and slow-worm are both species of principal importance. Grass snake is also a conservation priority of the Staffordshire BAP. The area subject to the amendment includes suitable habitats for these species. If present, these populations are of local/parish value.

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<sup>43</sup> Annex 2 of the EU's Habitats Directive (1992) lists priority species whose conservation requires the designation of Special Areas of Conservation (SAC).

### *Future environmental baseline*

#### **Construction (2020)**

- 5.8.32 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### *Effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.8.33 The assessment assumes implementation of the measures set out within the draft CoCP<sup>44</sup>.
- 5.8.34 The area subject to the amendment will cross over the River Trent. Works will, however, be restricted to within the highway boundary of the A34 The Fillybrooks passing over the River Trent and will not therefore result in direct impacts to the River Trent and its adjacent habitats or the species these habitats are assumed to support. Indirect effects to these habitats and species will be controlled through implementation of measures as detailed within the draft CoCP.

#### **Assessment of impacts and effects**

- 5.8.35 All of the effects within this section are reported in the absence of other mitigation.

### *Designated sites*

- 5.8.36 The amendment will result in the permanent loss of 200m<sup>2</sup> (0.2%) of habitats from Stone Meadows LNR. The majority of this habitat loss is broadleaved woodland and scrub, less than 50m<sup>2</sup> is floodplain grazing marsh. Floodplain grazing marsh is the reason for the designation of the site. The loss of this habitat represents a new permanent adverse effect on the structure and function of Stone Meadows LNR that is significant at the district/borough level.

### *Habitats*

- 5.8.37 The amendment will result in the permanent loss of up to 50m<sup>2</sup> of floodplain grazing marsh within Stone Meadows LNR. The loss of this habitat represents a new permanent adverse effect on floodplain grazing marsh that is significant at the district/borough level.
- 5.8.38 On a precautionary basis, the main ES reported a loss of 44.8km of hedgerow habitats within the Stone and Swynnerton area, which would result in a permanent adverse effect that is significant at the district/borough level. The amendment will result in the loss of an additional 120m of species-rich hedgerow. In the context of the hedgerow network within the Stone and Swynnerton area, this additional loss does not represent a new or different significant effect.
- 5.8.39 It is not likely that any other effects on habitats of relevance at more than the local/parish level will occur as a result of the amendment. Additional local/parish level

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<sup>44</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at <https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a>

effects arising from the AP2 revised scheme are listed in SES2 and AP2 ES Volume 5: Appendix EC-016-000.

### *Species*

- 5.8.40 No effects on the assumed bat assemblage associated with the River Trent and its adjacent habitats in the Stone and Swynnerton area were reported at the main ES. The amendment will result in the loss of less than 0.1ha of mixed broadleaved woodland on either side of the A34 The Fillybrooks, which on a precautionary basis is assumed to be used as a roosting, foraging and commuting resource by bats. The direct loss of roosting opportunities and the loss and fragmentation of foraging and commuting habitats will give rise to a new permanent adverse effect on the bat assemblage associated with the River Trent and adjacent habitats that is significant at up to county level.
- 5.8.41 No effects on the assumed great crested newt population to the west of the A34 The Fillybrooks were reported within the main ES. The amendment will result in the loss of less than 0.1ha of mixed broadleaved woodland within 100m of a pond. In the absence of survey information, the pond is assumed to support great crested newt, and the woodland is likely to offer terrestrial habitat opportunities for this species. However, given the small area of potential terrestrial habitat lost to the amendment, it will not give rise to a new significant effect on the great crested newt population assumed to be present to the west of the A34 The Fillybrooks.
- 5.8.42 It is not likely that any other effects on species of relevance at more than the local/parish level will occur as a result of the amendment. Additional local/parish level effects arising from the AP2 revised scheme are listed in SES2 and AP2 ES Volume 5: Appendix EC-016-000.

### **Mitigation and residual effects**

#### *Other mitigation measures*

- 5.8.43 Approximately 25m of new hedgerow will be planted as replacement for the loss of hedgerow along the northern side of Yarnfield Lane on the approach to the junction with the A34 The Fillybrooks. However, as the amendment will result in the loss of approximately 120m of hedgerow, there will be a net reduction of 95m in length of hedgerow as a result of the amendment after implementation of mitigation. In the context of the hedgerow network within the Stone and Swynnerton area, this net reduction in hedgerow does not represent a new or different significant effect.
- 5.8.44 The main ES reported habitat creation measures along Yarnfield Lane and Filly Brook, to compensate for losses of foraging, commuting and roosting habitats for bats, including the creation of woodland, hedgerows and species-rich grassland. Once established, these habitat creation measures will provide suitable bat foraging and commuting habitat. Artificial roosting provision will be provided within and adjacent to these habitat creation areas to replace bat roosts that will be lost to construction, in accordance with the Ecological Principles of Mitigation within the SMR Addendum of the main ES. These measures will reduce the new adverse effect resulting from this amendment on the bat assemblage associated with the River Trent and its adjacent habitats to a level that is not significant.

- 5.8.45 The main ES reported woodland habitat creation to reconnect fragmented blocks of woodland to the west of Yarnfield Lane. This habitat creation is located within 250m of the pond assumed to support a population of great crested newts adjacent to the A34 The Fillybrooks. Once established the woodland habitat will offer terrestrial habitat opportunities for the population of great crested newts. This measure will provide compensation for the non-significant loss of great crested newt terrestrial habitats resulting from this amendment.

*Summary of likely residual significant effects*

- 5.8.46 There will be a permanent residual effect due to the loss of up to 50m<sup>2</sup> of floodplain grazing marsh habitat at Stone Meadows LNR that is significant at the district/borough level. However, in consultation with Stafford Borough Council and local landowners, suitable alternative compensatory measures are being sought in order to reduce this permanent adverse effect to a level that is no longer significant.

**Cumulative effects**

- 5.8.47 There are no new or different likely significant cumulative effects for ecology and biodiversity as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments. The combined effect on hedgerows as a result of the AP2 revised scheme is reported at a route-wide level in SES2 and AP2 ES, Volume 3, Route-wide effects.

**Traffic and transport**

*Scope, assumptions and limitations*

- 5.8.48 The assessment scope, key assumptions and limitations for traffic and transport are as set out in Volume 1, the SMR and SMR Addendum of the main ES.
- 5.8.49 This amendment has the potential to result in new or different significant construction and operational effects for traffic and transport. Therefore, both construction and operational phases are considered in this assessment.
- 5.8.50 The assessment in this section considers the potential effects resulting from the construction works associated with the amendment. The assessment of the changes to construction traffic flows as a result of this amendment in combination with all SES2 changes and AP2 amendments is reported in Section 7.

*Existing environmental baseline*

- 5.8.51 The baseline traffic and transport information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 14 of the main ES.
- 5.8.52 The main local road in this area is the A34 Stafford Road/The Fillybrooks, a dual carriageway which connects Stafford in the south to Stone in the north and onwards to Trentham. Yarnfield Lane connects Yarnfield to the A34 Stafford Road/The Fillybrooks and Stone in the east. The junction of the A34 Stafford Road/The Fillybrooks and Yarnfield Lane is a priority controlled (give way) junction, which also provides access to the Wayfarer Country Pub and Restaurant. The road network in this area generally operates well although delays can be experienced particularly at peak times.

### *Future environmental baseline*

#### **Construction (2023) and operation (2027 and 2041)**

- 5.8.53 The future baseline for construction in 2023 and operation in 2027 and 2041 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### *Effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.8.54 No avoidance or mitigation measures additional to those reported in the main ES and the draft CoCP are identified.

#### **Assessment of impacts and effects**

- 5.8.55 The main ES reported that the A34 The Fillybrooks and Yarnfield Lane would be used as a construction access route for a number of construction compounds located in the vicinity of Yarnfield Lane. This route requires construction heavy goods vehicles (HGV) to turn right out of Yarnfield Lane, across a dual-carriageway, using gaps in the existing traffic on the A34 The Fillybrooks. The amendment provides the opportunity to improve safety of turning vehicles during the construction phase.
- 5.8.56 Although the amendment will reduce the impacts of construction traffic at the junction (considered in combination with all SES2 changes and AP2 amendments in Section 7), the temporary construction works associated with the modifications to the A34 The Fillybrooks and Yarnfield Lane junction and associated temporary traffic management measures will be likely to result in a temporary reduction in capacity and some delays on the junction during its construction. Although once completed the changes will reduce congestion and delays, this amendment will give rise to a new temporary minor adverse effect on traffic flows and delays for road users during its construction, which is significant.
- 5.8.57 For further information see SES2 and AP2 ES Volume 5: Appendix TR-001-000, and the SES2 and AP2 ES Volume 5: Traffic and transport Map Book.
- 5.8.58 During construction the travel distance for vehicle occupants of Stone Golf Club and The Wayfarer Country Pub and Restaurant staff car park will be up to an additional 1.2km. However, due to the number of users likely to be affected, the effect on delay to vehicle occupants will not be significant.

#### **Mitigation and residual effects**

##### *Other mitigation measures*

- 5.8.59 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

##### *Summary of likely residual significant effects*

- 5.8.60 Construction of the amendment will give rise to a new likely residual temporary minor adverse significant effect on traffic flows and delays for road users at the junction of Yarnfield Lane and the A34 The Fillybrooks.

### **Cumulative effects**

- 5.8.61 There are no new or different likely significant cumulative effects for traffic and transport as a result of the amendment acting in combination with any other AP2 amendments, AP1 amendments or any relevant committed development.

### *Effects arising from operation*

### **Avoidance and mitigation measures**

- 5.8.62 No avoidance or mitigation measures additional to those reported in the main ES are required.

### **Assessment of impacts and effects**

- 5.8.63 Whilst the amendment is not required to support the scheme in the operational phase, as the scheme does not add any substantial permanent traffic to the area, the new traffic signals at the junction of Yarnfield Lane and the A34 The Fillybrooks will be retained following construction.
- 5.8.64 The main ES reported that the existing junction operates within capacity with minimal queues and delays at the junction. In the absence of any mitigation, the junction is forecast to operate within capacity in the future assessment years of 2027 and 2041.
- 5.8.65 The amendment facilitates safer turning of vehicles by managing the turning movements under signal control. There will be a small increase in delays due to the new traffic signals but the junction is still forecast to operate within capacity in the future assessment years of 2027 and 2041. The amendment will give rise to a new permanent minor beneficial traffic safety effect, which is significant, for vehicle occupants in the future assessment years of 2027 and 2041 at the junction of Yarnfield Lane and the A34 Stone Road.
- 5.8.66 For further information see SES2 and AP2 ES Volume 5: Appendix TR-001-000 and the SES2 and AP2 ES Volume 5: Traffic and transport Map Book.
- 5.8.67 The amendment will add an additional travel distance of up to 1.2km for vehicle occupants of Stone Golf Club and The Wayfarer Country Pub and Restaurant staff car park during operation of the amendment. However, due to the number of users likely to be affected, the effect on delay to vehicle occupants will not be significant.

### **Mitigation and residual effects**

#### *Other mitigation measures*

- 5.8.68 No mitigation measures additional to those reported in the main ES are required.

#### *Summary of likely residual significant effects*

- 5.8.69 The amendment will give rise to a new likely residual permanent minor beneficial significant effect for vehicle occupants in the future assessment years of 2027 and 2041 at the junction of Yarnfield Lane and the A34 Stone Road.



### **Cumulative effects**

- 5.8.70 There are no new or different likely significant cumulative effects for traffic and transport as a result of the amendment acting in combination with any other AP2 amendments, AP1 amendments or any relevant committed development.

### **Monitoring**

- 5.8.71 Volume 1 of the main ES sets out the general approach to environmental monitoring during operation of the original scheme.
- 5.8.72 There are no changes to the monitoring requirements identified in the main ES for traffic and transport as a result of the amendment.

### **Summary of new or different likely residual significant effects as a result of the amendment**

- 5.8.73 The loss of 50m<sup>2</sup> of floodplain grazing marsh at Stone Meadows LNR during construction of the amendment will give rise to a new likely residual permanent adverse significant effect.
- 5.8.74 Construction of the amendment will give rise to a new likely residual temporary minor adverse significant effect on traffic flows and delays for road users at the junction of Yarnfield Lane and the A34 The Fillybrooks.
- 5.8.75 The provision of new permanent traffic signals at the junction of Yarnfield Lane and the A34 The Fillybrooks will give rise to a new likely residual permanent minor beneficial significant effect for vehicle occupants in the future assessment years of 2027 and 2041.

## **5.9 Additional land required for modifications to the Yarnfield Lane M6 overbridge replacement (AP2-003-008)**

- 5.9.1 The Bill provides for the permanent realignment of Yarnfield Lane over a distance of 1.2km, 25m north-west of its current alignment with no change in journey length. The realigned Yarnfield Lane would cross under the HS2 route via the Yarnfield Lane underbridge. The realignment would continue past the Stone Infrastructure Maintenance Base-Rail (IMB-R) via the Yarnfield Lane IMB-R underbridge, and over the M6 via the Yarnfield Lane M6 overbridge replacement. To the south-west of the M6, there would be landscape earthworks and landscape mitigation planting on both sides of the realigned Yarnfield Lane. See Map CT-06-223, H10 to H4, and CT-06-223-L1, I4 to H1, in the main ES Volume 2, CA3 Map Book.
- 5.9.2 The Yarnfield Lane M6 overbridge replacement would be up to 9m in height above existing ground level. The structure would have three spans with the two piers placed adjacent to the carriageways of the M6, with a total deck length of 94m.
- 5.9.3 Site access to and from the Stone IMB-R would be provided via a new southbound slip road off the M6 as well as via the realigned Yarnfield Lane. The new slip roads on and off the southbound M6 would be provided within the Stone IMB-R site. As part of the highway design for the new maintenance access junction on the M6, a roundabout junction for the M6 slip roads and the Stone IMB-R access road connecting to Yarnfield Lane was provided within the Stone IMB-R site.

- 5.9.4 A permanent motorway maintenance and emergency access to the northbound lanes of the M6 from the realigned Yarnfield Lane would also be provided. During the construction phase temporary northbound slip roads would be provided here for access to the Stone IMB-R via the Yarnfield Lane M6 overbridge replacement.
- 5.9.5 Since submission of the Bill, further design development has been undertaken to redesign the Yarnfield Lane M6 overbridge replacement to improve both safety and traffic management during construction, and to allow for future widening of the M6. It should be noted that the amendment proposed to the M6 Meaford viaduct as part of the SES2 scheme (SES2-003-003: Increase in length and change to design of the M6 Meaford viaduct) will also act to reduce disruption to the M6 during construction.
- 5.9.6 The Yarnfield Lane M6 overbridge replacement will remain a three-span structure and the total deck length between the two abutments will increase from 94m to 132m. This will allow the two piers to be set further back from the existing motorway carriageway. See Map CT-06-223, H10 to H9, in the SES2 and AP2 ES Volume 2, CA3 Map Book. As a result, it will be possible to construct the piers at an early stage in the construction programme, without requiring substantial traffic management on the M6, such as lane closures, although speed restrictions may still be required.
- 5.9.7 Earlier construction of the Yarnfield Lane M6 overbridge replacement will allow for both the existing and the new Yarnfield Lane bridges over the M6 to be in place at the same time during construction. This enables the replacement overbridge to be used by public traffic on Yarnfield Lane while the existing structure can be used by construction traffic to cross the M6 to move directly between the northbound M6 slip roads and the Stone IMB-R site. The existing structure can therefore be used as a replacement haul route/construction traffic route until it is demolished, reducing construction traffic movements on the realigned Yarnfield Lane. This separation of construction traffic from the public highway will improve safety and reduce disruption to users of Yarnfield Lane.
- 5.9.8 To facilitate this change, adjustments to the highway designs in this area are required. The increase in central span of the Yarnfield Lane M6 overbridge replacement will also require an increase in the depth of the structure by up to 1m. The vertical alignment of the realigned Yarnfield Lane M6 overbridge replacement will therefore also increase by up to 0.6m to maintain a compliant headroom over the M6. Yarnfield Lane realignment will be raised by up to 0.4m adjacent to the northbound carriageway of the M6, which will increase the highway earthworks footprint by up to 2.5m on either side.
- 5.9.9 The horizontal and vertical alignments of the southbound slip road from the Stone IMB-R and the temporary northbound slip road to Yarnfield Lane will also be slightly adjusted to ensure they can be accommodated within the spans of both the Yarnfield Lane M6 overbridge replacement and the existing Yarnfield Lane M6 overbridge, as both structures will be in place at the same time while the slip lanes are in use during construction. The southbound slip road will be moved horizontally to the north-east by up to 9m and be lowered by up to 0.5m. The northbound slip road will be moved horizontally to the north-east by up to 7m and be raised by up to 0.2m.
- 5.9.10 There will be a reduction of 125m<sup>2</sup> in landscape mitigation planting alongside Yarnfield Lane to the south-west of the M6, and a reduction 380m<sup>2</sup> in grassland

habitat creation alongside Yarnfield Lane to the north-east of the M6, due to minor increases in the footprint of the highway earthworks.

- 5.9.11 To ensure that the early construction of Yarnfield Lane and the associated benefits can be delivered without requiring an extended closure of Yarnfield Lane, or restricting access to Whitemoor Farm, additional land is required along the south-eastern side of the Yarnfield Lane realignment, to the south-west of the M6. During the construction of the Yarnfield Lane realignment a temporary diversion of a Cadent medium pressure gas main will be required. The permanent diversion of this minor utility formed part of the SES<sub>1</sub> scheme, but the additional requirement for a temporary diversion of the minor utility is included as part of this AP<sub>2</sub> amendment.
- 5.9.12 To maintain access to Whitemoor Farm during construction, a temporary accommodation access will be provided, which will be replaced by the permanent accommodation access after traffic moves from the temporary to the permanent alignment of Yarnfield Lane.
- 5.9.13 The amendment, including the temporary diversion of the Cadent medium pressure gas main, will require an increase in the construction programme to that reported in the original scheme to allow the new replacement overbridge to be operational in 2021. The amendment will be undertaken over a period of one year and six months, commencing in 2020. Demolition of the existing M6 motorway overbridge is expected to be undertaken over a period of up to three months, commencing in 2023. Some of the land required for the modifications to the Yarnfield Lane M6 overbridge replacement is outside the limits of the Bill. This amendment will result in a requirement for an additional 0.2ha of land, some of which will be from The Paddock Home Farm (CA<sub>3/13</sub>). See Map CT-05-223-L1, I<sub>4</sub> to I<sub>3</sub>, in the SES and AP ES Volume 2, CA<sub>3</sub> Map Book. It is assumed that all of the additional land will be returned to its existing use following construction.

### **Topics included in the AP<sub>2</sub> assessment**

- 5.9.14 This amendment is considered to require reassessment of the environmental effects and mitigation in the main ES, as amended by SES<sub>1</sub> and SES<sub>2</sub>, for ecology and biodiversity. This is reported within this section.
- 5.9.15 A reassessment of landscape and visual is not considered necessary as the relatively small change (an increase the length of the Yarnfield Lane M6 overbridge and marginal increases in the height and width of the associated embankments) will be seen in the context of the larger scale change as a result of the original scheme in this area.
- 5.9.16 The assessment of the changes to construction traffic flows and traffic related effects as a result of this AP<sub>2</sub> amendment, in combination with all SES<sub>2</sub> changes and AP<sub>2</sub> amendments, is reported in Section 7.

## Ecology and biodiversity

### *Scope, assumptions and limitations*

- 5.9.17 The assessment scope, key assumptions and limitations for ecology and biodiversity are as set out in Volume 1, the Scope and Methodology Report (SMR)<sup>45</sup> and SMR Addendum<sup>46</sup> of the main ES and SMR Addendum 2 (see SES2 and AP2 ES Volume 5: Appendix CT-001-000).
- 5.9.18 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for ecology and biodiversity.
- 5.9.19 Where data are limited, a precautionary baseline has been built up according to the guidance provided in the SMR and SMR Addendum. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 5.9.20 The precautionary approach to the assessment that has been adopted identifies the likely significant environmental effects of the amendment.

### *Existing environmental baseline*

- 5.9.21 The ecological baseline of the area subject to the amendment has been based on field data collated for the main ES and SES1, aerial photography, and relevant information from regional and local sources. In addition, the baseline has been informed by additional Phase 1 habitat survey.
- 5.9.22 A summary of the baseline information relevant to the assessment of the amendment is provided below. Further detail on the relevant new or updated baseline information is provided in BID-EC-019-000, including Map Series EC-02 which accompanies the SES2 and AP2 ES, and SES2 and AP2 ES Volume 5: Appendix EC-001-000, including Map Series EC-01.
- 5.9.23 For those receptors described in the main ES, further details are provided in Volume 2, CA3, Section 8, and Volume 5: Appendix EC-001-000, including Map Series EC-01. Baseline ecology reports that accompanied the main ES are provided in BID-EC-002-000 to BID-EC-014-000, including Map Series EC-02 to EC-12<sup>47</sup>.
- 5.9.24 For those receptors described in SES1, further details are provided in Volume 2, CA3, Section 3. The baseline ecology report that accompanied SES1 and AP1 ES is provided in BID EC-004-000, including Map Series EC-02, EC-04, EC-05, EC-10, EC-11 and EC-12<sup>48</sup>.

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<sup>45</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report (Appendix CT-001-001). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>46</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report Addendum (Appendix CT-001-002). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>47</sup> HS2 Ltd (2017). *High Speed Two (HS2) Phase 2a (West Midlands - Crewe), Background Information and Data*, Available online at: <https://www.gov.uk/government/publications/hs2-phase-2a-background-information-and-data-ecology-and-biodiversity>

<sup>48</sup> HS2 Ltd (2018). *High Speed Two (HS2) Phase 2a (West Midlands - Crewe), Background Information and Data*, Supplementary ecological baseline data (BID EC-004-000), Available online at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/692664/G33\\_Ecological\\_baseline\\_BID-EC-004-000\\_WEB.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/692664/G33_Ecological_baseline_BID-EC-004-000_WEB.pdf)

## Designated sites

- 5.9.25 There are two Local Wildlife Sites (LWS) of relevance to the assessment of the amendment, which are of county value. These are:
- Pool House Wood LWS, covering an area of approximately 2.5ha, designated for two separate blocks of damp deciduous woodland. Pool House Wood LWS is located to the east of the M6 and west of Stone, partially within the area subject to the amendment; and
  - Highlow Meadows LWS, covering an area of approximately 5.9ha, designated for the range of habitats it supports including semi-improved grassland, species-rich marshy grassland and broadleaved woodland. Highlow Meadows LWS is located to the west of the M6 and east of Swynnerton Grange, partially within the area subject to the amendment.
- 5.9.26 There is one Ancient Woodland Inventory (AWI) site of relevance to the assessment of the amendment, which is of up to county value. Birchwood AWI site, covering an area of approximately 0.6ha, is located within the area subject to the amendment.

## Habitats

- 5.9.27 Habitats within the area subject to the amendment include broadleaved woodland, improved grassland, semi-improved grassland, arable, hedgerows, waterbodies, trees and scrub. The habitats of relevance to the assessment of the amendment are described in further detail below.
- 5.9.28 Wet broadleaved woodland is present at Pool House Wood LWS. This qualifies as lowland mixed deciduous woodland, a habitat of principal importance listed under the provisions of Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006)<sup>49</sup> and a conservation priority of the Staffordshire Biodiversity Action Plan<sup>50</sup> (BAP). The woodland at Pool House Wood LWS is located within the area subject to the amendment. The woodland is of county value.
- 5.9.29 Ancient woodland is present at Birchwood AWI. This qualifies as lowland mixed deciduous woodland, a habitat of principal importance and a conservation priority of the Staffordshire BAP. The woodland at Birchwood AWI is located within the area subject to the amendment. The woodland is of county value.
- 5.9.30 Areas of semi-improved grassland are present at Highlow Meadows LWS and adjacent to the M6 and north-east of Yarnfield. These areas qualify as lowland meadow, which is a habitat of principal importance and a conservation priority of the Staffordshire BAP. These areas of grassland are located partially within the area subject to the amendment. The grassland is of county value.
- 5.9.31 Hedgerows within the area subject to the amendment are predominantly species-rich. Hedgerow with at least 80% cover of native woody species is a habitat of principal importance and a conservation priority of the Staffordshire BAP. These contribute

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<sup>49</sup> Natural Environment and Rural Communities Act 2006 (2006 CHAPTER 16). Her Majesty's Stationery Office, London.

<sup>50</sup> Staffordshire Biodiversity Partnership. Staffordshire Biodiversity Action Plan [online]. Available at: <http://www.sbap.org.uk/>

towards a wider hedgerow network within the Stone and Swynnerton area that is of district/borough value.

- 5.9.32 Five ponds occur within the area subject to the amendment. On a precautionary basis it is assumed that these qualify as habitats of principal importance and a conservation priority of the Staffordshire BAP. Each of these ponds is of up to district/borough value.

### Species

- 5.9.33 Protected and/or notable species that are known or assumed to occur within the area subject to the amendment include bats, great crested newt, barn owl, white-letter hairstreak butterfly, badger, polecat, harvest mouse, European hedgehog, brown hare and common reptile species.
- 5.9.34 The main ES reported a bat assemblage associated with habitats present between Lodge Covert and Birchwood. Field surveys in this area recorded one tree roost supporting noctule bats and one building roost supporting an unidentified bat species. Foraging and commuting activity was recorded by an assemblage including common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, Myotis species, brown long-eared, noctule and Nyctalus/Eptesicus species bats. The area subject to the amendment contains potential bat roosting, foraging and commuting habitats that are likely to be used by this bat assemblage. The bat assemblage includes several species of principal importance and species that are conservation priorities of the Staffordshire BAP. The bat assemblage associated with habitats present between Lodge Covert and Birchwood is of county value.
- 5.9.35 The main ES reported a bat assemblage associated with habitats at Pool House Wood. Field surveys in this area recorded a series of trees with potential to support roosting bats. The area subject to the amendment contains potential bat roosting, foraging and commuting habitats that are likely to be used by this bat assemblage. The bat assemblage potentially includes species of principal importance and species that are conservation priorities of the Staffordshire BAP. The bat assemblage associated with habitats at Pool House Wood is of up to county value.
- 5.9.36 The main ES, as amended by SES1, reported a great crested newt metapopulation<sup>51</sup> between Yarnfield and Swynnerton (AMP<sup>52</sup> 3.1). Field surveys determined the presence of great crested newt in 17 ponds of 41 surveyed, within a network of 42 ponds assumed to be used by this metapopulation. Five ponds associated with the metapopulation are within the area subject to the amendment. Terrestrial habitats likely to be used by this metapopulation occur within the area subject to the amendment, in the form of hedgerows, grassland and woodland. Great crested newt is an Annex 2<sup>53</sup> species, a species of principal importance and a conservation priority of the Staffordshire BAP. The great crested newt metapopulation between Yarnfield and Swynnerton is of county value.

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<sup>51</sup> A metapopulation is a group of spatially separated populations that interact. Metapopulations are described in BID-EC-007-000 (which accompanied the main ES) and BID-EC-004-000 (which accompanies the SES and AP ES).

<sup>52</sup> AMP refers to Amphibian Meta Population.

<sup>53</sup> Annex 2 of the EU's Habitats Directive (1992) lists priority species whose conservation requires the designation of Special Areas of Conservation (SAC).

- 5.9.37 The main ES reported populations of barn owl at Blakelow and Yarnfield identified through field surveys and desk study records. The area subject to the amendment includes grassland habitats, that are likely to be used by foraging barn owls, and suitable trees, which may be used by nesting barn owls. Barn owls are a conservation priority of the Staffordshire BAP. The barn owl populations at Blakelow and Yarnfield are each of county value.
- 5.9.38 The main ES reported a population of white-letter hairstreak butterfly at Pool House Wood, identified through desk study records. The area subject to the amendment includes Pool House Wood and associated hedgerow habitats that may be used by foraging white-letter hairstreak. The white-letter hairstreak is a species of principal importance. The white-letter hairstreak population at Pool House Wood is of district/borough value.
- 5.9.39 The main ES reported populations of amphibian species including palmate newt, smooth newt, common toad and common frog, identified through field surveys, within ponds throughout the Stone and Swynnerton area. Amphibian species are assumed to be present in ponds that have not yet been surveyed. The area subject to the amendment includes ponds, grassland, hedgerow and woodland habitats that are likely to be used by these species. Common toad is a species of principal importance. The population of common amphibians throughout Stone and Swynnerton is of local/parish value.
- 5.9.40 The main ES reported populations of common reptile species such as grass snake and slow-worm, identified through desk study records, as being potentially present at low numbers throughout the Stone and Swynnerton area. Grass snake and slow-worm are both species of principal importance. Grass snake is also a conservation priority of the Staffordshire BAP. The area subject to the amendment includes suitable habitats for these species. If present, these population are of local/parish value.
- 5.9.41 The main ES reported an assemblage of terrestrial invertebrates at Highlow Meadows LWS, identified through field survey. The area subject to the amendment includes habitats at Highlow Meadows LWS that support this assemblage. The terrestrial invertebrate assemblage at Highlow Meadows LWS is of local/parish value.
- 5.9.42 The main ES, as amended by SES1, reported at least 12 social groups of badgers throughout the Stone and Swynnerton area, identified through field surveys. The area subject to the amendment includes suitable sett building and foraging habitats for badgers. The badger populations throughout the Stone and Swynnerton area are of local/parish value.
- 5.9.43 The main ES reported populations of other mammals including polecat, harvest mouse, European hedgehog and brown hare, identified through desk study records, as being potentially present throughout the Stone and Swynnerton area. The area subject to the amendment includes suitable habitats for these species. If present, these populations are of local/parish value.

### *Future environmental baseline*

#### **Construction (2020)**

- 5.9.44 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### *Effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.9.45 The assessment assumes implementation of the measures set out within the draft CoCP<sup>54</sup>.
- 5.9.46 No avoidance or mitigation measures, additional to those reported in the main ES and draft CoCP, are identified.

#### **Assessment of impacts and effects**

- 5.9.47 All of the effects within this section are reported in the absence of other mitigation.

### *Designated sites*

- 5.9.48 The main ES, as amended by SES2, reported the loss of 1.2ha (100%) of Pool House Wood LWS, which would result in a permanent adverse effect that is significant at the county level. The amendment will not alter the extent of loss at Pool House Wood LWS. The amendment will not give rise to any new or different significant effects upon Pool House Wood LWS and will not change the level of significance of the effect reported in the main ES, as amended by SES2.
- 5.9.49 The main ES, reported the loss of 1.2ha (20%) of Highlow Meadows LWS, which would result in a permanent adverse effect that is significant at the county level. The amendment will not alter the extent of loss at Highlow Meadows LWS. The amendment will not give rise to any new or different significant effects upon Highlow Meadows LWS and will not change the level of significance of the effect reported in the main ES.
- 5.9.50 The main ES, reported the loss of 0.6ha (100%) of Birchwood AWI, which would result in a permanent adverse effect that is significant at the county level. The amendment will not alter the extent of loss at Birchwood AWI. The amendment will not give rise to any new or different significant effects upon Birchwood AWI and will not change the level of significance of the effect reported in the main ES.

### *Habitats*

- 5.9.51 The main ES, as amended by SES2, reported the loss of 1.2ha of National Vegetation Classification (NVC) W6d *Alnus glutinosa-Urtica dioica* woodland *Sambucus nigra* sub-community woodland at Pool House Wood LWS, which would result in a permanent adverse effect that is significant at the county level. The amendment will not alter the extent of woodland loss at Pool House Wood LWS. The amendment will not give rise to any new or different significant effects on woodland at Pool House Wood and will

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<sup>54</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at <https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a>



not change the level of significance of the effects reported in the main ES, as amended by SES2.

- 5.9.52 The main ES reported the loss of 1.2ha of lowland meadow at Highlow Meadows LWS, which would result in a permanent adverse effect that is significant at the county level. The amendment will not alter the extent of lowland meadow loss at Highlow Meadows LWS. The amendment will not give rise to any new or different significant effects on lowland meadow at Highlow Meadows LWS and will not change the level of significance of the effect reported in the main ES.
- 5.9.53 The main ES reported the loss of 3.8ha of lowland meadow adjacent to the M6 and north-east of Yarnfield, which would result in a permanent adverse effect that is significant at the district/borough level. The amendment will not alter the extent of lowland meadow loss adjacent to the M6 and north-east of Yarnfield. The amendment will not give rise to any new or different significant effects on lowland meadow adjacent to the M6 and north-east of Yarnfield and will not change the level of significance of the effect reported in the main ES.
- 5.9.54 On a precautionary basis, the main ES reported a loss of 44.8km of hedgerow habitats within the Stone and Swynnerton area, which would result in a permanent adverse effect that is significant at the district/borough level. The amendment will reduce the loss of species-rich hedgerow by 30m, and will increase the loss of species-poor hedgerow by 10m. These changes will reduce the loss of hedgerow within the area subject to the amendment by 20m, which in the context of the hedgerow network within the Stone and Swynnerton area does not represent a new or different significant effect.
- 5.9.55 It is not likely that any other effects on habitats of relevance at more than the local/parish level will occur as a result of the amendment. Additional local/parish level effects arising from the AP2 revised scheme are listed in SES2 and AP2 ES Volume 5: Appendix EC-016-000.

### *Species*

- 5.9.56 The main ES reported a direct loss of roosts and a loss and fragmentation of foraging and commuting habitats used by the assemblage of bats between Lodge Covert and Birchwood, which would result in a permanent adverse effect that is significant at the county level. The amendment will result in the additional loss of a mature tree, which on a precautionary basis is assumed to support a bat roost. The assumed loss of an additional roost will give rise to a different significant effect on the bat assemblage between Lodge Covert and Birchwood. However, this will not change the level of significance of the effect reported in the main ES.
- 5.9.57 The main ES reported a direct loss of bat roosts and a loss of foraging and commuting habitats used by the bat assemblage at Pool House Wood, which would result in a permanent adverse effect that is significant at up to county level. The amendment will not alter the extent of loss of habitats used by this bat assemblage. The amendment will not give rise to new or different significant effects on the bat assemblage at Pool House Wood and will not change the level of significance of the effects reported in the main ES.

- 5.9.58 The main ES, as amended by SES<sub>1</sub>, reported the loss of 12 ponds and associated terrestrial habitats that are known or assumed to be used by the great crested newt metapopulation between Yarnfield and Swynnerton (AMP 3.1), which would result in a permanent adverse effect that is significant at up to county level. The amendment will not impact additional ponds or terrestrial habitat likely to be used by this metapopulation. The amendment will not give rise to a new or different significant effect on the great crested newt metapopulation between Yarnfield and Swynnerton and will not change the level of significance of the effects reported in the main ES.
- 5.9.59 The main ES reported the loss of barn owl foraging habitat and potential roosting sites within mature trees associated with barn owl populations at Blakelow and Yarnfield, which would result in a permanent adverse effect that is significant at up to county level. The amendment will result in the loss of a mature tree, which on a precautionary basis is assumed to support a barn owl roost due to its close proximity to suitable barn owl foraging habitat and known barn owl populations. The assumed loss of an additional roost will give rise to a different significant effect on the barn owl populations at Blakelow and Yarnfield. However, this will not change the level of significance of the effect reported in the main ES.
- 5.9.60 The main ES reported the loss of habitats utilised by white-letter hairstreak butterfly near Pool House Wood LWS, which would result in a permanent adverse effect that is significant at the district/borough level. The amendment will not alter the extent of loss of habitat at Pool House Wood used by white-letter hairstreak butterfly. The amendment will not give rise to a new or different significant effect on the white-letter hairstreak butterfly near Pool House Wood LWS and will not change the level of significance of the effects reported in the main ES.
- 5.9.61 It is not likely that any other effects on species of relevance at more than the local/parish level will occur as a result of the amendment. Additional local/parish level effects arising from the AP2 revised scheme are listed in SES2 and AP2 ES Volume 5: Appendix EC-016-000.

## **Mitigation and residual effects**

### *Other mitigation measures*

- 5.9.62 The amendment will result in a change in the extent and distribution of grassland habitat creation. Approximately 380m<sup>2</sup> of grassland habitat creation alongside Yarnfield Lane to the north-east of the M6 within the original scheme will no longer be provided to allow minor increases in the footprint of the Yarnfield Lane M6 overbridge. The grassland habitat creation area, which forms part of the compensation for the loss of lowland meadow to the east of Pool House Wood LWS, will be reduced to approximately 1.6ha. The small reduction in grassland habitat creation as a result of the amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.
- 5.9.63 The main ES reported habitat creation measures between Yarnfield and Birchwood including the creation of species-rich grassland, wetland, ponds, hedgerows and semi-natural woodland. Artificial roosting provision will be provided within and adjacent to these habitat creation areas to replace bat roosts that will be lost to construction, in accordance with the Ecological Principles of Mitigation within the SMR Addendum.

These measures will reduce the different adverse effect resulting from this amendment on the bat assemblage associated with habitats between Lodge Covert and Birchwood to a level that is not significant.

- 5.9.64 The main ES reported that HS2 Ltd would seek to identify opportunities to provide barn owl nesting boxes and enhance barn owl habitat at least 3km from the original scheme in consultation with local landowners. A barn owl action plan will be prepared to identify the measures that can be implemented to help offset the effects. As the availability of nesting sites is a limiting factor for this species the implementation of these measures would be likely to increase numbers of barn owls within the wider landscape and thus offset the adverse effect arising from this amendment.

*Summary of likely residual significant effects*

- 5.9.65 The amendment will result in the loss of an assumed barn owl tree roost which will give rise to a new likely residual permanent adverse effect on the barn owl populations at Blakelow and Yarnfield that is significant at the county level. However, provided the proposed mitigation measures for barn owl are implemented through liaison with landowners, the residual effect on barn owl would be reduced to a level that is not significant.

**Cumulative effects**

- 5.9.66 There are no new or different likely significant cumulative effects for ecology and biodiversity as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments. The combined effect on hedgerows as a result of the AP2 revised scheme is reported at a route-wide level in SES2 and AP2 ES, Volume 3, Route-wide effects.

**5.10 Additional land required for a water treatment facility at the Severn Trent Water Limited Swynnerton Pumping Station (AP2-003-009)**

- 5.10.1 The HS2 route crosses close to the Severn Trent Water Whitmore public groundwater supply borehole, passing through the abstraction's groundwater source protection zone (SPZ1) and resulting in potential impacts during construction as described in Volume 2, CA4, Section 15 of the main ES.
- 5.10.2 Abstraction from the Whitmore public water supply borehole would be suspended temporarily during the construction period for works in the area in order to protect against the risk of deterioration of the quantity or quality of water available to the public supply. On completion of construction, abstraction from the Whitmore public water supply borehole would be resumed.
- 5.10.3 Since submission of the Bill, further design development and engagement with Severn Trent Water has identified three existing Severn Trent Water sites in suitable locations that could maintain the current water supply whilst abstraction from the Whitmore public water supply borehole is suspended temporarily during construction. One of these locations is at the existing Severn Trent Water Swynnerton Pumping Station on the A51 Bury Bank, 870m north-east of the Swynnerton Footpath 27 Accommodation underbridge. See Map CT-06-224-R1, E7 to C8, in the SES2 and AP2 ES Volume 2, CA3 Map Book. The other two additional locations are provided for in

AP2-002-013: Additional land required for a water treatment facility at the Severn Trent Water Mill Meece Pumping Station and AP2-002-015: Additional land required for a water treatment facility at the Severn Trent Water Hanchurch Distribution and Storage Reservoir.

- 5.10.4 Additional land is required on the south-eastern side of the existing Swynnerton Pumping Station to allow for an additional permanent water treatment facility, including access and parking for operation and maintenance of the facility. The new treatment facility will increase the volume of water that can be processed on site. The footprint of the new treatment facility will be approximately 0.2ha. An existing layby on the A51 Bury Bank will be relocated 100m east of its existing location as part of the works.
- 5.10.5 Approximately 185m of hedgerow habitat creation will be provided along the south and west perimeter of the site. See Map CT-06-224-R1, D8, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.10.6 The amendment will be constructed over a period of one year and six months, commencing in 2020.
- 5.10.7 A new construction compound will be provided to manage the installation of the new water treatment facility. The Severn Trent Water Swynnerton compound will be operational for up to one year and 6 months, commencing during 2020, and will support an average of 12 workers per day (20 workers at peak times). Access to the new compound will be from the M6 Junction 15, along the A500-A519 Newcastle Road and the A51 Stone Road/Bury Bank.
- 5.10.8 The land required for the new treatment facility including access, parking and mitigation planting is outside the limits of the Bill. This amendment will result in a requirement for an additional 1.5ha of land, some of which will be from Swynnerton Estate (CA3/20). See Map CT-05-224-R1, E7 to C8, in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that none of the additional agricultural land will be returned to its existing use following construction.

### Topics included in the AP2 assessment

- 5.10.9 This amendment is considered to require reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, for water resources and flood risk. This is reported in this section.

### Water resources and flood risk

#### *Scope, assumptions and limitations*

- 5.10.10 The assessment scope, key assumptions and limitations for water resources and flood risk are as set out in Volume 1, the Scope and Methodology Report (SMR)<sup>55</sup> and SMR

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<sup>55</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report (Appendix CT-001-001). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

Addendum<sup>56</sup> of the main ES and SMR Addendum 2 (see SES2 and AP2 ES Volume 5: Appendix CT-001-000).

- 5.10.11 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for water resources and flood risk.

#### *Existing environmental baseline*

- 5.10.12 The baseline water resources information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 15 of the main ES. Further details relating to water resources and flood risk for this area are provided in Volume 5: Appendix WR-002-003 and Appendix WR-003-003 and the Volume 5: Water resources and flood risk Map Book of the main ES.
- 5.10.13 This amendment is underlain by the Wildmoor Sandstone Member of the Sherwood Sandstone Group, a Principal aquifer and located within SPZ1, and associated with the public water supply abstraction at Swynnerton, which is a very high value receptor. This amendment will involve construction activities of a nature and scale that have potential water quality implications.

#### *Future environmental baseline*

##### **Construction (2020)**

- 5.10.14 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

#### *Effects arising during construction*

- 5.10.15 The main ES reported no significant effects on groundwater quality due to site runoff and increased pollution risk in the vicinity of this amendment. The amendment has the potential to give rise to temporary adverse impacts on groundwater quality, which could affect the Swynnerton abstraction. However, the amendments will be constructed in accordance with the measures specifically designed to safeguard water resources outlined in the draft CoCP<sup>57</sup>.
- 5.10.16 Therefore, the amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

##### **Cumulative effects**

- 5.10.17 There are no new or different likely significant cumulative effects for water resources and flood risk as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments.

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<sup>56</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report Addendum (Appendix CT-001-002). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>57</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at <https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a>

## **5.11 Additional land required for provision of a power supply to Whitmore Heath tunnel (AP2-004-001)**

- 5.11.1 Part of this amendment and relevant potential receptors lie within the Whitmore Heath to Madeley area (CA4). A detailed description of the amendment and assessment of effects within the Whitmore Heath to Madeley area is reported in SES2 and AP2 ES Volume 2, Community area 4, Whitmore Heath and Madeley. Part of this amendment lies within the Stone and Swynnerton area and the works associated with this amendment and assessment of effects on receptors within the Stone and Swynnerton area are described below.
- 5.11.2 The Bill provides for a cut and cover section of Whitmore Heath tunnel, 240m in length and up to 17m in depth, continuing into a twin bored tunnel, 690m in length and up to 50m in depth, passing under Whitmore Heath. See Volume 2: Map CT-06-230, H6 to C5, in the main ES Volume 2, CA4 Map Book.
- 5.11.3 A Tunnel Boring Machine (TBM) will be used to bore the tunnel. The TBM will be driven from the Whitmore Heath (south) tunnelling facility and logistics area. Power connections will be required to operate the TBM for the construction of the Whitmore Heath tunnel. The power connection will be retained permanently to be used for the operation of the tunnel, including lighting and ventilation systems.
- 5.11.4 It was originally proposed that the power supply would be provided by the statutory electricity undertaker, but in order to provide certainty that the scheme can be implemented within the construction programme it is necessary to include powers within the Bill.
- 5.11.5 Since submission of the Bill, further design development has been undertaken to identify a route for a power supply connection, consisting of two sets of three 33kV cables to ensure necessary supply resilience, laid underground in a single trench and approximately 14.5km in length, to supply power to the TBM for the construction of Whitmore Heath tunnel. The power line will also provide a permanent power supply for the lighting, communications, signalling and ventilation systems of the tunnel during operation.
- 5.11.6 The power line will pass through land within the Stone and Swynnerton area and the Whitmore Heath to Madeley area. A description of the works associated with this amendment in the Stone and Swynnerton area is provided below.
- 5.11.7 Within the Stone and Swynnerton area, the power line will be installed in the verge or carriageway of existing roads, except for the following locations:
- a 250m length which will be beneath an agricultural field between Meaford Bulk Supply Point and Meaford Road. See Map CT-05-225-R3, I9, in the SES2 and AP2 ES Volume 2, CA3 Map Book; and
  - a 325m length which will cross beneath the M6. See Map CT-05-225-R1, G8 to F10, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.11.8 The power line will originate at an existing Western Power Distribution sub-station, referred to as Meaford Bulk Supply Point, located between Meaford Road and the Trent and Mersey canal to the east of the HS2 route, in the Stone and Swynnerton

area. New 33kV circuit breakers and 132kV control panels will be installed at Meaford Bulk Supply Point, which will be housed in a new building approximately 35m by 35m. New 132/33kV transformers will also be installed and existing infrastructure will be modified to accommodate the new connection. See Map CT-05-225-R3, J9 to I9, in the SES2 and AP2 ES Volume 2, CA3 Map Book.

- 5.11.9 The route of the power line will cross an agricultural field for approximately 250m, to join Meaford Road. The power line will run north along Meaford Road to the junction with Tittensor Road, before being routed west along Tittensor Road to a junction with the A34 Stone Road. See Map CT-05-225-R3, H9 to E3 and E3 to B10, and Map CT-06-225-R2, I1 to H3, in the SES2 and AP2 ES Volume 2, CA3 Map Book. At this location the power line will run south along the A34 Stone Road to the junction with Chase Lane and will then run south-west along Chase Lane to a location south-east of the junction with Winghouse Lane, adjacent to the M6. See Map CT-06-225-R2, H3 to H10, and Map CT-06-225-R1, H1 to G9, in the SES2 and AP2 ES Volume 2, CA3 Map Book. The power line will be ducted beneath the M6, using directional drilling, towards Winghouse Lane. Two areas of agricultural land either side of the M6, 0.4ha to the west and 0.5ha to the east, will be temporarily required to facilitate the horizontal directional drilling beneath the M6. See Map CT-05-225-R1, G8 to F10, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.11.10 Following the crossing of the M6, the route will cross an agricultural field to the west of the M6 and will then run south-west along Winghouse Lane to the junction with the A51 Stone Road. At this location the route will run west along the A51 Stone Road to the junction with the A519 Newcastle Road. See Map CT-05-225-R1, G10 to F10, Map CT-05-225, G1 to A6, and Map CT-05-226, J5 to F8, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.11.11 The power line will initially be installed as a temporary connection in the existing A51 Stone Road, before being installed permanently as part of the A51 Stone Road diversion and the realigned A519 Newcastle Road. The power line will run north-west along the A51 Stone Road and the A51 The Rowe to the junction of the A51 The Rowe, Bent Lane and Dog Lane. See Map CT-05-226, F8 to C10, Map CT-05-227-L1, J1 to A2, Map CT-05-228-L1, J3 to E1, and Map CT-05-228a, G10 to E9, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.11.12 The power line will continue into the Whitmore Heath to Madeley area, initially as a temporary connection along Bent Lane before being diverted permanently along the diverted Bent Lane (North), and connect into the southern porous portal of Whitmore Heath tunnel. See Map CT-05-228a, E9 to A6, in the SES2 and AP2 ES Volume 2, CA3 Map Book and Map CT-05-228b, E9 to A6, to Map CT-05-229, J6 to B5, in the SES2 and AP2 ES Volume 2, CA4 Map Book.
- 5.11.13 The amendment will be constructed over a period of approximately six months, commencing in 2022. Works will be managed from Whitmore Heath Tunnel satellite compound, with mobile welfare units.
- 5.11.14 The land required for the installation of the power line is outside the limits of the Bill and will result in the requirement for an additional 17.1ha of land, part of which would be from the following agricultural holdings in the Stone and Swynnerton area: Swynnerton Estate (CA3/20) and Sandyford Farm (CA3/22). See Maps CT-05-225-R3,

CT-05-225-R2, CT-05-225-R1, CT-05-225, CT-05-226, CT-05-227-L1, CT-05-228-L1 and CT-05-228a in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that all of the additional land will be returned to its existing use following construction, with a wayleave for maintenance access where it crosses private land.

### Topics included in the AP2 assessment

- 5.11.15 Within the Stone and Swynnerton area, this amendment is considered to require reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, for the following topics: community; cultural heritage; ecology and biodiversity; traffic and transport; and water resources and flood risk. These are reported in this section.
- 5.11.16 There are also cultural heritage, traffic and transport and water resources and flood risk receptors in the Whitmore Heath to Madeley area (CA4), which are assessed and reported in SES2 and AP2 ES Volume 2, Community area 4, Whitmore Heath to Madeley.

### Community

#### *Scope, assumptions and limitations*

- 5.11.17 The assessment scope, key assumptions and limitations for community are as set out in Volume 1, the Scope and Methodology Report (SMR)<sup>58</sup> and SMR Addendum<sup>59</sup> of the main ES.
- 5.11.18 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for community.

#### *Existing environmental baseline*

- 5.11.19 The baseline community information for the Stone and Swynnerton area is described in Volume 2, CA3, Section 6 of the main ES.
- 5.11.20 Swynnerton is located to the west of the M6, approximately 5km north-west of Stone and 3km north of Yarnfield. Swynnerton includes approximately 210 residential properties, two places of worship, a public house and a convenience store. North of Swynnerton, there are numerous small clusters of residential properties.

#### *Future environmental baseline*

### Construction (2020)

- 5.11.21 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

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<sup>58</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report (Appendix CT-001-001). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>59</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report Addendum (Appendix CT-001-002). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>



### *Effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.11.22 No avoidance or mitigation measures, additional to those reported in the main ES and draft Code of Construction Practice (CoCP)<sup>60</sup>, are required.

#### **Assessment of impacts and effects**

- 5.11.23 The additional land required for provision of a power supply to Whitmore Heath tunnel was not included in the original scheme and therefore the main ES did not report any significant effects associated with it.
- 5.11.24 The land required for the amendment will be within the boundary of three residential properties on Chase Lane and the A51 Stone Road to the north of Swynnerton, requiring part of their outdoor space. The impact of the amendment at these properties will be small in scale and of short duration (approximately three months), resulting in a temporary minor adverse effect, which is not significant. The amendment will not give rise to a new or different significant permanent effect and will not change the level of significance of the permanent effects, as reported in the main ES. For further information see SES2 and AP2 ES Volume 5: Appendix CM-001-003.

#### **Mitigation and residual effects**

##### *Other mitigation measures*

- 5.11.25 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

##### *Summary of likely residual significant effects*

- 5.11.26 The amendment will not give rise to any new or different likely residual significant effects and will not change the level of significance of the effects reported in the main ES.

#### **Cumulative effects**

- 5.11.27 There are no new or different likely significant cumulative effects for community as a result of the amendment acting in-combination with any other AP2 amendments or AP1 amendments.

### **Cultural heritage**

#### *Scope, assumptions and limitations*

- 5.11.28 The assessment scope, key assumptions and limitations for cultural heritage are as set out in Volume 1, the SMR and SMR Addendum of the main ES and SMR Addendum 2 (see SES2 and AP2 ES Volume 5: Appendix CT-001-000).

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<sup>60</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at <https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a>

- 5.11.29 As the cultural heritage impacts of the amendment are not reversible, they therefore have the potential to result in new or different significant permanent construction effects only. There is no temporary construction or operational assessment for cultural heritage.

#### *Existing environmental baseline*

- 5.11.30 The baseline cultural heritage information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 7 of the main ES.
- 5.11.31 A ring ditch (a possible prehistoric burial) situated immediately west of the M6 at Sandyford (STSo44), a non-designated asset of moderate value, lies partially within the land required for the amendment.
- 5.11.32 Further information about this asset is provided in the main ES Volume 5: Appendix CH-002-003 and Map Series CH-01 in the main ES Volume 5: Cultural heritage Map Book.

#### *Future environmental baseline*

##### **Construction (2020)**

- 5.11.33 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

#### *Effects arising during construction*

##### **Avoidance and mitigation measures**

- 5.11.34 No avoidance or mitigation measures, additional to those reported in the main ES and draft CoCP, are identified.

##### **Assessment of impacts and effects**

- 5.11.35 The main ES reported there would be no effect on a ring ditch at Sandyford (STSo44), a non-designated asset of moderate value. This asset will be substantially removed during construction of the amendment. This will give rise to a new permanent high adverse impact and a new permanent major adverse effect, which is significant.
- 5.11.36 For further information see Map Series CH-01 in the SES2 and AP2 ES Volume 5: Cultural heritage Map Book and the SES2 and AP2 ES Volume 5: Appendix CH-003-000.

##### **Mitigation and residual effects**

###### *Other mitigation measures*

- 5.11.37 No mitigation measures additional to those reported in the main ES and draft CoCP are identified.

###### *Summary of likely residual significant effects*

- 5.11.38 The amendment will give rise to a new likely residual permanent major adverse significant effect on a ring ditch (a possible prehistoric burial) at Sandyford (STSo44), by substantially removing the asset during construction.

## Cumulative effects

- 5.11.39 There are no new or different likely significant cumulative effects for cultural heritage as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments.

## Ecology and biodiversity

### *Scope, assumptions and limitations*

- 5.11.40 The assessment scope, key assumptions and limitations for ecology and biodiversity are as set out in Volume 1, the SMR and SMR Addendum of the main ES and SMR Addendum 2 (see SES2 and AP2 ES Volume 5: Appendix CT-001-000).
- 5.11.41 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for ecology and biodiversity.
- 5.11.42 Where data are limited, a precautionary baseline has been built up according to the guidance provided in the SMR and SMR Addendum. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 5.11.43 The precautionary approach to the assessment that has been adopted identifies the likely significant environmental effects of the amendment.

### *Existing environmental baseline*

- 5.11.44 The ecological baseline of the area subject to the amendment has been based on field data collated for the main ES and SES1, aerial photography, and relevant information from regional and local sources.
- 5.11.45 A summary of the baseline information relevant to the assessment of the amendment is provided below. Further detail on the relevant new or updated baseline information is provided in BID-EC-019-000, including Map Series EC-02 which accompanies the SES2 and AP2 ES.
- 5.11.46 For those receptors described in the main ES, further details are provided in Volume 2, CA3, Section 8, and Volume 5: Appendix EC-001-000, including Map Series EC-01. Baseline ecology reports that accompanied the main ES are provided in BID-EC-002-000 to BID-EC-014-000, including Map Series EC-02 to EC-12<sup>61</sup>.
- 5.11.47 For those receptors described in SES1, further details are provided in Volume 2, CA3, Section 3. The baseline ecology report that accompanied SES1 and AP1 ES is provided in BID EC-004-000, including Map Series EC-02, EC-04, EC-05, EC-10, EC-11 and EC-12<sup>62</sup>.

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<sup>61</sup> HS2 Ltd (2017). *High Speed Two (HS2) Phase 2a (West Midlands – Crewe), Background Information and Data*, Available online at: <https://www.gov.uk/government/publications/hs2-phase-2a-background-information-and-data-ecology-and-biodiversity>

<sup>62</sup> HS2 Ltd (2018). *High Speed Two (HS2) Phase 2a (West Midlands – Crewe), Background Information and Data*, Supplementary ecological baseline data (BID EC-004-000), Available online at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/692664/G33\\_Ecological\\_baseline\\_BID-EC-004-000\\_WEB.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/692664/G33_Ecological_baseline_BID-EC-004-000_WEB.pdf)

### Designated sites

- 5.11.48 There are three Local Wildlife Sites (LWS) of relevance to the assessment of the amendment, which are of county value. These are:
- A34 Woodlands, Tittensor Common LWS, covering an area of approximately 10.7ha, is designated for its deciduous woodland strip between coniferous plantation and the A34 Stone Road that has an acidic/heathy ground flora. A34 Woodlands, Tittensor Common LWS is located to the south of the A34 Stone Road, directly adjacent to the area subject to the amendment. This LWS site was not reported in the main ES as it was not considered relevant to the assessment of the original scheme;
  - Tittensor Chase LWS, covering an area of approximately 30.9ha, is designated for an area of wood pasture surrounded by conifer plantations. Tittensor Chase LWS is located to the west of Chase Lane, directly adjacent to the area subject to the amendment. This LWS site was not reported in the main ES as it was not considered relevant to the assessment of the original scheme; and
  - Clifford's Wood LWS, covering an area of approximately 32ha, is designated for its semi-natural broadleaved woodland including areas of ancient woodland and mixed plantation. Clifford's Wood LWS is located to the north of the A51 Stone Road and west of the A519 Newcastle Road, directly adjacent to the area subject to the amendment.
- 5.11.49 There are four Biodiversity Alert Sites (BAS) of relevance to the assessment of the amendment, which are of district/borough value. These are:
- Green Birch Farm BAS, covering an area of approximately 6.7ha, is designated for its series of species-rich semi-improved neutral grassland fields. Green Birch Farm BAS is located directly adjacent to the area subject to the amendment. This LWS site was not reported in the main ES as it was not considered relevant to the assessment of the original scheme;
  - Closepit Plantation BAS, covering an area of approximately 1.6ha, is designated for its deciduous woodland dominated by sycamore and its three eutrophic pools. Closepit Plantation BAS is located off the A51 Stone Road at Long Compton, directly adjacent to the area subject to the amendment;
  - Cash's Pit BAS, covering an area of approximately 1.4ha, is designated for its semi-natural broadleaved woodland dominated by oak with sycamore, beech and ash and is characteristic of National Vegetation Classification (NVC) W8e *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland *Geranium robertianum* sub-community. Cash's Pit BAS is located to the north of the A51 Stone Road and west of Bottom Lane, directly adjacent to the area subject to the amendment; and
  - Swynnerton Heath Farm (east of) BAS, covering an area of 0.5ha, is designated for its traditional orchard. Swynnerton Heath Farm (east of) BAS is located to the north-east of the A519 Newcastle Road and north of A51 Stone Road, directly adjacent to the area subject to the amendment.
- 5.11.50 There is one Ancient Woodland Inventory (AWI) site of relevance to the assessment of the amendment, which is of county value. Clifford's Wood, covering an area of 16.9ha,

forms part of Clifford's Wood LWS and comprises of ancient semi-natural broadleaved woodland. Clifford's Wood is located to the north of the A51 Stone Road and west of the A519 Newcastle Road, directly adjacent to the area subject to the amendment.

### Habitats

- 5.11.51 Habitats within the area subject to the amendment include ancient woodland, broadleaved woodland, improved grassland, semi-improved grassland, floodplain grazing marsh, arable, highway verge, hedgerows, a watercourse and scrub. The habitats of relevance to the assessment of the amendment are described in further detail below.
- 5.11.52 Ancient semi-natural broadleaved woodland is present at Clifford's Wood. This qualifies as lowland mixed deciduous woodland, a habitat of principal importance listed under the provisions of Section 41 of the NERC Act (2006)<sup>63</sup> and a conservation priority of the Staffordshire Biodiversity Action Plan (BAP)<sup>64</sup>. The ancient woodland at Clifford's Wood is located adjacent to the area subject to the amendment. The woodland is of county value.
- 5.11.53 Woodland is present at Meaford Bulk Supply Point and alongside Chase Lane and the A34 Stone Road. This is likely to qualify as mixed broadleaved woodland, a habitat of principal importance and a conservation priority of the Staffordshire BAP. These areas of woodland are partially within the area subject to the amendment. The woodland is of up to county value.
- 5.11.54 Semi-natural broadleaved woodland is present at Closepit Plantation BAS and Cash's Pit BAS. This qualifies as lowland mixed deciduous woodland, a habitat of principal importance and a conservation priority of the Staffordshire BAP. The woodland at Closepit Plantation BAS and Cash's Pit BAS is located adjacent to the area subject to the amendment. The woodland is of district/borough value.
- 5.11.55 Species rich semi-improved grassland is present to the west of the M6. This is likely to qualify as lowland meadow, a habitat of principal importance and a conservation priority of the Staffordshire BAP. The grassland is partially within the area subject to the amendment. The grassland is of up to district/borough value.
- 5.11.56 Species rich semi-improved grassland is present at Green Birch Farm BAS. This is likely to qualify as lowland meadow, a habitat of principal importance and a conservation priority of the Staffordshire BAP. The grassland is located adjacent to the area subject to the amendment. The grassland is of district/borough value.
- 5.11.57 An extensive area of floodplain grazing marsh, covering an area of approximately 38.5ha, occurs alongside the River Trent on either side of Tittensor Road, south-east of Tittensor. Floodplain grazing marsh is a habitat of principal importance and a conservation priority of the Staffordshire BAP. The floodplain grazing marsh is located adjacent to the area subject to the amendment. The floodplain grazing marsh is of district/borough value.

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<sup>63</sup> Natural Environment and Rural Communities Act 2006 (2006 CHAPTER 16). Her Majesty's Stationery Office, London.

<sup>64</sup> Staffordshire Biodiversity Partnership. Staffordshire Biodiversity Action Plan [online]. Available at: <http://www.sbap.org.uk/>

- 5.11.58 Hedgerows within the area subject to the amendment are assumed to be predominantly species-rich. Hedgerow with at least 80% cover of native woody species is a habitat of principal importance and a conservation priority of the Staffordshire BAP. These contribute towards a wider hedgerow network within the Stone and Swynnerton area that is of district/borough value.
- 5.11.59 The River Trent is located directly adjacent to the area subject to the amendment, south of Tittensor. The River Trent is likely to qualify as a habitat of principal importance and is a conservation priority of the Staffordshire BAP. The River Trent is of county value.

### Species

- 5.11.60 Protected and/or notable species that are known or assumed to occur within the area subject to the amendment include bats, great crested newt, otter, badger, polecat, harvest mouse, European hedgehog, brown hare and common reptile species.
- 5.11.61 The main ES reported a bat assemblage associated with habitats at Closepit Plantation and Stabhill Plantation. Field surveys in this area recorded five tree roosts and two confirmed building roosts. Species present within the roosts include noctule bats and another unidentified bat species. The area subject to the amendment contains potential bat roosting and foraging habitats adjacent to the west of the M6 that are likely to be used by this bat assemblage. The bat assemblage includes species of principal importance and species that are conservation priorities of the Staffordshire BAP. The bat assemblage associated with habitats at Closepit Plantation and Stabhill Plantation is of county value.
- 5.11.62 The woodland within the area subject to the amendment at Meaford Bulk Supply Point offers suitable habitat for bats, but does not form part of an existing bat assemblage reported within the main ES. The woodland or adjacent habitats have not been subject to survey and therefore, on a precautionary basis, are assumed to provide roosting, foraging and commuting opportunities for an assemblage of bats. The assumed bat assemblage associated with the woodland and adjacent habitats at Meaford Bulk Supply Point is of up to county value.
- 5.11.63 The woodland within the area subject to the amendment at Meaford Bulk Supply Point is located within 50m of a pond. This pond has not been subject to survey and therefore, on a precautionary basis, it is assumed to support a breeding population of great crested newts that does not form part of an existing metapopulation reported within the main ES or SES1. The woodland is assumed to offer terrestrial habitat for the assumed great crested newt population using the pond. Great crested newt is an Annex 2<sup>65</sup> species, a species of principal importance and a conservation priority of the Staffordshire BAP. The assumed great crested newt population is of county value.
- 5.11.64 The main ES reported the presence of populations of otter on the River Trent, identified through desk study records. The area subject to the amendment includes the River Trent and suitable adjacent habitats that may offer shelter, foraging and dispersal opportunities for otter. Otter is an Annex 2 species, a species of principal

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<sup>65</sup> Annex 2 of the EU's Habitats Directive (1992) lists priority species whose conservation requires the designation of Special Areas of Conservation (SAC).

importance and conservation priority of the Staffordshire BAP. This species is of district/borough value.

- 5.11.65 The main ES, as amended by SES1, reported at least 12 social groups of badger throughout the Stone and Swynnerton area, identified through field surveys. The area subject to the amendment includes suitable sett building and foraging habitats for badgers. The badger populations throughout the Stone and Swynnerton area are of local/parish value.
- 5.11.66 The main ES reported populations of other mammals including polecat, harvest mouse, European hedgehog and brown hare, identified through desk study records, as being potentially present throughout the Stone and Swynnerton area. The area subject to the amendment includes suitable habitats for these species. If present, these populations are of local/parish value.
- 5.11.67 The main ES reported populations of amphibian species including palmate newt, smooth newt, common toad and common frog, identified through field surveys, within ponds throughout the Stone and Swynnerton area. Amphibian species are assumed to be present in ponds that have not yet been surveyed. The area subject to the amendment includes hedgerow and woodland habitats that are likely to be used by these species. Common toad is a species of principal importance. The population of common amphibians throughout Stone and Swynnerton is of local/parish value.
- 5.11.68 The main ES reported populations of common reptile species such as grass snake and slow-worm, identified through desk study records, as being potentially present at low numbers throughout the Stone and Swynnerton area. Grass snake and slow-worm are both species of principal importance. Grass snake is also a conservation priority of the Staffordshire BAP. The area subject to the amendment includes suitable habitats for these species. If present, these populations are of local/parish value.

### *Future environmental baseline*

#### **Construction (2020)**

- 5.11.69 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### *Effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.11.70 The assessment assumes implementation of the measures set out within the draft CoCP.
- 5.11.71 The area subject to the amendment will cross over the River Trent and an extensive area of floodplain grazing marsh. Works will, however, be restricted to within the highway boundary of Tittensor Road passing over the River Trent and the associated floodplain grazing marsh and will therefore not result in direct impacts to the River Trent, the floodplain grazing marsh or the species these habitats are likely to support. Indirect effects to these habitats and species will be controlled through implementation of measures as detailed within the draft CoCP.

- 5.11.72 No avoidance or mitigation measures additional to those reported in the main ES and draft CoCP are identified.

### **Assessment of impacts and effects**

- 5.11.73 All of the effects within this section are reported in the absence of other mitigation.

#### *Designated sites*

- 5.11.74 The main ES, as amended by SES2, reported the loss of 4.9ha of woodland at Clifford's Wood LWS, including 1.3ha of ancient woodland, which would result in a permanent adverse effect that is significant at the county level. The amendment will not alter the extent of loss at Clifford's Wood LWS and AWI site. The amendment will not give rise to any new or different significant effect upon Clifford's Wood LWS and AWI site and will not change the level of significance of the effect reported in the main ES, as amended by SES2.
- 5.11.75 The main ES, as amended by SES2, reported the loss of 0.1ha (3%) of Closepit Plantation BAS and a fragmentation effect through the isolation of the woodland and pond habitats at Closepit Plantation BAS by the construction of the original scheme, which would result in a permanent adverse effect that is significant at the district/borough level. The amendment will not alter the extent of loss or fragmentation effect at Closepit Plantation BAS. The amendment will not give rise to any new or different significant effect upon Closepit Plantation BAS and will not change the level of significance of the effect reported in the main ES, as amended by SES2.
- 5.11.76 The main ES, as amended by SES2, reported the loss of 1.5ha (100%) of Cash's Pit BAS for the construction of the original scheme, which would result in a permanent adverse effect that is significant at the district/borough level. The amendment will not alter the extent of loss at Cash's Pit BAS. The amendment will not give rise to any new or different significant effect upon Cash's Pit BAS and will not change the level of significance of the effect reported in the main ES, as amended by SES2.
- 5.11.77 SES2 reported the loss of 200m<sup>2</sup> (4%) of Swynnerton Heath Farm (east of) BAS for the construction of the original scheme, which would result in a permanent adverse effect that is significant at the district/borough level. The amendment will not alter the extent of loss at Swynnerton Heath Farm (east of) BAS and will not give rise to any new or different significant effects or change the level of significance of the effect reported in SES2.

#### *Habitats*

- 5.11.78 On a precautionary basis, the main ES reported a loss of 44.8km of hedgerow habitats within the Stone and Swynnerton area, which would result in a permanent adverse effect that is significant at the district/borough level. The amendment will result in the loss of an additional 170m of species-poor hedgerow and 30m of species-rich hedgerow. In the context of the hedgerow network within the Stone and Swynnerton area, this additional loss does not represent a new or different significant effect.
- 5.11.79 It is not likely that any other effects on habitats of relevance at more than the local/parish level will occur as a result of the amendment. Additional local/parish level



effects arising from the AP2 revised scheme are listed in SES2 and AP2 ES Volume 5: Appendix EC-016-000.

### *Species*

- 5.11.80 The main ES reported a direct loss of bat roosts and a loss of foraging and commuting habitat used by the assemblage of bats associated with Closepit Plantation and Stabhill Plantation, which would result in a permanent adverse effect that is significant at the county level. The amendment will result in the loss of mature trees, which on a precautionary basis are assumed to support bat roosts. The loss of assumed roosts will give rise to a different significant effect on the bat assemblage associated with Closepit Plantation and Stabhill Plantation. However, this will not change the level of significance of this effect as reported in the main ES.
- 5.11.81 No effects on the assumed bat assemblage associated with the habitats at Meaford Bulk Supply Point were reported within the main ES. The amendment will result in the loss of 100m<sup>2</sup> of broadleaved woodland at Meaford Bulk Supply Point, which on a precautionary basis is assumed to support bat roosts and provide a foraging resource for bats. The loss of assumed roosts will give rise to a new permanent adverse effect on the bat assemblage associated with habitats at the Meaford Bulk Supply Point that is significant at up to county level.
- 5.11.82 No effects on the assumed great crested newt population at Meaford were reported within the main ES. The amendment will result in the loss of 100m<sup>2</sup> of broadleaved woodland at Meaford Bulk Supply Point within 100m of a pond. In the absence of survey information, the pond is assumed to support great crested newt and the woodland is likely to offer terrestrial habitats opportunities for this species. However, given the small area of terrestrial habitat lost to the amendment, this will not give rise to a significant effect on the assumed great crested newt population.
- 5.11.83 It is not likely that any other effects on species of relevance at more than the local/parish level will occur as a result of the amendment. Additional local/parish level effects arising from the AP2 revised scheme are listed in SES2 and AP2 ES Volume 5: Appendix EC-016-000.

### **Mitigation and residual effects**

#### *Other mitigation measures*

- 5.11.84 The main ES reported habitat creation measures adjacent to the retained sections of Closepit Plantation and Stabhill Plantation to compensate for the loss of foraging, commuting, and roosting habitats for bats, including the creation of species-rich grassland, ponds and semi-natural woodland. Artificial roosting features will be provided within and adjacent to these habitat creation areas to replace bat roosts that will be lost to construction, in accordance with the Ecological Principles of Mitigation within the SMR Addendum. These measures will reduce the different adverse effect resulting from this amendment on the bat assemblage associated with Closepit Plantation and Stabhill Plantation to a level that is not significant.
- 5.11.85 Artificial roosting features will be provided on retained trees at Meaford Bulk Supply Point to replace bat roosts that will be lost to construction, in accordance with the Ecological Principles of Mitigation within the SMR Addendum. These measures will

reduce the new adverse effect resulting from this amendment on the assumed bat assemblage within woodland and adjacent habitats at Meaford Bulk Supply Point to a level that is not significant.

#### *Summary of likely residual significant effects*

- 5.11.86 With the implementation of the mitigation proposed, the ecological effects arising from the amendment are reduced to a level that is not considered to be significant. The significant effects of the amendment in this area are therefore unchanged from those reported in the main ES.

#### **Cumulative effects**

- 5.11.87 There are no new or different likely significant cumulative effects for ecology and biodiversity as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments. The combined effect on hedgerows as a result of the AP2 revised scheme is reported at a route-wide level in SES2 and AP2 ES, Volume 3, Route-wide effects.

#### **Traffic and transport**

##### *Scope, assumptions and limitations*

- 5.11.88 The assessment scope, key assumptions and limitations for traffic and transport are as set out in Volume 1, the SMR and SMR Addendum of the main ES.
- 5.11.89 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for traffic and transport.

##### *Existing environmental baseline*

- 5.11.90 The baseline traffic and transport information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 14 of the main ES.
- 5.11.91 The M6 runs in a north-west to south-east alignment to the east of the HS2 route in the Stone and Swynnerton area. The main roads in the area are: the A34 Stone Road to the south of Tittensor, between Tittensor Road and Chase Lane; the A519 Newcastle Road; and the A51 Stone Road through Stableford, between Winghouse Lane and Bent Lane.
- 5.11.92 The local roads in the area are: Meaford Road and Tittensor Road, between Meaford Road and the A34 Stone Road to the south of Tittensor; Chase Lane, between the A34 Stone Road and Winghouse Lane and Winghouse Lane, between Chase Lane and the A51 Stone Road through Sandyford; and Bent Lane, between the A51 The Rowe and the A53 Newcastle Road/Whitmore Road in the Whitmore Heath to Madeley area (CA4).

##### *Future environmental baseline*

#### **Construction (2023)**

- 5.11.93 The future baseline for construction in 2023 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### *Effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.11.94 No avoidance or mitigation measures additional to those reported in the main ES and draft CoCP are identified.

#### **Assessment of impacts and effects**

- 5.11.95 The amendment will require works in or adjacent to the carriageway which will be undertaken through local traffic management measures. These measures are likely to include lane restriction with shuttle<sup>66</sup> signals (off-peak where reasonably practicable) and temporary lane closures and/or full carriageway closures. A full closure to through traffic of Bent Lane and Chase Lane will be required, with associated local diversion routes. However, these will be for a short duration of typically less than four weeks. The works will take place on short sections of Chase Lane at any given time and move along the route so that full closure of Chase Lane can be avoided and access to properties can be maintained. The closure of Chase Lane to through traffic will increase travel distance by less than 1km which is not considered to be significant. The effects on Bent Lane are reported in the Whitmore to Madeley Heath area (CA4). Where lane closures are required, these will be of a short duration of typically less than four weeks. Access to properties will be maintained with diversion routes defined through local traffic management plans.
- 5.11.96 Whilst construction of the amendment in isolation in any location will not result in any significant effect on traffic congestion and delays, there will be some congestion and delays to vehicle occupants, including bus occupants, of roads associated with the amendment when considered in combination. Given the overall duration of the works this will result in a new temporary minor adverse traffic delay effect on vehicle users of Meaford Road, Tittensor Road and the A34 Stone Road through Tittensor; Chase Lane and Winghouse Lane through Sandyford; and the A51 Stone Road though Stableford, which is significant.
- 5.11.97 For further information see the SES2 and AP2 ES Volume 5: Traffic and transport Map Book.

#### **Mitigation and residual effects**

##### *Other mitigation measures*

- 5.11.98 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

##### *Summary of likely residual significant effects*

- 5.11.99 The amendment will give rise to a new likely residual temporary minor adverse significant effect, on vehicle users of Meaford Road, Tittensor Road and the A34 Stone Road through Tittensor; Chase Lane and Winghouse Lane through Sandyford; and

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<sup>66</sup> Shuttle working means an area of carriageway where, owing to a temporary restriction, traffic has to flow first in one direction then in the other in a controlled manner. The definition is contained in: Department for Transport/Highways Agency (2009). Traffic Signs Manual, Chapter 8, Traffic Safety Measures and Signs for Road Works and Temporary Situations, Part 1: Design, p. 298. Available online at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/203669/traffic-signs-manual-chapter-08-part-01.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/203669/traffic-signs-manual-chapter-08-part-01.pdf)

A51 Stone Road through Stableford and will result in additional delay on traffic flows and delays to vehicle occupants.

### **Cumulative effects**

- 5.11.100 There are no new or different likely significant cumulative effects for traffic and transport as a result of the amendment acting in combination with any other AP2 amendments, AP1 amendments or any relevant committed development.

### **Water resources and flood risk**

#### *Scope, assumptions and limitations*

- 5.11.101 The assessment scope, key assumptions and limitations for water resources and flood risk are as set out in Volume 1, the SMR and SMR Addendum of the main ES and SMR Addendum 2 (see SES2 and AP2 ES Volume 5: Appendix CT-001-000).
- 5.11.102 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for water resources and flood risk.

#### *Existing environmental baseline*

- 5.11.103 The baseline water resources information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 15 of the main ES. Further details relating to water resources and flood risk for this area are provided in Volume 5: Appendix WR-002-003 and Appendix WR-003-003 and the Volume 5: Water resources and flood risk Map Book of the main ES.
- 5.11.104 This amendment is located within the vicinity of groundwater abstractions used for public water supply and will involve construction activities of a nature and scale that have potential water quality implications.

#### *Future environmental baseline*

### **Construction (2020)**

- 5.11.105 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

#### *Effects arising during construction*

- 5.11.106 The main ES reported no significant effects on groundwater quality due to site runoff and increased pollution risk in the vicinity of this amendment. This amendment has the potential to give rise to temporary adverse impacts on groundwater quality which could affect the groundwater abstractions in the area. However, the amendment will be constructed in accordance with the measures specifically designed to safeguard water resources outlined in the draft CoCP.
- 5.11.107 Therefore, the amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

### **Cumulative effects**

- 5.11.108 There are no new or different likely significant cumulative effects for water resources and flood risk as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments.

### **Summary of new or different likely residual significant effects as a result of the amendment**

- 5.11.109 The amendment will give rise to a new likely residual permanent major adverse significant effect on a ring ditch (a possible prehistoric burial) at Sandyford (STSo44), by substantially removing the asset during construction.
- 5.11.110 The amendment will give rise to a new likely residual temporary minor adverse significant effect on vehicle users of Meaford Road, Tittensor Road and the A34 Stone Road through Tittensor; Chase Lane and Winghouse Lane through Sandyford; and A51 Stone Road through Stableford and will result in additional delay on traffic flows and delays to vehicle occupants.

## **5.12 A change to Bill powers for an amendment to the proposed Swynnerton New Bridleway (AP2-003-010)**

- 5.12.1 The Bill provides for a new section of bridleway, Swynnerton New Bridleway, to connect retained sections of the existing Tittensor Road to the north and south of the HS2 route. The new bridleway would run from the closed section of Tittensor Road to the north of the HS2 route, passing to the south-west of Sandyford Farm on a maintenance access route and crossing under the HS2 route via the Swynnerton New Bridleway accommodation underbridge, and reconnecting to Tittensor Road to the south of the HS2 route. Tittensor Road would be diverted to the north-west of its existing alignment. See Map CT-06-225, F4 to F7, in the main ES Volume 2, CA3 Map Book. The Bill also provides for a new section of bridleway to the south of the HS2 route, Swynnerton New Bridleway 2, to replace a section of Swynnerton Bridleway 54 which would be permanently closed, to connect a retained section of Stab Lane and the diverted Tittensor Road. A 350m section of segregated route for non-motorised users, along the northern side of the A51 Stone Road to the north of the HS2 route, would be provided. See Map CT-06-225, D6 to C7, in the main ES Volume 2, CA3 Map Book.
- 5.12.2 The SES1 scheme amended the non-motorised users provision to be located along the southern side of the A51 Stone Road, between Swynnerton Bridleway 54 and the diverted Tittensor Road, on the northern side of the HS2 route. This design change did not require a change to Bill powers and was not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES with respect to any environmental topics.
- 5.12.3 Since submission of the SES1 and AP1 ES, further engagement with the owners of Sandyford Farm has identified a requirement for an alternative public right of way (PRoW) alignment away from land required for farm operations. The amended bridleway route, 625m in length, will connect the retained section of Tittensor Road, adjacent to Sandyford Farm, and the non-motorised user provision on the southern side of the A51 Stone Road, crossing the diverted Tittensor Road. The non-motorised

user provision, as amended in the SES1 scheme, will be shortened by 130m at the junction between the A51 Stone Road and the diverted Tittensor Road, due to the amended route of Swynnerton New Bridleway. See Map CT-06-225, F4 to C4, in the SES2 and AP2 ES Volume 2, CA3 Map Book.

- 5.12.4 The diverted Tittensor Road and the Tittensor Road overbridge will be widened by up to 4.3m, between Swynnerton New Bridleway 2 to the A51 Stone Road, to accommodate non-motorised users. A segregated 3.5m wide footway/bridleway will be provided to the west of the diverted Tittensor Road carriageway. See Map CT-06-225, D6 to D4, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.12.5 The section of bridleway, referred to as Swynnerton New Bridleway in the original scheme, that would connect retained sections of the existing Tittensor Road to the north and south of the HS2 route via the Swynnerton New Bridleway accommodation underbridge will no longer be required. The Swynnerton New Bridleway accommodation underbridge will be renamed as Swynnerton underbridge. See Map CT-06-225, G5 to F7, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.12.6 The amendment will be constructed over a period of one year and three months, commencing in 2022. Works will be managed from the Swynnerton embankment satellite compound.
- 5.12.7 The amendment to the proposed Swynnerton New Bridleway is outside the limits of the Bill and will require a change to Bill powers. See Map CT-05-225, G6 to C4 in the SES2 and AP2 ES Volume 2, CA3 Map Book.

### Topics included in the AP2 assessment

- 5.12.8 This amendment is considered to require reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, for traffic and transport. This is reported in this section.

### Traffic and transport

#### *Scope, assumptions and limitations*

- 5.12.9 The assessment scope, key assumptions and limitations for traffic and transport are as set out in Volume 1, the Scope and Methodology Report (SMR)<sup>67</sup> and SMR Addendum<sup>68</sup> of the main ES.
- 5.12.10 This amendment has the potential to result in new or different significant operational effects only. Therefore, there is no construction assessment for traffic and transport.

#### *Existing environmental baseline*

- 5.12.11 The baseline traffic and transport information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 14 of the main ES.

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<sup>67</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report (Appendix CT-001-001). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>68</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report Addendum (Appendix CT-001-002). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

- 5.12.12 The main road in the area is the A51 Stone Road which connects Stone to Stableford via Swynnerton and on to the M6 at Junction 15 via A519 Newcastle Road. Tittensor Road and Stab Lane are local roads which provide access to Swynnerton off the A51 Stone Road.
- 5.12.13 The local road network in this area generally operates well although some localised delays can be experienced particularly at peak times where local roads meet the main road network.
- 5.12.14 There are pedestrian footways adjacent to many of the roads in the built-up areas of Swynnerton. Footways vary in width and condition within these areas. Where there is no formal footway provision adjacent to a road, non-motorised user numbers are generally low. There are a number of PRow in the area including: Swynnerton Footpath 24, which connects the A51 Stone Road to Tittensor Road; Swynnerton Footpath 16, which continues north of A51 Stone Road, opposite Swynnerton Footpath 24, towards the settlement of Beech; and Swynnerton Bridleway 54, which continues north of A51 Stone Road, opposite the existing Stab Lane junction, and meets Swynnerton Footpath 16 south of the settlement of Beech.

#### *Future environmental baseline*

##### **Operation (2027 and 2041)**

- 5.12.15 The future baseline for operation in 2027 and 2041 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

#### *Effects arising from operation*

##### **Avoidance and mitigation measures**

- 5.12.16 No avoidance or mitigation measures, additional to those reported in the main ES, are required.

##### **Assessment of impacts and effects**

- 5.12.17 The main ES reported that the HS2 route would require the permanent stopping-up of Stab Lane and Tittensor Road. Stab Lane and Tittensor Road are locally used by equestrians and the stopping-up of these roads would affect the continuity of the route. The original scheme included the creation of two new bridleways, Swynnerton New Bridleway and Swynnerton New Bridleway 2, which would maintain connectivity for equestrians and all non-motorised users. The main ES reported, as a result of the stopping-up of Stab Lane and Tittensor Road, that non-motorised users of Stab Lane would be subject to a minor adverse significant severance effect, from increased travel distance of up to 150m, and non-motorised users of Tittensor Road would be subject to a minor adverse significant severance effect, from increased travel distance of up to 400m.
- 5.12.18 The amendment will provide an alternative alignment for Swynnerton New Bridleway which connects Tittensor Road to the diverted Tittensor Road, to the north of the HS2 route. The amendment also includes widening of the diverted Tittensor Road and Tittensor Road overbridge to accommodate non-motorised users. This amendment will not remove the significant severance effects on non-motorised users of Stab Lane and Tittensor Road reported in the main ES but does substantially improve the

bridleway provision for equestrians in the area and gives rise to a new minor permanent beneficial severance effect for equestrian users of PRoW in the area, which is significant.

- 5.12.19 For further information see SES2 and AP2 ES Volume 5: Appendix TR-001-000, and the SES2 and AP2 ES Volume 5: Traffic and Transport Map Book.

### **Mitigation and residual effects**

#### *Other mitigation measures*

- 5.12.20 No mitigation measures, additional to those reported in the main ES, are required.

#### *Summary of likely residual significant effects*

- 5.12.21 The amendment will substantially improve the bridleway provision for equestrians in the Swynnerton area and gives rise to a new likely residual minor permanent beneficial significant severance effect for equestrians.

### **Cumulative effects**

- 5.12.22 There are no new or different likely significant cumulative effects for traffic and transport as a result of the amendment acting in combination with any other AP2 amendments, AP1 amendments or any relevant committed development.

### **Monitoring**

- 5.12.23 Volume 1 of the main ES sets out the general approach to environmental monitoring during operation of the original scheme.
- 5.12.24 There are no changes to the monitoring requirements identified in the main ES for traffic and transport as a result of the amendment.

## **5.13 Additional land required and a change to Bill powers for a revised gas pipeline diversion under the Swynnerton embankment and Tittensor Road diversion and a temporary utility compound to the east of the Tittensor Road diversion (AP2-003-011)**

- 5.13.1 The Bill provides for the permanent diversion of an underground 600mm diameter National Grid<sup>69</sup> high-pressure gas pipeline, for 140m in length, which would cross the HS2 route 25m north-west of its existing alignment. See Map CT-06-225, E5, in the main ES Volume 2, CA3 Map Book. A further diversion to the same gas pipeline, for 170m in length, would cross the diverted Tittensor Road 30m south of its existing alignment. See Map CT-06-225, E6 to D7, in the main ES Volume 2, CA3 Map Book. Construction of the gas pipeline diversion would take nine months to complete, commencing in 2021, and would be managed from the Swynnerton North cutting main compound.

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<sup>69</sup> In 2017, National Grid Gas Distribution was rebranded as Cadent, which is an independent organisation.



- 5.13.2 Grassland habitat creation would be provided in the vicinity of the diverted pipeline as it passes under the HS2 route to the east. Four ecological mitigation ponds to provide replacement habitat for reptiles and amphibians, to the north of the HS2 route and 100m east of Tittensor Road overbridge, would be provided within areas of grassland habitat creation. See Map CT-06-225, E4 to D4, in the main ES Volume 2, CA3 Map Book.
- 5.13.3 The Bill also provides for the temporary storage of excavated material, adjacent to the HS2 route, for reuse within the scheme. Four temporary material stockpiles, associated with the Swynnerton embankment satellite compound, would be located to the south of the HS2 route between the stopped up Tittensor Road and the Tittensor Road realignment. See Map CT-05-225, F7 to E6, in the main ES Volume 2, CA3 Map Book.
- 5.13.4 Since submission of the Bill, further engagement with the utility provider has identified a requirement to reposition the locations where the diverted and existing pipelines connect, amend a 510m long section of the diverted pipeline and replace the two shorter diversions proposed within the original scheme with one longer diversion. There is also the requirement to provide a temporary utility compound.
- 5.13.5 The northern connection point will be repositioned 60m north-east of the location identified in the original scheme. As part of the amendment a 510m long section of the pipeline will be diverted south-west and cross the HS2 route. The pipeline will then head south and south-west across agricultural land and underneath the Tittensor Road diversion, before turning to the north and reconnecting with the existing pipeline alignment 5m south-west of the location identified in the original scheme. In total, the pipeline will be diverted up to 125m south of its existing alignment. See Map CT-06-225, E5 to D7, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.13.6 The realigned pipeline diversion will require adjustment to ecological mitigation. Two ecological mitigation ponds and the surrounding grassland habitat creation will be relocated from the east of Closepit Plantation to the west to accommodate the proposed gas pipeline diversion works. The areas of grassland habitat creation, provided in the original scheme to the east of Closepit Plantation, will be replaced by woodland habitat creation. Overall, woodland mitigation will be increased by 0.4ha to 1.2ha, and grassland mitigation will be reduced by 0.4ha to 0.5ha. The grassland habitat creation is provided primarily for great crested newts. The reduction in grassland is offset by woodland habitat creation which provides the same function for great crested newts.
- 5.13.7 The diversion works will be undertaken over a nine-month period, commencing in 2023.
- 5.13.8 A new utility compound (Tittensor Road utility compound) will be provided to manage the installation of the gas pipeline diversion. See Map CT-05-225, F7 to E6, in the SES2 and AP2 ES, Volume 2 CA3 Map Book. Tittensor Road utility compound will be located to the east of the Tittensor Road diversion.
- 5.13.9 The Tittensor Road utility compound will be operational for nine months, commencing during 2023, and will support an average of 15 workers per day (20 workers at peak times). Access to the new compound will be from the A51 Stone Road via site haul routes and Tittensor Road.

- 5.13.10 Tittensor Road utility compound occupies an area that overlaps with part of the Swynnerton embankment satellite compound and a number of its associated temporary material stockpiles. Whilst Tittensor Road utility compound is operational, the area for the Swynnerton embankment satellite compound and the associated temporary material stockpiles will not be fully utilised. Once the utility works are complete the compound and stockpile areas will return to full utilisation.
- 5.13.11 The realignment of the gas pipeline diversion is outside the limits of the Bill. This amendment will require a change to Bill powers and an additional 2ha of land, some of which will be from the following agricultural holdings: Swynnerton Estate (CA3/20) and Sandyford Farm (CA3/22). See Map CT-05-225, E7 to D7 and E4, in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that all of the additional land will be returned to its existing use following construction.

### Topics included in the AP2 assessment

- 5.13.12 This amendment is considered to require reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, for water resources and flood risk. This is reported in this section.
- 5.13.13 A combined assessment of new or different significant construction traffic and traffic related effects, as a result of changes in construction traffic flows, is reported in Section 7.

### Water resources and flood risk

#### *Scope, assumptions and limitations*

- 5.13.14 The assessment scope, key assumptions and limitations for water resources and flood risk are as set out in Volume 1, the Scope and Methodology Report (SMR)<sup>70</sup> and SMR Addendum<sup>71</sup> of the main ES and SMR Addendum 2 (see SES2 and AP2 ES Volume 5: Appendix CT-001-000).
- 5.13.15 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for water resources and flood risk.

#### *Existing environmental baseline*

- 5.13.16 The baseline water resources information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 15 of the main ES. Further details relating to water resources and flood risk for this area are provided in Volume 5: Appendix WR-002-003 and Appendix WR-003-003 and the Volume 5: Water resources and flood risk Map Book of the main ES.
- 5.13.17 This amendment is relatively remote from high or very high value surface water receptors. However, a pathway does exist from the diversion of the pipeline to the

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<sup>70</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report (Appendix CT-001-001). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>71</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report Addendum (Appendix CT-001-002). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

River Trent, which is a very high value receptor. It is also near to the public water supply abstraction borehole at Swynnerton.

- 5.13.18 This amendment will involve construction activities of a nature and scale that have potential water quality implications.

#### *Future environmental baseline*

##### **Construction (2020)**

- 5.13.19 The future baseline for construction in 2020 remains unchanged from that reported in the main ES volume 5: Appendix CT-004-000.

#### *Effects arising during construction*

- 5.13.20 The main ES reported no significant effects on groundwater quality due to site runoff and increased pollution risk in the vicinity of this amendment. The amendment has the potential to give rise to temporary adverse impacts on groundwater quality which could affect the water environment and the public water supply abstraction borehole at Swynnerton.
- 5.13.21 However, the amendment will be constructed in accordance with the measures specifically designed to safeguard water resources outlined in the draft Code of Construction Practice (CoCP)<sup>72</sup>.
- 5.13.22 Therefore, the amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

##### **Cumulative effects**

- 5.13.23 There are no new or different likely significant cumulative effects for water resources and flood risk as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments.

## **5.14 Additional land required and a change to Bill powers for the provision of a roundabout at the junction of the A51 Stone Road diversion/Tittensor Road diversion (AP2-003-012)**

- 5.14.1 The Bill provides for the permanent diversion of Tittensor Road, approximately 800m in length, 375m north-west of its existing alignment. The diverted Tittensor Road would cross over the HS2 route via Tittensor Road overbridge before connecting into the diverted A51 Stone Road via a priority-controlled T-junction<sup>73</sup> arrangement, approximately 100m west of Long Compton Farm. A segregated route for non-motorised users would be located along the northern side of the A51 Stone Road and would cross the A51 Stone Road to tie into the diverted Tittensor Road, to the north of the HS2 route. See Map CT-06-225, F9 to B4, in the main ES Volume 2, CA3 Map Book.

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<sup>72</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at <https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a>

<sup>73</sup> A T-junction is an at-grade junction of two roads, at which the minor roads joins the major roads approximately at right angles.

- 5.14.2 The SES1 scheme provides for the change to the segregated route for non-motorised users to be located along the southern side of the A51 Stone Road and would tie into the diverted Tittensor Road to the north of the HS2 route. See Map CT-06-225, D5 to B5, in the SES1 and AP1 ES Volume 2, CA3 Map Book.
- 5.14.3 The AP1 revised scheme (AP1-003-004: Additional land permanently required to widen the highway verge along the A51 Stone Road) provided for the permanent widening of the highway verge, by up to 8.8m and for a length of 130m, along the southern edge of the A51 Stone Road to improve visibility for vehicles joining the diverted A51 Stone Road from the diverted Tittensor Road. There would be a reduction in the landscape mitigation planting and grassland habitat creation included in the original scheme, as well as removal of a section of hedgerow habitat creation. See Map CT-06-225, E3 to D4, in the SES1 and AP1 ES Volume 2, CA3 Map Book.
- 5.14.4 Since submission of the SES1 and AP1 ES, further consideration has been given to a request from Swynnerton Parish Council to provide a roundabout at the diverted A51 Stone Road/diverted Tittensor Road junction in order to address perceived safety concerns at the junction. While addressing the safety concerns, the amendment is not expected to impact on traffic flows and delays. To enable this, the alignment of the A51 Stone Road diversion will be amended over a 495m section to ensure a compliant highway gradient to and from the roundabout junction. A reduced design speed of the A51 Stone Road and the diverted Tittensor Road will also be required to minimise the widening of the highway verge for visibility at the junction. See Map CT-06-225, F2 to A4, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.14.5 Additional highway earthworks will be required to lower the alignment of the A51 Stone Road diversion on the western side of the junction, up to 1m, through a section of cutting. To the east of the junction, additional earthworks will be required to raise the alignment of the A51 Stone Road diversion, up to 3.5m, and will require 300m<sup>2</sup> of additional land within Closepit Plantation Biodiversity Alert Site (BAS) on the southern side of the A51 Stone Road. To compensate for this loss, an additional 0.2ha of woodland habitat creation will be required adjacent to the Closepit Plantation BAS on the eastern side. A retaining wall, 40m in length and up to 1m high, will be required to the south of the A51 Stone Road to avoid the need for further additional land within Closepit Plantation BAS and to avoid the loss of the existing pond. See Map CT-06-225, E3, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.14.6 On the northern side of the A51 Stone Road diversion, the increased vertical alignment will require a retaining wall adjacent to Long Compton Farm, 145m in length and up to 3.2m in height. The retaining wall will sever the existing residential access to Long Compton Farm. A new shared access, 105m in length, to Long Compton Farm will be provided 115m to the east of the existing access off the A51 Stone Road diversion. This will provide access into Long Compton Farm at a new location on the eastern side of the property. Grassland habitat creation, 0.2ha, will be located either side of the proposed shared access with Long Compton Farm and will require a net increase of 370m of hedgerow habitat creation, continuing along the northern side of the A51 Stone Road. See Map CT-06-225, D4 to E3, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.14.7 A new highway balancing pond, located 100m east of Long Compton Farm, will be required due to the increase in the vertical alignment of the A51 Stone Road and

associated earthworks. Access to the balancing pond will be provided via the new shared access to Long Compton Farm. See Map CT-06-225, F2 to D3, in the SES2 and AP2 ES Volume 2, CA3 Map Book.

- 5.14.8 The increase in vertical alignment of the A51 Stone Road will require the permanent diversion of a Cadent high pressure gas main that passes underneath the A51 Stone Road, 300m east of the diverted Tittensor Road on the northern side of the HS2 route. The utility will be diverted over a length of 180m, to cross under the A51 Stone Road 25m further east than the existing gas main. See Map CT-06-225, E4 to E3, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.14.9 The amendment will be constructed over a period of one year, commencing in 2023. The works will be managed from two compounds; the Tittensor Road utility compound, for to the first six months, and the Swynnerton North Cutting main compound, for a period of six months thereafter. A temporary realignment of the A51 Stone Road, 280m in length, on the northern side of the A51 Stone Road will be required, followed by a temporary realignment, 150m in length, on the southern side of the A51 Stone Road, for a total duration of six months. See Map CT-05-225, E3 to D4, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.14.10 The provision of a roundabout at the junction of the A51 Stone Road/Tittensor Road diversion and associated works are outside the limits of the Bill. This amendment will result in a change to Bill powers and a requirement for an additional 4.4ha of land, some of which will be from Sandyford Farm (CA3/22). See Map CT-05-225, F2 to A4, in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that 2.9ha of the additional land will be returned to its existing use following construction. If the AP2 amendment is enacted, the AP1 amendment (AP1-003-004: Additional land permanently required to widen the highway verge along the A51 Stone Road) will not be required.

## Topics included in the AP2 assessment

- 5.14.11 This amendment is considered to require reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, for the following topics: community; ecology and biodiversity; and landscape and visual. These are reported in this section.

## Community

### *Scope, assumptions and limitations*

- 5.14.12 The assessment scope, key assumptions and limitations for community are as set out in Volume 1, the Scope and Methodology Report<sup>74</sup> (SMR) and SMR Addendum<sup>75</sup> of the main ES.

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<sup>74</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report (Appendix CT-001-001). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>75</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report Addendum (Appendix CT-001-002). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

- 5.14.13 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for community.

#### *Existing environmental baseline*

- 5.14.14 The baseline community information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 6 of the main ES.
- 5.14.15 North of Swynnerton, there are numerous small clusters of residential properties. This includes Long Compton Farm located on the A51 Stone Road to the north-east of Swynnerton and west of the M6.

#### *Future environmental baseline*

##### **Construction (2020)**

- 5.14.16 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000

#### *Effects arising during construction*

##### **Avoidance and mitigation measures**

- 5.14.17 No mitigation measures, additional to those reported in the main ES and draft Code of Construction Practice (CoCP)<sup>76</sup>, are required.

##### **Assessment of impacts and effects**

- 5.14.18 The main ES reported a temporary loss of land at six residential properties to the north of Swynnerton (including Long Compton Farm) due to road works associated with Swynnerton embankment and Swynnerton North cutting. The temporary loss of these small areas of land for up to nine months would not impact on the ability of the residents to use their properties and access would be maintained to the properties throughout the construction works. The main ES reported that this loss of land would result in a minor adverse effect, which would not be significant.
- 5.14.19 The amendment will permanently require additional areas of land from part of the residential garden and driveway at Long Compton Farm. The land will be required for the construction of a new retaining wall adjacent to the farm and a new alternative access to the east of the existing farm access. Access will be maintained to the property throughout the construction works. The amendment will not give rise to a new or different significant effect and will not change the level of significance of the permanent effects, as reported in the main ES. For further information see SES2 and AP2 ES Volume 5: Appendix CM-001-003.

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<sup>76</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at <https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a>

## **Mitigation and residual effects**

### *Other mitigation measures*

- 5.14.20 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

### *Summary of likely residual significant effects*

- 5.14.21 The amendment will not give rise to any new or different likely residual significant effects and will not change the level of significance of the effects reported in the main ES.

## **Cumulative effects**

- 5.14.22 There are no new or different likely significant cumulative effects for community as a result of the amendment acting in-combination with any other AP2 amendments or AP1 amendments.

## **Ecology and biodiversity**

### *Scope, assumptions and limitations*

- 5.14.23 The assessment scope, key assumptions and limitations for ecology and biodiversity are as set out in Volume 1, the SMR and SMR Addendum of the main ES and SMR Addendum 2 (see SES2 and AP2 ES Volume 5: Appendix CT-001-000).
- 5.14.24 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for ecology and biodiversity.
- 5.14.25 Where data are limited, a precautionary baseline has been built up according to the guidance provided in the SMR and SMR Addendum. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 5.14.26 The precautionary approach to the assessment that has been adopted identifies the likely significant environmental effects of the amendment.

### *Existing environmental baseline*

- 5.14.27 The ecological baseline of the area subject to the amendment has been based on field data collated for the main ES and SES1, aerial photography, and relevant information from regional and local sources.
- 5.14.28 A summary of the baseline information relevant to the assessment of the amendment is provided below. Further detail on the relevant new or updated baseline information is provided in BID-EC-019-000, including Map Series EC-02 which accompanies the SES2 and AP2 ES, and SES2 and AP2 ES Volume 5: Appendix EC-001-000, including Map Series EC-01.
- 5.14.29 For those receptors described in the main ES, further details are provided in Volume 2, CA3, Section 8, and Volume 5: Appendix EC-001-000, including Map Series EC-01.

Baseline ecology reports that accompanied the main ES are provided in BID-EC-002-000 to BID-EC-014-000, including Map Series EC-02 to EC-12<sup>77</sup>.

- 5.14.30 For those receptors described in SES<sub>1</sub>, further details are provided in Volume 2, CA<sub>3</sub>, Section 3. The baseline ecology report that accompanied SES<sub>1</sub> and AP<sub>1</sub> ES is provided in BID EC-004-000, including Map Series EC-02, EC-04, EC-05, EC-10, EC-11 and EC-12<sup>78</sup>.

### Designated sites

- 5.14.31 There is one BAS of relevance to the assessment, which is of district/borough value. Closepit Plantation BAS, covering an area of 1.6ha, is designated for its broadleaved woodland dominated by sycamore and three large eutrophic pools. Closepit Plantation BAS is located off the A51 Stone Road at Long Compton, partially within the area subject to the amendment.

### Habitats

- 5.14.32 Habitats within the area subject to the amendment include broadleaved woodland, mixed plantation woodland, neutral semi-improved grassland, improved grassland, arable, hedgerows and ponds. The habitats of relevance to the assessment of the amendment are described in further detail below.
- 5.14.33 Semi-natural broadleaved woodland is present at Closepit Plantation BAS. This qualifies as lowland mixed deciduous woodland, a habitat of principal importance listed under the provisions of Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006)<sup>79</sup> and a conservation priority of the Staffordshire Biodiversity Action Plan (BAP)<sup>80</sup>. The woodland at Closepit Plantation BAS is located partially within the area subject to the amendment. The woodland is of district/borough value.
- 5.14.34 Mixed plantation woodland is present to the north of the A51 Stone Road at Long Compton. This area of woodland is partially within the area subject to the amendment. This small area of woodland is of local/parish value.
- 5.14.35 Neutral semi-improved grassland is present to the north of the A51 Stone Road at Long Compton. This area qualifies as lowland meadow, which is a habitat of principal importance and a conservation priority of the Staffordshire BAP. This area of grassland is partially within the area subject to the amendment. This small area of grassland is of local/parish value.
- 5.14.36 Hedgerows within the area subject to the amendment are predominantly species-rich. Hedgerow with at least 80% cover of native woody species is a habitat of principal importance and a conservation priority of the Staffordshire BAP. These contribute

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<sup>77</sup> HS2 Ltd (2017). *High Speed Two (HS2) Phase 2a (West Midlands - Crewe), Background Information and Data*, Available online at: <https://www.gov.uk/government/publications/hs2-phase-2a-background-information-and-data-ecology-and-biodiversity>

<sup>78</sup> HS2 Ltd (2018). *High Speed Two (HS2) Phase 2a (West Midlands - Crewe), Background Information and Data*, Supplementary ecological baseline data (BID EC-004-000), Available online at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/692664/G33\\_Ecological\\_baseline\\_BID-EC-004-000\\_WEB.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/692664/G33_Ecological_baseline_BID-EC-004-000_WEB.pdf)

<sup>79</sup> Natural Environment and Rural Communities Act 2006 (2006 CHAPTER 16). Her Majesty's Stationery Office, London.

<sup>80</sup> Staffordshire Biodiversity Partnership. *Staffordshire Biodiversity Action Plan* [online]. Available at: <http://www.sbap.org.uk/>



towards a wider hedgerow network within the Stone and Swynnerton area that is district/borough value.

- 5.14.37 Three ponds are located within Closepit Plantation BAS. These ponds are described as eutrophic pools in the designation citation for Closepit Plantation BAS. Eutrophic standing water is a habitat of principal importance and a conservation priority of the Staffordshire BAP. One of the three ponds is located directly adjacent to the area subject to the amendment. The ponds are of district/borough value.

### Species

- 5.14.38 Protected and/or notable species that are known or assumed to occur within the area subject to the amendment include bats, great crested newt, common amphibian species, badger, polecat, harvest mouse, European hedgehog, brown hare and common reptile species.
- 5.14.39 The main ES reported a bat assemblage associated with habitats at Closepit Plantation BAS and Stabhill Plantation. Field surveys in this area recorded five tree roosts and two confirmed building roosts. Species present within the roosts include noctule and unidentified bat species. The area subject to the amendment contains three trees that exhibit moderate potential to support bat roosts, as well as foraging habitats within and adjacent to Closepit Plantation BAS. The bat assemblage includes species of principal importance and species that are conservation priorities of the Staffordshire BAP. The bat assemblage associated with the habitats at Closepit Plantation BAS and Stabhill Plantation is of county value.
- 5.14.40 The main ES, as amended by SES1, reported a great crested newt metapopulation<sup>81</sup> between Yarnfield and Swynnerton (AMP<sup>82</sup> 3.1). Field surveys determined the presence of great crested newt in 17 ponds of 41 surveyed, within a network of 42 ponds assumed to be used by this metapopulation. Twelve of the ponds within the metapopulation are within the land required for the original scheme. No additional ponds within the metapopulation are within the area subject to the amendment, however one pond at Closepit Plantation BAS is directly adjacent to the area subject to the amendment. Terrestrial habitats likely to be used by this metapopulation also occur within the area subject to the amendment, in the form of hedgerows, grassland and woodland. Great crested newt is an Annex 2<sup>83</sup> species, a species of principal importance and a conservation priority of the Staffordshire BAP. The great crested newt metapopulation between Yarnfield and Swynnerton is of county value.
- 5.14.41 The main ES reported populations of amphibian species including palmate newt, smooth newt, common toad and common frog, identified through field surveys, within ponds throughout the Stone and Swynnerton area. Amphibian species are assumed to be present in ponds that have not yet been surveyed. The area subject to the amendment includes grassland, hedgerow and woodland habitats that are likely to be used by these species. Common toad is a species of principal importance.

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<sup>81</sup> A metapopulation is a group of spatially separated populations that interact. Metapopulations are described in BID-EC-007-000 (which accompanied the main ES) and BID-EC-004-000 (which accompanies the SES and AP ES).

<sup>82</sup> AMP refers to Amphibian Meta Population.

<sup>83</sup> Annex 2 of the EU's Habitats Directive (1992) lists priority species whose conservation requires the designation of Special Areas of Conservation (SAC).

The population of common amphibians throughout Stone and Swynnerton is of local/parish value.

- 5.14.42 The main ES reported populations of common reptile species such as grass snake and slow-worm, identified through desk study records, as being potentially present at low numbers throughout the Stone and Swynnerton area. Grass snake and slow-worm are both species of principal importance. Grass snake is also a conservation priority of the Staffordshire BAP. The area subject to the amendment includes suitable habitats for these species. If present, these populations are of local/parish value.
- 5.14.43 The main ES, as amended by SES1, reported at least 12 social groups of badger throughout the Stone and Swynnerton area, identified through field surveys. The area subject to the amendment includes suitable sett building and foraging habitats for badgers. The badger populations throughout the Stone and Swynnerton area are of local/parish value.
- 5.14.44 The main ES reported populations of other mammals including polecat, harvest mouse, European hedgehog and brown hare, identified through desk study records, as being potentially present throughout the Stone and Swynnerton area. The area subject to the amendment includes suitable habitats for these species. If present, these populations are of local/parish value.

#### *Future environmental baseline*

##### **Construction (2020)**

- 5.14.45 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

#### *Effects arising during construction*

##### **Avoidance and mitigation measures**

- 5.14.46 The assessment assumes implementation of the measures set out within the draft CoCP.
- 5.14.47 A retaining wall has been included within the design of the vertical alignment change of the A51 Stone Road to reduce the loss of habitats within Closepit Plantation BAS. The retaining wall will allow the retention of a eutrophic pool which forms part of the reason for the designation of Closepit Plantation BAS.

##### **Assessment of impacts and effects**

- 5.14.48 All of the effects within this section are reported in the absence of other mitigation.

#### *Designated sites*

- 5.14.49 The main ES reported the loss of 0.1ha (3%) of Closepit Plantation LWS and a fragmentation effect through the isolation of the woodland and pond habitats at Closepit Plantation LWS by the construction of the original scheme. These habitats are the reason for the designation of the LWS and the fragmentation effect was reported in the main ES as a permanent adverse effect that is significant at district/borough level. Since the production of SES1, Closepit Plantation has been re-designated as a BAS, as reported in SES2. The amendment will result in the loss of an

additional 300m<sup>2</sup> of broadleaved woodland at Closepit Plantation BAS. The amendment will result in a different significant effect on Closepit Plantation BAS. However, this will not change the level of significance of the effect as reported in the main ES.

### *Habitats*

- 5.14.50 The main ES, as amended by SES2, reported the loss of 0.1ha of lowland mixed deciduous woodland at Closepit Plantation BAS, which would result in a permanent adverse effect that is significant at the district/borough level. The amendment will result in the loss of an additional 300m<sup>2</sup> of lowland mixed deciduous woodland at Closepit Plantation BAS. The loss of additional woodland will give rise to a different significant effect on lowland mixed deciduous woodland at Closepit Plantation. However, this will not change the level of significance of the effect as reported in the main ES, as amended by SES2.
- 5.14.51 On a precautionary basis, the main ES reported a loss of 44.8km of hedgerow habitats within the Stone and Swynnerton area, which would result in a permanent adverse effect that is significant at the district/borough level. The amendment will result in the loss of an additional 260m of species-rich hedgerow and 100m of species-poor hedgerow. In the context of the hedgerow network within the Stone and Swynnerton area, this additional loss does not represent a new or different significant effect.
- 5.14.52 It is not likely that any other effects on habitats of relevance at more than the local/parish level will occur as a result of the amendment. Additional local/parish level effects arising from the AP2 revised scheme are listed in SES2 and AP2 ES Volume 5: Appendix EC-016-000.

### *Species*

- 5.14.53 The main ES reported the direct loss of bat roosts and the loss of foraging and commuting habitat used by the assemblage of bats associated with Closepit Plantation and Stabhill Plantation, which would result in a permanent adverse effect that is significant at the county level. The amendment will result in the loss of 300m<sup>2</sup> of broadleaved woodland at Closepit Plantation, which includes three trees that exhibit moderate potential to support roosting bats, as well as mixed plantation woodland, semi-improved grassland and hedgerows that offer foraging and commuting habitat for bats. The loss of assumed bat roosts and foraging and commuting habitats will give rise to a different significant effect on the bat assemblage associated with Closepit Plantation and Stabhill Plantation. However, this will not change the level of significance of this effect as reported in the main ES.
- 5.14.54 The main ES, as amended by SES1, reported the loss of 12 ponds and associated terrestrial habitats that are known or assumed to be used by the great crested newt metapopulation between Yarnfield and Swynnerton (AMP 3.1), which would result in a permanent adverse effect that is significant at up to county level. The amendment will not result in the loss of additional ponds, and indirect impacts to ponds which are assumed to support great crested newts will be controlled through implementation of measures in the draft CoCP. The amendment will result in the loss of 300m<sup>2</sup> of broadleaved woodland at Closepit Plantation that is assumed to be used as terrestrial habitats by the great crested newt metapopulation. The additional loss of terrestrial habitats will give rise to a different significant effect on the great crested newt

metapopulation between Yarnfield and Swynnerton. However, this will not change the level of significance of this effect as reported in the main ES.

- 5.14.55 It is not likely that any other effects on species of relevance at more than the local/parish level will occur as a result of the amendment. Additional local/parish level effects arising from the AP2 revised scheme are listed in SES2 and AP2 ES Volume 5: Appendix EC-016-000.

### **Mitigation and residual effects**

#### *Other mitigation measures*

- 5.14.56 The main ES reported habitat creation measures adjacent to Closepit Plantation BAS to compensate for the loss of woodland and the fragmentation effect upon the BAS, including the creation of species-rich grassland and semi-natural woodland. The amendment includes the provision of an additional 0.2ha of woodland habitat creation to the east of Closepit Plantation BAS. The additional habitat creation will compensate for the loss of 300m<sup>2</sup> of broadleaved woodland to the amendment. A temporary adverse effect upon the lowland mixed deciduous woodland within Closepit Plantation BAS will occur until the woodland habitat creation has become established, after which this measure will reduce the effects resulting from this amendment on the woodland habitat at Closepit Plantation BAS to a level that is not significant.
- 5.14.57 The amendment will result in a change in the extent and distribution of hedgerow habitat creation. Approximately 110m of hedgerow habitat creation to the north-east of Closepit Plantation BAS along the A51 Stone Road will no longer be provided, however 480m of hedgerow creation will be provided to the north of the A51 Stone Road at Long Compton Farm. The amendment will also result in the loss of an additional 360m of hedgerow. The combined result of these changes will be a 10m net increase in the length of hedgerow within the area subject to the amendment, after the implementation of mitigation. In the context of the hedgerow network within the Stone and Swynnerton area, this does not represent a new or different significant effect.
- 5.14.58 The main ES reported habitat creation measures adjacent to the retained sections of Closepit Plantation BAS and Stabhill Plantation to compensate for the loss of foraging, commuting and roosting habitat for bats, including the creation of species-rich grassland, ponds and semi-natural woodland. The amendment includes the provision of an additional 0.2ha of woodland habitat creation to the east of Closepit Plantation BAS, 0.2ha of grassland habitat creation to the north of the A51 Stone Road and a net increase of 10m of hedgerow creation to the north of the A51 Stone Road. Once established, these habitat creation measures will provide suitable bat foraging and commuting habitat. Artificial roosting provision will be provided within and adjacent to these habitat creation areas to replace bat roosts that will be lost to construction, in accordance with the Ecological Principles of Mitigation within the SMR Addendum. These measures will reduce the different adverse effect resulting from this amendment on the bat assemblage associated with Closepit Plantation BAS and Stabhill Plantation to a level that is not significant.
- 5.14.59 The main ES reported provision of ponds, species-rich neutral grassland and broadleaved woodland to compensate for the loss of breeding sites, foraging habitat

and places of shelter for great crested newt. The amendment includes the provision of 0.2ha of additional woodland habitat creation to the east of Closepit Plantation BAS. Once established these habitats will reduce the different adverse effect resulting from this amendment on the great crested newt metapopulation between Yarnfield and Swynnerton to a level that is not significant.

#### *Summary of likely residual significant effects*

- 5.14.60 With the implementation of the mitigation proposed, the ecological effects arising from the amendment are reduced to a level where they are not considered to be significant. The significant effects of the amendment in this area are therefore unchanged from those reported in the main ES and SES2.

#### **Cumulative effects**

- 5.14.61 There are no new or different likely significant cumulative effects for ecology and biodiversity as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments. The combined effect on hedgerows as a result of the AP2 revised scheme is reported at a route-wide level in SES2 and AP2 ES, Volume 3, Route-wide effects.

#### **Landscape and visual**

##### *Scope, assumptions and limitations*

- 5.14.62 The assessment scope, key assumptions and limitations for landscape and visual are as set out in Volume 1, the SMR and SMR Addendum of the main ES.
- 5.14.63 The amendment has the potential to result in new or different construction and operation effects for visual only. Therefore, there is no construction or operational assessment for landscape.

##### *Existing environmental baseline*

- 5.14.64 The baseline landscape and visual information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 11 of the main ES.

#### **Visual baseline**

- 5.14.65 The amendment requires land outside of the landscape and visual study area for the main ES and therefore a new viewpoint has been identified to represent the view from Long Compton Farm and the A51 Stone Road. This viewpoint is described in the SES2 and AP2 ES Volume 5: Appendix LV-001-003 and summarised below.

##### *View west along the A51 Stone Road near Long Compton Farm (viewpoint 017.02.021)*

- 5.14.66 This new viewpoint has been identified to represent the views experienced by residents of Long Compton Farm and users of the A51 Stone Road, who currently look out across gently undulating pastures bounded by hedgerows with scattered individual trees. Blocks of woodland and small plantations are a common feature. Closepit Plantation is adjacent to the road, with Calloway Pit, The Stretters and The Greathills on the higher land to the north where they contribute to a partially wooded

skyline. The foreground comprises the A51 Stone Road with its narrow grass verges and low hedgerow boundaries.

### *Future environmental baseline*

#### **Construction (2020) and operation (2027)**

- 5.14.67 The future baseline for construction in 2020 and operation in 2027 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### *Temporary effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.14.68 No avoidance or mitigation measures additional to those reported in the main ES and draft CoCP are identified.

#### **Assessment of impacts and effects**

##### *View west along the A51 Stone Road near Long Compton Farm (viewpoint 017.02.021)*

- 5.14.69 Users of the A51 Stone Road and residents at Long Compton Farm will have close distance views of construction activity associated with the modifications to the A51 Stone Road and introduction of a new roundabout at the junction of the A51 Stone Road/Tittensor Road.
- 5.14.70 The amendment will also include a new balancing pond and new access road to Long Compton Farm. Construction activity associated with the amendment will dominate foreground views. It will include works to increase the vertical alignment of the A51 Stone Road by up to 3.5m on the eastern side of the junction. Construction of a retaining wall, 145m in length and up to 3.2m in height on the northern side of the A51 Stone Road adjacent to Long Compton Farm, will require extensive earthworks and movement of surplus excavated material. This and the removal of mature vegetation from the front garden of the property and along the southern side of the A51 Stone Road will substantially change the rural view currently experienced. Construction of the amendment will therefore give rise to a high magnitude of change and a new major adverse significant effect, which is not reported in the main ES.
- 5.14.71 For further information see SES2 and AP2 ES Volume 5: Appendix LV-001-003 and SES2 and AP2 ES Volume 5: Landscape and visual Map Book.

#### **Mitigation and residual effects**

##### *Other mitigation measures*

- 5.14.72 No mitigation measures additional to those reported in the main ES and draft CoCP are identified.

##### *Summary of likely residual significant effects*

- 5.14.73 The temporary residual significant effect during construction remains as described above. This effect will be temporary and reversible in nature lasting only for the duration of the construction works. The residual effect will generally arise from the widespread presence of construction activity and construction plant within the

landscape and viewed by surrounding residents, and users of public rights of way (PRoW) and main roads within the study area.

- 5.14.74 The significant effect that will remain after implementation of construction phase mitigation is summarised below.
- 5.14.75 The amendment to provide a roundabout at the junction of the A51 Stone Road/Tittensor Road will give rise to a new likely residual significant construction visual effect on the view west along the A51 Stone Road near Long Compton Farm (viewpoint 017.02.021), which will be major adverse.

### **Cumulative effects**

- 5.14.76 There are no new or different likely significant cumulative effects for landscape and visual as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments.

### *Permanent effects arising during operation*

### **Avoidance and mitigation measures**

- 5.14.77 No avoidance or mitigation measures additional to those reported in the main ES are identified.

### **Assessment of impacts and effects**

#### *View west along the A51 Stone Road near Long Compton Farm (viewpoint 017.02.021)*

- 5.14.78 The amendment to provide a roundabout at the junction of the A51 Stone Road/Tittensor Road will substantially change the views in this location, particularly those from Long Compton Farm, where vegetation which would screen views will be lost from the front garden of the property. The A51 Stone Road will require a new retaining wall, 145m in length and up to 3.2m in height, in front of the residential property. The amendment will also result in partial loss of vegetation on the southern side of the A51 Stone Road.
- 5.14.79 At year 1, residents of Long Compton Farm will have foreground views across and along the road corridor. The retaining wall will foreshorten more distant views and the new farm access track and balancing pond will be very noticeable. The change in the character of the views experienced by residents and road users as a result of these new features will be substantial. The amendment will, therefore give rise to a high magnitude of change and a new major adverse significant effect not reported in the main ES.
- 5.14.80 At year 15 and year 60, the maturing mitigation planting along the road corridor will replace some of the trees removed during construction, screen views of the new section of the A51 Stone Road, and achieve greater integration of the road into the wider landscape. The new access to Long Compton Farm and balancing pond will become less visible over time. The retaining wall will, however, continue to be a prominent and uncharacteristic feature in front of Lower Compton Farm, where it will interrupt longer rural views. Due to the proximity and scale of the retaining wall in this location, there will continue to be a substantial change to the view. Operation of the

amendment will therefore give rise to a high magnitude of change and new major adverse significant effect, which is not reported in the main ES.

- 5.14.81 For further information see SES2 and AP2 ES Volume 5: Appendix LV-001-003 and SES2 and AP2 ES Volume 5: Landscape and visual Map Book.

### **Mitigation and residual effects**

#### *Other mitigation measures*

- 5.14.82 No mitigation measures, additional to those reported in the main ES, are identified.

#### *Summary of likely residual significant effects*

- 5.14.83 The amendment to provide a roundabout at the junction of the A51 Stone Road/Tittensor Road will give rise to a new likely residual significant operational visual effect on the view west along the A51 Stone Road near Long Compton Farm (viewpoint 017.02.021) which will be major adverse at year 15 and year 60.

### **Cumulative effects**

- 5.14.84 There are no new or different likely significant cumulative effects for landscape and visual as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments.

### **Monitoring**

- 5.14.85 Volume 1 of the main ES sets out the general approach to environmental monitoring during operation of the original scheme.
- 5.14.86 There are no changes to the monitoring requirements identified in the main ES for landscape and visual as a result of the amendment.

### **Summary of new or different likely residual significant effects as a result of the amendment**

- 5.14.87 The amendment will give rise to a new likely residual major adverse significant construction effect at viewpoint 017.02.021. There will also be a new likely residual major adverse significant operation effect at year 15 and year 60 at the same viewpoint.

## **5.15 Additional land required for a water treatment facility at the Severn Trent Water Limited Mill Meece Pumping Station (AP2-003-013)**

- 5.15.1 The HS2 route crosses close to the Severn Trent Water Whitmore public groundwater supply borehole, passing through the abstraction's groundwater source protection zone (SPZ1) and resulting in potential impacts during construction as described in Volume 2, CA4, Section 15 of the main ES.
- 5.15.2 Abstraction from the Whitmore public water supply borehole would be suspended temporarily during the construction period for works in the area in order to protect against the risk of deterioration of the quantity or quality of water available to the



public supply. On completion of construction, abstraction from the Whitmore public water supply borehole would be resumed.

- 5.15.3 Since submission of the Bill, further design development and engagement with Severn Trent Water has identified three existing Severn Trent Water sites in suitable locations that could maintain the current water supply whilst abstraction from the Whitmore public water supply borehole is suspended temporarily during construction of the scheme. One of these locations is at the existing Severn Trent Water Mill Meece Pumping Station at Mill Meece Marsh, adjacent to the West Coast Main Line (WCML), 3.4km south-west of the Swynnerton accommodation underbridge. See Map CT-06-225-L3, C5, in the SES2 and AP2 ES Volume 2, CA3 Map Book. The other two additional locations are provided for in AP2-002-009: Additional land required for a water treatment facility at the Severn Trent Water Limited Swynnerton Pumping Station and AP2-002-015: Additional land required for a water treatment facility at the Severn Trent Water Hanchurch Distribution and Storage Reservoir.
- 5.15.4 Additional land is required to the north-east of the existing Mill Meece Pumping Station to allow for an additional permanent water treatment facility, including an access road and parking for operation and maintenance of the facility. The new treatment facility will increase the volume of water that can be processed on site. The footprint of the new treatment facility will be 0.1ha.
- 5.15.5 The amendment will result in the loss of a tree belt, 130m in length, adjacent to the compound. Approximately 0.3ha of woodland habitat creation and 230m of hedgerow habitat creation will be provided along the new access road and on the north-east perimeter of the site. See Map CT-06-225-L3, B6 to C5, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.15.6 The amendment will be constructed over a period of one year and six months, commencing in 2020.
- 5.15.7 A new temporary compound will be provided to manage the installation of the new water treatment facility. The Severn Trent Water Mill Meece compound will be operational for up to one year and six months, commencing during 2020, and will support an average of 12 workers per day (20 workers at peak times). Access to the new compound will be from the M6 Junction 15, along the A519 Newcastle Road and along Mill Meece Marsh.
- 5.15.8 The land required for the new treatment facility, including access, parking and mitigation planting, is outside the limits of the Bill. This amendment will result in a requirement for an additional 3.4ha of land, some of which will be from Swan Inn Farm (CA4/22). See Map CT-05-225-L3, C6 to C5, in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that 2.2ha of the additional land will be returned to its existing use following construction.

### **Topics included in the AP2 assessment**

- 5.15.9 This amendment is considered to require reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, for the following topics: cultural heritage; ecology and biodiversity; landscape and visual; and water resources and flood risk. These are reported in this section.

## Cultural heritage

### *Scope, assumptions and limitations*

- 5.15.10 The assessment scope, key assumptions and limitations for cultural heritage are as set out in Volume 1, the Scope and Methodology Report (SMR)<sup>84</sup> and SMR Addendum<sup>85</sup> of the main ES and SMR Addendum 2 (see SES2 and AP2 ES Volume 5: Appendix CT-001-000).
- 5.15.11 There will be no physical impact on the Severn Trent Water Mill Meece Pumping Station (STSo84), a grouping of designated Grade II\* and Grade II listed buildings.
- 5.15.12 The amendment has the potential to result in new or different temporary or permanent significant construction effects only. Therefore, there is no operational assessment for cultural heritage.

### *Existing environmental baseline*

- 5.15.13 The baseline cultural heritage information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 7 of the main ES.
- 5.15.14 The Severn Trent Water Mill Meece Pumping Station (STSo84), a grouping of designated Grade II\* and Grade II listed buildings of high value, lie wholly within the land required for the amendment. This asset was not reported in the main ES as it is located outside of the original scheme study area.
- 5.15.15 Further information about this asset is provided in the SES2 and AP2 ES Volume 5: Appendix CH-002-000 and Map Series CH-01 and CH-02 in the SES2 and AP2 ES Volume 5: Cultural heritage Map Book.

### *Future environmental baseline*

#### **Construction (2020)**

- 5.15.16 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### *Effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.15.17 No avoidance or mitigation measures additional to those reported in the main ES and draft Code of Construction Practice (CoCP)<sup>86</sup> are identified.

#### **Assessment of impacts and effects**

- 5.15.18 Construction activities associated with the water treatment facility will affect the setting of the Severn Trent Water Mill Meece Pumping Station (STSo84), a grouping

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<sup>84</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report (Appendix CT-001-001). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>85</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report Addendum (Appendix CT-001-002). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>86</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at <https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a>

of designated Grade II\* and Grade II listed buildings of high value. The buildings derive some of their significance from their group value as intact Edwardian industrial buildings in a tranquil rural location. Construction of the amendment will introduce temporary noise and traffic impacts on the historic setting of the asset. This will give rise to a new temporary low adverse impact and a new temporary moderate adverse effect, which is significant. There will be no direct physical impact on the buildings.

- 5.15.19 The presence of a modern industrial structure adjacent to the Severn Trent Water Mill Meece Pumping Station (STSo84) will introduce a permanent visual impact on the historic setting of the asset. This will give rise to a new permanent low adverse impact and a new permanent moderate adverse effect, which is significant.
- 5.15.20 For further information see Map Series CH-01 and CH-02 in the SES2 and AP2 ES Volume 5: Cultural heritage Map Book and the SES2 and AP2 ES Volume 5: Appendix CH-003-000.

### **Mitigation and residual effects**

#### *Other mitigation measures*

- 5.15.21 In addition to the mitigation measures reported in the main ES and draft CoCP, the detailed design of the new water treatment plant will seek to take account of the local context and setting of the existing Severn Trent Water Mill Meece Pumping Station. This would further integrate the new water treatment plant and associated infrastructure into the landscape.

#### *Summary of likely residual significant effects*

- 5.15.22 The temporary effects of construction activity on the setting of the Severn Trent Water Mill Meece Pumping Station (STSo84) has been considered. However, they are largely reversible in nature and will be restricted to the duration of the construction works.
- 5.15.23 The amendment will give rise to a new likely residual permanent moderate adverse significant effect on the setting of a grouping of Grade II\* and Grade II listed buildings at the Severn Trent Water Mill Meece Pumping Station (STSo84).

### **Cumulative effects**

- 5.15.24 There are no new or different likely significant cumulative effects for cultural heritage as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments.

### **Ecology and biodiversity**

#### *Scope, assumptions and limitations*

- 5.15.25 The assessment scope, scope, key assumptions and limitations for ecology and biodiversity are as set out in Volume 1, the SMR and SMR Addendum of the main ES and SMR Addendum 2 (see SES2 and AP2 ES Volume 5: Appendix CT-001-000).
- 5.15.26 The amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for ecology and biodiversity.

- 5.15.27 Where data are limited, a precautionary baseline has been built up according to the guidance provided in the SMR and SMR Addendum. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 5.15.28 The precautionary approach to the assessment that has been adopted identifies the likely significant environmental effects of the amendment.

### *Existing environmental baseline*

- 5.15.29 The ecological baseline of the area subject to the amendment has been based on field data collated for the main ES and SES1, aerial photography, and relevant information from regional and local sources.
- 5.15.30 A summary of the baseline information relevant to the assessment of the amendment is provided below. Further detail on the relevant new or updated baseline information is provided in BID-EC-019-000, including Map Series EC-02 which accompanies the SES2 and AP2 ES, and SES2 and AP2 ES Volume 5: Appendix EC-001-000, including Map Series EC-01.
- 5.15.31 For those receptors described in the main ES, further details are provided in Volume 2, CA3, Section 8, and Volume 5: Appendix EC-001-000, including Map Series EC-01. Baseline ecology reports that accompanied the main ES are provided in BID-EC-002-000 to BID-EC-014-000, including Map Series EC-02 to EC-12<sup>87</sup>.
- 5.15.32 For those receptors described in SES1, further details are provided in Volume 2, CA3, Section 3. The baseline ecology report that accompanied SES1 and AP1 ES is provided in BID EC-004-000, including Map Series EC-02, EC-04, EC-05, EC-10, EC-11 and EC-12<sup>88</sup>.

### **Designated sites**

- 5.15.33 There are no designated sites of relevance to the assessment of the amendment.

### **Habitats**

- 5.15.34 Habitats within the area subject to the amendment include amenity grassland, improved grassland, arable, hedgerows, a drainage ditch, a mature tree belt and scattered trees. The habitats of relevance to the assessment of the amendment are described in further detail below.
- 5.15.35 Hedgerows within the area subject to the amendment are assumed to be predominantly species-rich. Hedgerow with at least 80% cover of native woody species is a habitat of principal importance in Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006)<sup>89</sup> and a conservation priority of the Staffordshire Biodiversity Action Plan (BAP)<sup>90</sup>. These contribute towards a wider

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<sup>87</sup> HS2 Ltd (2017). *High Speed Two (HS2) Phase 2a (West Midlands - Crewe), Background Information and Data*, Available online at: <https://www.gov.uk/government/publications/hs2-phase-2a-background-information-and-data-ecology-and-biodiversity>

<sup>88</sup> HS2 Ltd (2018). *High Speed Two (HS2) Phase 2a (West Midlands - Crewe), Background Information and Data*, Supplementary ecological baseline data (BID EC-004-000), Available online at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/692664/G33\\_Ecological\\_baseline\\_BID-EC-004-000\\_WEB.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/692664/G33_Ecological_baseline_BID-EC-004-000_WEB.pdf)

<sup>89</sup> Natural Environment and Rural Communities Act 2006 (2006 CHAPTER 16). Her Majesty's Stationery Office, London.

<sup>90</sup> Staffordshire Biodiversity Partnership. Staffordshire Biodiversity Action Plan [online]. Available at: <http://www.sbap.org.uk/>

hedgerow network within the Stone and Swynnerton area that is of district/borough value.

5.15.36 A drainage ditch runs along the northern edge of the Mill Meece Pumping Station. The watercourse and associated habitats are likely to provide corridors for wildlife dispersal. The drainage ditch is located within the area subject to the amendment. The drainage ditch is of local/parish value.

5.15.37 A tree belt comprising mature and semi-mature native broadleaved trees is present along the eastern boundary of the Mill Meece Pumping Station and a number of scattered semi-mature native broadleaved trees are also present within the area subject to the amendment. These trees are of local/parish value.

### **Species**

5.15.38 Protected and/or notable species that are known or assumed to occur within the area subject to the amendment include bats, great crested newt, badger, polecat, harvest mouse, European hedgehog, brown hare, common amphibian species and common reptile species.

5.15.39 The buildings, tree belt and scattered trees at Mill Meece Pumping Station within the area subject to the amendment offer suitable habitats for bats, but do not form part of an existing bat assemblage reported within the main ES. On a precautionary basis these habitats are assumed to support bat roosts and to provide foraging and commuting habitat for an assemblage of bats associated with habitats at Mill Meece Pumping Station. The assumed bat assemblage associated with habitats at Mill Meece Pumping Station is of up to county value.

5.15.40 The hedgerows and drainage ditch within the area subject to the amendment are located within 40m of two ponds. On a precautionary basis, these ponds are assumed to support breeding populations of great crested newt that does not form part of an existing metapopulation reported within the main ES or SES1. The hedgerows and ditch are assumed to offer terrestrial habitat for the assumed great crested newt populations within the ponds. Great crested newt is an Annex 2<sup>91</sup> species, a species of principal importance and a conservation priority of the Staffordshire BAP. The assumed great crested newt populations at Mill Meece Pumping Station are of up to county value.

5.15.41 The main ES, as amended by SES1, reported at least 12 social groups of badger throughout the Stone and Swynnerton area, identified through field surveys. The area subject to the amendment includes suitable sett building and foraging habitats for badgers. The badger populations throughout the Stone and Swynnerton area are of local/parish value.

5.15.42 The main ES reported populations of other mammals including polecat, harvest mouse, European hedgehog and brown hare, identified through desk study records, as being potentially present throughout the Stone and Swynnerton area. The area

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<sup>91</sup> Annex 2 of the EU's Habitats Directive (1992) lists priority species whose conservation requires the designation of Special Areas of Conservation (SAC).

subject to the amendment includes suitable habitats for these species. If present, these populations are of local/parish value.

- 5.15.43 The main ES reported populations of amphibian species including palmate newt, smooth newt, common toad and common frog, identified through field surveys, within ponds throughout the Stone and Swynnerton area. Amphibian species are assumed to be present in ponds that have not yet been surveyed. The area subject to the amendment includes ponds, grassland, hedgerow and woodland habitats that are likely to be used by these species. Common toad is a species of principal importance. The populations of common amphibians throughout Stone and Swynnerton are of local/parish value.
- 5.15.44 The main ES reported populations of common reptile species such as grass snake and slow-worm, identified through desk study records, as being potentially present at low numbers throughout the Stone and Swynnerton area. Grass snake and slow-worm are both species of principal importance. Grass snake is also a conservation priority of the Staffordshire BAP. The area subject to the amendment includes suitable habitats for these species. If present, these populations are of local/parish value.

#### *Future baseline*

##### **Construction (2020)**

- 5.15.45 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

#### *Effects arising during construction*

##### **Avoidance and mitigation measures**

- 5.15.46 The assessment assumes implementation of the measures set out within the draft CoCP.
- 5.15.47 No avoidance or mitigation measures additional to those reported in the main ES and draft CoCP are required.

##### **Assessment of impacts and effects**

- 5.15.48 All of the effects within this section are reported in the absence of other mitigation.

#### *Habitats*

- 5.15.49 On a precautionary basis, the main ES reported a loss of 44.8km of hedgerow habitats within the Stone and Swynnerton area, which would result in a permanent adverse effect that is significant at the district/borough level. The amendment will result in the loss of an additional 100m of species-rich hedgerow. In the context of the hedgerow network within the Stone and Swynnerton area, this additional loss does not represent a new or different significant effect.
- 5.15.50 It is not likely that any other effects on habitats of relevance at more than the local/parish level will occur as a result of the amendment. Additional local/parish level effects arising from the AP2 revised scheme are listed in SES2 and AP2 ES Volume 5: Appendix EC-016-000.

*Species*

- 5.15.51 No effects on the assumed bat assemblage associated with habitats at Mill Meece Pumping Station were reported within the main ES. The amendment will result in the loss of 130m of mature tree belt at the boundary of the Mill Meece Pumping Station and a number of scattered semi-mature trees. On a precautionary basis the trees are assumed to support bat roosts and provide foraging and commuting habitat for bats. In addition, a number of existing buildings are present within the area subject to the amendment which, on a precautionary basis are assumed to support bat roosts. The loss of assumed bat roosts and foraging and commuting habitats, and disturbance from construction works associated with the amendment in close proximity to roosts, will give rise to a new permanent adverse effect on the assumed bat assemblage associated with habitats around Mill Meece Pumping Station that is significant at up to county level.
- 5.15.52 No effects on the assumed great crested newt populations at Mill Meece Pumping Station were reported within the main ES. The amendment will result in the loss of hedgerows, mature tree belt and a drainage ditch at Mill Meece Pumping Station within 50m of two ponds assumed to support great crested newt populations. The loss of terrestrial habitats associated with the ponds will give rise to a new permanent adverse effect on the assumed great crested newt populations present at Mill Meece Pumping Station that is significant at up to county level.
- 5.15.53 It is not likely that any other effects on species of relevance at more than the local/parish level will occur as a result of the amendment. Additional local/parish level effects arising from the AP2 revised scheme are listed in SES2 and AP2 ES Volume 5: Appendix EC-016-000.

**Mitigation and residual effects**

*Other mitigation measures*

- 5.15.54 The amendment includes the provision of 0.3ha of woodland habitat creation and 230m of hedgerow creation at Mill Meece Pumping Station. Once established, these habitat creation measures will provide suitable bat foraging and commuting habitats. Artificial roosting provision will be provided within the area subject to the amendment to replace bat roosts that will be lost to construction, in accordance with the Ecological Principles of Mitigation within the SMR Addendum. These measures will reduce the new adverse effect resulting from this amendment on the assumed bat assemblage associated with habitats around Mill Meece Pumping Station to a level that is not significant.
- 5.15.55 The amendment includes provision of 0.3ha of woodland habitat creation, 230m of hedgerow creation and a new drainage ditch at Mill Meece Pumping Station. Once established these habitats will provide suitable terrestrial habitat for great crested newt. These measures will reduce the new adverse effect resulting from this amendment on the assumed great crested newt populations associated with the ponds to the north east of Mill Meece Pumping Station to a level that is not significant.

### *Summary of likely residual significant effects*

- 5.15.56 With the implementation of the mitigation proposed, the ecological effects arising from the amendment are reduced to a level where they are not considered to be significant. The significant effects of the amendment in this area are therefore unchanged from those reported in the main ES.

### **Cumulative effects**

- 5.15.57 There are no new or different likely significant cumulative effects for ecology and biodiversity as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments. The combined effect on hedgerows as a result of the AP2 revised scheme is reported at a route-wide level in SES2 and AP2 ES, Volume 3, Route-wide effects.

### **Landscape and visual**

#### *Scope, assumptions and limitations*

- 5.15.58 The assessment scope, key assumptions and limitations for landscape and visual are as set out in Volume 1, the SMR and SMR Addendum of the main ES.
- 5.15.59 The amendment has the potential to result in new or different significant construction and operational effects for landscape only. This is because given its location, no visual receptors in the vicinity are likely to be significantly affected. Therefore, there is no construction or operational assessment for visual.

#### *Existing environmental baseline*

- 5.15.60 The baseline landscape and visual information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 11, of the main ES.

### **Landscape baseline**

- 5.15.61 The amendment to provide a water treatment facility at the Severn Trent Water Limited Mill Meece Pumping Station is located within the following Landscape Character Area (LCA), as described in the Volume 5: Appendix LV-001-003 of the main ES and summarised below.

#### *Swynnerton Village Sandstone Hills and Heaths LCA*

- 5.15.62 This LCA comprises a gently undulating landscape of mostly rectilinear fields interspersed with woodland blocks including Clifford's Wood, and a number of historic ponds. There is also an area of small scale irregular fields resulting from historic woodland clearance north of Clifford's Wood. With the exception of the villages of Cranberry, Beech and the edge of Tittensor, settlement is dispersed and comprises occasional cottages and farmsteads. The LCA is crossed by an extensive network of public rights of way (PRoW), including the Stone Circles Challenge long distance route.



### *Future environmental baseline*

#### **Construction (2020) and operation (2027)**

- 5.15.63 The future baseline for construction in 2020 and operation in 2027 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### *Temporary effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.15.64 No avoidance or mitigation measures additional to those reported in the main ES and draft CoCP are identified.

#### **Assessment of impacts and effects**

##### *Swynnerton Village Sandstone Hills and Heaths LCA*

- 5.15.65 The main ES reported a major adverse significant construction effect on the Swynnerton Village Sandstone Hills and Heaths LCA. This was due to severance of some of the most sensitive landscape features within the LCA including Clifford's Wood, the small scale irregular fields resulting from historic woodland clearance north of Clifford's Wood and material alterations to the character of the rural road network. Construction activity associated with Hatton embankment and a number of overbridges and underbridges, together with the presence of associated compounds, earth moving equipment and material stockpiles, would substantially alter the rural landscape and erode the scenic quality and perception of tranquillity which extends across much of the LCA away from the M6.
- 5.15.66 The amendment will introduce construction works into a part of the LCA which was unaffected by the original scheme. The presence of construction activity will alter the scenic quality of the landscape to the rear of the existing Mill Meece Pumping Station and will include partial removal of a mature tree belt which is an important local landscape feature along the rear boundary of the existing Mill Meece Pumping Station. Noise associated with the works and movement of construction vehicles will introduce disturbance and reduce the tranquillity currently experienced. This additional construction activity will slightly increase the already substantial effects on the landscape character of the Swynnerton Village Sandstone Hills and Heaths LCA arising from the wider construction activity of the scheme in this LCA. The amendment will therefore give rise to a different significant effect. However, the level of significance of the effect will remain major adverse significant as reported in the main ES.
- 5.15.67 For further information see SES2 and AP2 ES Volume 5: Appendix LV-001-003 and SES2 and AP2 ES Volume 5: Landscape and visual Map Book.

#### **Mitigation and residual effects**

##### *Other mitigation measures*

- 5.15.68 No mitigation measures additional to those reported in the main ES and draft CoCP are identified.

### *Summary of likely residual significant effects*

- 5.15.69 The temporary residual significant effects during construction remain as described above. These effects will be temporary and reversible in nature lasting only for the duration of the construction works. These residual effects will generally arise from the widespread presence of construction activity and construction plant within the landscape and viewed by surrounding residents, and users of PRow and main roads within the study area.
- 5.15.70 The significant effects that will remain after implementation of construction phase mitigation are summarised below.
- 5.15.71 The amendment to provide a water treatment facility at the Severn Trent Water Mill Meece Pumping Station will give rise to a different likely residual significant construction effect on the landscape character of the Swynnerton Village Sandstone Hills and Heaths LCA. The effect will increase but will remain major adverse significant. This will not change the level of significance of the effect reported in the main ES.

### **Cumulative effects**

- 5.15.72 There are no new or different likely significant cumulative effects for landscape and visual as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments.

### *Permanent effects arising during operation*

### **Avoidance and mitigation measures**

- 5.15.73 No avoidance or mitigation measures additional to those reported in the main ES are required.

### **Assessment of impacts and effects**

#### **Landscape assessment**

#### *Swynnerton Village Sandstone Hills and Heaths LCA*

- 5.15.74 The main ES reported a moderate adverse significant effect at year 1, year 15 and year 60 of operation. This was due to the presence of Hatton embankment and several new overbridges and underbridges, as well as local road alterations. These features would substantially change the undulating landform and wooded ridgelines along the route and erode the scenic quality of the LCA and character of the local road network. The presence of Hatton embankment would also sever some of the most sensitive features within the LCA including Clifford's Wood and the small scale irregular fields resulting from historic woodland clearance north of Clifford's Wood. The sense of severance would, however, be partially mitigated by the maturing vegetation on the Swynnerton Estate Central green underbridge and green overbridges at Swynnerton Estate North and Swynnerton Footpath 15.
- 5.15.75 The amendment will result in the loss of farmland and a section of mature tree belt. Access to the new facility will be from Mill Meece Marsh and along the new access road. It will be located adjacent to, and to the rear of, Mill Meece Pumping Station in what is currently an open field. Hedgerow habitat creation will bound the northern

side of the new access road and the north-eastern perimeter of the site, while woodland habitat creation is proposed to replace trees lost within the existing tree belt adjacent to the compound. The Pumping Station includes historic steam engines and part of it is leased to the Mill Meece Pumping Station Preservation Trust, which opens it to visitors on specific dates.

- 5.15.76 At year 1, the amendment will slightly increase the effects on the landscape character of the Swynnerton Village Sandstone Hills and Heaths LCA as it is in an area which was unaffected by the original scheme. The presence of a new built structure into the open farmland, which although separated from the existing Mill Meece Pumping Station by a belt of mature trees, will add to the overall extent of built development and associated infrastructure in this locality. The permanent loss of a 130m section of the mature tree belt, which is a noticeable local landscape feature along the rear boundary of the existing Mill Meece Pumping Station, will also reduce the scenic quality of the farmland in this area. These effects will, however, be localised and much of the LCA will be unaffected. The amendment will therefore give rise to a different significant effect. However, the level of significance will remain moderate adverse significant as reported in the main ES.
- 5.15.77 At year 15 and year 60, the maturing hedgerow and woodland habitat creation will integrate the new water facility into the wider landscape and the building and its associated infrastructure will be a relatively inconspicuous landscape feature. The LCA will, however, continue to be affected by Hatton embankment, several new overbridges and underbridges, as well as local road alterations. The amendment will therefore not give rise to a new or different significant effect and will not change the moderate adverse significant effect reported in the main ES.
- 5.15.78 For further information see SES2 and AP2 ES Volume 5: Appendix LV-001-003 and SES2 and AP2 ES Volume 5: Landscape and visual Map Book.

### **Mitigation and residual effects**

#### *Other mitigation measures*

- 5.15.79 The detailed design will seek take account of the local context and setting of the existing Mill Meece Pumping Station. This would further integrate the new water treatment facility and associated infrastructure into the landscape.

#### *Summary of likely residual significant effects*

- 5.15.80 There are no changes to the likely residual significant operational landscape and visual effects reported in the main ES as a result of the amendment.

### **Cumulative effects**

- 5.15.81 There are no new or different likely significant cumulative effects for landscape and visual as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments.

### **Monitoring**

- 5.15.82 Volume 1 of the main ES sets out the general approach to environmental monitoring during operation of the original scheme.

- 5.15.83 There are no changes to the monitoring requirements identified in the main ES for landscape and visual as a result of the amendment.

### **Water resources and flood risk**

#### *Scope, assumptions and limitations*

- 5.15.84 The assessment scope, key assumptions and limitations for water resources and flood risk are as set out in Volume 1, the SMR and SMR Addendum of the main ES and SMR Addendum 2 (see SES2 and AP2 ES Volume 5: Appendix CT-001-000).
- 5.15.85 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for water resources and flood risk.

#### *Existing environmental baseline*

- 5.15.86 The baseline water resources information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 15 of the main ES. Further details relating to water resources and flood risk for this area are provided in Volume 5: Appendix WR-002-003 and Appendix WR003-003 and the Volume 5: Water resources and flood risk Map Book of the main ES.
- 5.15.87 The area is underlain by the Helsby Sandstone Formation and the Wilmslow Sandstone Formation of the Sherwood Sandstone Group, both classified as Principal aquifers, and located within SPZ1 associated with the Mill Meece public water supply borehole abstraction, which is a very high value receptor. It is also located near Meece Brook, which is a high value receptor. This amendment will involve construction activities of a nature and scale that have potential water quality implications.

#### *Future environmental baseline*

##### **Construction (2020)**

- 5.15.88 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

#### *Effects arising during construction*

- 5.15.89 The main ES reported no significant effects on surface water and groundwater quality due to site runoff and increased pollution risk in the vicinity of this amendment. The amendment has the potential to give rise to temporary adverse impacts on surface water and groundwater quality which could affect the water environment. However, the amendment will be constructed in accordance with the measures specifically designed to safeguard water resources outlined in the draft CoCP.
- 5.15.90 Therefore, the amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

##### **Cumulative effects**

- 5.15.91 There are no new or different likely significant cumulative effects for water resources and flood risk as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments.

## Summary of new or different likely residual significant effects as a result of the amendment

- 5.15.92 The amendment will give rise to a new likely residual permanent moderate adverse significant effect on the setting of a grouping of Grade II\* and Grade II listed buildings at the Severn Trent Water Mill Meece Pumping Station (STSo84).
- 5.15.93 The amendment will give rise to a different likely residual significant effect on the landscape character of the Swynnerton Village Sandstone Hills and Heaths LCA during construction. However, this will not change the level of significance of the effect reported in the main ES.

### **5.16 A change to Bill powers to move the stopping up point of Bottom Lane to the existing junction between the A519 Newcastle Road and Bottom Lane, and the provision of a new permanent agricultural access from the diverted A51 Stone Road (AP2-003-014)**

- 5.16.1 The Bill provides for the permanent stopping up of Bottom Lane to the north of the HS2 route, 275m to the north of where it currently intersects the A51 Stone Road. A turning head was proposed at the point of closure. Users would be diverted along the A51 Stone Road, increasing the length of journey by 150m. A new section of hedgerow would be planted along the diverted A51 Stone Road creating ecological habitat, landscape integration and connectivity. An additional area of woodland habitat would be created between the A51 Stone Road diversion and the stopping up point on Bottom Lane and hedgerow habitat creation would be provided on the north-eastern side of the A51 Stone Road diversion. See Map CT-06-226, H4 to F4, in the SES1 and AP1 ES Volume 2, CA3 Map Book.
- 5.16.2 During construction, a temporary material stockpile area, associated with the Swynnerton North cutting main compound, would be provided at the stopping up point of Bottom Lane. See Map CT-06-226, I4 to H4, in the SES1 and AP1 ES Volume 2, CA3 Map Book.
- 5.16.3 Since submission of the Bill, it has been identified in consultation with the land owner that since there are no properties along the retained section of Bottom Lane, there is no requirement to keep it open as a public highway. As a result, the stopping up point of Bottom Lane will be moved 550m north from its position in the original scheme to the existing junction between A519 Newcastle Road and Bottom Lane. See Map CT-06-226, F1, in the SES2 and AP2 ES Volume 2, CA3 Map Book. The A519 Newcastle Road/Bottom Lane junction will be retained as an agricultural field access point and to provide HS2 access to maintain the area of woodland habitat creation between the diverted A51 Stone Road and Bottom Lane. The turning head that was proposed along Bottom Lane in the original scheme will no longer be provided. As a result, the adjacent temporary materials stockpile will increase in size by 540m<sup>2</sup>. Following construction, the corresponding proposed area of woodland habitat creation will increase in size by 100m<sup>2</sup>.
- 5.16.4 The amendment also includes the provision of a new agricultural access into the field from the diverted A51 Stone Road. See Map CT-06-226, H5 to H4, in the SES2 and

AP2 ES Volume 2, CA3 Map Book. The new agricultural access will require the introduction of a short culvert for the perimeter drainage. As a result of the new access 15m of hedgerow included in the original scheme will no longer be provided.

- 5.16.5 This amendment will be constructed within the overall period for the closure of Bottom Lane, up to nine months, commencing in 2021.
- 5.16.6 The change to the stopping up point of Bottom Lane and the provision of a new permanent agricultural access will require a change to Bill powers.

### **Topics included in the AP2 assessment**

- 5.16.7 This amendment is not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES, as amended by SES1 and SES2, with respect to any environmental topics.

## **5.17 Additional land required for a water treatment facility at the Severn Trent Water Limited Hanchurch Distribution and Storage Reservoir (AP2-003-015)**

- 5.17.1 The HS2 route crosses close to the Severn Trent Water Whitmore public groundwater supply borehole, passing through the abstraction's groundwater source protection zone (SPZ1) and resulting in potential impacts during construction as described in Volume 2, CA4, Section 15 of the main ES.
- 5.17.2 Abstraction from the Whitmore public water supply borehole would be suspended temporarily during the construction period for works in the area in order to protect against the risk of deterioration of the quantity or quality of water available to the public supply. On completion of construction, abstraction from the Whitmore public water supply borehole would be resumed.
- 5.17.3 Since submission of the Bill, further design development and engagement with Severn Trent Water has identified three existing Severn Trent Water sites in suitable locations that could maintain the current water supply whilst abstraction from the Whitmore public water supply borehole is suspended temporarily during construction of the scheme. One of these locations is at the existing Severn Trent Water Hanchurch Distribution and Storage Reservoir off Drayton Road, 1.7km north-east of Swynnerton Footpath 15 Accommodation underbridge. The other two additional locations are provided for in AP2-002-013: Additional land required for a water treatment facility at the Severn Trent Water Mill Meece Pumping Station and AP2-002-009: Additional land required for a water treatment facility at the Severn Trent Water Limited Swynnerton Pumping Station.
- 5.17.4 Additional land is required adjacent to the south-eastern side of the existing Hanchurch Distribution and Storage Reservoir to allow for an additional permanent water treatment facility, including access and parking for operation and maintenance of the facility. The new treatment facility will increase the volume of water that can be processed on site. The footprint of the new treatment facility will be approximately 0.2ha.

- 5.17.5 Woodland habitat creation, 0.5ha in area, will be provided along the southern side of the access road to the new treatment facility. See Map CT-06-228-R2, I10 to J8, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.17.6 The amendment will be constructed over a period of one year and six months, commencing in 2020.
- 5.17.7 A new compound will be provided to manage the installation of the new water treatment facility. Severn Trent Water Hanchurch compound will be operational for up to one year and six months, commencing during 2020, and will support an average of 12 workers per day (20 workers at peak times). Access to the new compound will be from the M6 Junction 15, along the A519 Newcastle Road and Drayton Road.
- 5.17.8 The land required for the new treatment facility including access, parking and mitigation planting is outside the limits of the Bill. This amendment will result in a requirement for an additional 7.1ha of land, some of which will be from Swynnerton Estate (CA3/20). See Map CT-05-228-R2, J9 to G7, in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that 5.4ha of the additional land will be returned to its existing use following construction.

### Topics included in the AP2 assessment

- 5.17.9 This amendment is considered to require reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, for ecology and biodiversity. This is reported in this section.
- 5.17.10 The assessment of the changes to construction traffic flows and traffic related effects as a result of this AP2 amendment, in combination with all SES2 changes and AP2 amendments, is reported in Section 7.

### Ecology and biodiversity

#### *Scope, assumptions and limitations*

- 5.17.11 The assessment scope, key assumptions and limitations for ecology and biodiversity are as set out in Volume 1, the Scope and Methodology Report (SMR)<sup>92</sup> and SMR Addendum<sup>93</sup> of the main ES and SMR Addendum 2 (see SES2 and AP2 ES Volume 5: Appendix CT-001-000).
- 5.17.12 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for ecology and biodiversity.
- 5.17.13 Where data are limited, a precautionary baseline has been built up according to the guidance provided in the SMR and SMR Addendum. This constitutes a 'reasonable worst case' basis for the subsequent assessment.

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<sup>92</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report (Appendix CT-001-001). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>93</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report Addendum (Appendix CT-001-002). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

- 5.17.14 The precautionary approach to the assessment that has been adopted identifies the likely significant environmental effects of the amendment.

### *Existing environmental baseline*

- 5.17.15 The ecological baseline of the area subject to the amendment has been based on field data collated for the main ES and SES1, aerial photography, and relevant information from regional and local sources.
- 5.17.16 A summary of the baseline information relevant to the assessment of the amendment is provided below. Further detail on the relevant new or updated baseline information is provided in BID-EC-019-000, including Map Series EC-02 which accompanies the SES2 and AP2 ES.
- 5.17.17 For those receptors described in the main ES, further details are provided in Volume 2, CA3, Section 8, and Volume 5: Appendix EC-001-000, including Map Series EC-01. Baseline ecology reports that accompanied the main ES are provided in BID-EC-002-000 to BID-EC-014-000, including Map Series EC-02 to EC-12<sup>94</sup>.
- 5.17.18 For those receptors described in SES1, further details are provided in Volume 2, CA3, Section 3. The baseline ecology report that accompanied SES1 and AP1 ES is provided in BID EC-004-000, including Map Series EC-02, EC-04, EC-05, EC-10, EC-11 and EC-12<sup>95</sup>.

### **Designated sites**

- 5.17.19 There is one Local Wildlife Site (LWS) of relevance to the assessment of the amendment, which is of county value. Swynnerton Old Park LWS, covering an area of approximately 370ha, is designated for its woodland, part of which is a plantation on ancient woodland site (PAWS), with extensive mixed conifer plantation and ground flora with heathland characteristics, especially along more open areas such as rides and glades. Swynnerton Old Park LWS is located to the west of the M6 and south-west of Hanchurch, partially within the area subject to the amendment.
- 5.17.20 There are two Ancient Woodland Inventory (AWI) sites of relevance to the assessment of the amendment, which are of county value. These are:
- Swynnerton Old Park AWI site, covering an area of approximately 289ha, which is located directly adjacent to the area subject to the amendment; and
  - Harley Thorns AWI site, covering an area of approximately 59ha, which is located directly adjacent to the area subject to the amendment. This AWI site was not reported in the main ES as it was not considered relevant to the assessment of the original scheme.

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<sup>94</sup> HS2 Ltd (2017). *High Speed Two (HS2) Phase 2a (West Midlands – Crewe), Background Information and Data*, Available online at: <https://www.gov.uk/government/publications/hs2-phase-2a-background-information-and-data-ecology-and-biodiversity>

<sup>95</sup> HS2 Ltd (2018). *High Speed Two (HS2) Phase 2a (West Midlands – Crewe), Background Information and Data*, Supplementary ecological baseline data (BID EC-004-000), Available online at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/692664/G33\\_Ecological\\_baseline\\_BID-EC-004-000\\_WEB.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/692664/G33_Ecological_baseline_BID-EC-004-000_WEB.pdf)



## Habitats

- 5.17.21 Habitats within the area subject to the amendment include mixed plantation woodland, arable, amenity grassland, improved grassland over a covered reservoir and hardstanding. The habitats of relevance to the assessment of the amendment are described in further detail below.
- 5.17.22 Mixed plantation woodland is present, adjacent to Harley Thorns AWI site and Swynnerton Old Park AWI site. This forms a remnant part of a recently felled area of mixed plantation within Swynnerton Old Park LWS. The woodland is located partially within the area subject to the amendment. The woodland is of up to district/borough value.

## Species

- 5.17.23 Protected and/or notable species that are known or assumed to occur within the area subject to the amendment include bats, badger, polecat, harvest mouse, European hedgehog, brown hare and common reptile species.
- 5.17.24 The woodland at Swynnerton Old Park LWS, located partially within the area subject to the amendment, offers suitable habitat for bats that do not form part of an existing bat assemblage reported within the main ES. On a precautionary basis the woodland and adjacent habitats are assumed to support bat roosts and to provide foraging and commuting habitat for an assemblage of bats. The assumed bat assemblage associated with the woodland at Swynnerton Old Park LWS is of up to regional value.
- 5.17.25 The main ES, as amended by SES1, reported at least 12 social groups of badger, throughout the Stone and Swynnerton area, identified through field surveys. The area subject to the amendment includes suitable sett building and foraging habitats for badgers. The badger populations throughout the Stone and Swynnerton area are of local/parish value.
- 5.17.26 The main ES reported populations of other mammals including polecat, harvest mouse, European hedgehog and brown hare, identified through desk study records, as being potentially present throughout the Stone and Swynnerton area. The area subject to the amendment includes suitable habitats for these species. If present, these populations are of local/parish value.
- 5.17.27 The main ES reported populations of common reptile species such as grass snake and slow-worm, identified through desk study records, as being potentially present at low numbers throughout the Stone and Swynnerton area. Grass snake and slow-worm are both species of principal importance listed under the provisions of Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006)<sup>96</sup>. Grass snake is also a conservation priority of the Staffordshire Biodiversity Action Plan (BAP)<sup>97</sup>. The area subject to the amendment includes suitable habitats for these species. If present, these populations are of local/parish value.

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<sup>96</sup> Natural Environment and Rural Communities Act 2006 (2006 CHAPTER 16). Her Majesty's Stationery Office, London.

<sup>97</sup> Staffordshire Biodiversity Partnership. Staffordshire Biodiversity Action Plan [online]. Available at: <http://www.sbap.org.uk/>

### *Future environmental baseline*

#### **Construction (2020)**

- 5.17.28 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### *Effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.17.29 The assessment assumes implementation of the measures set out within the draft Code of Construction Practice (CoCP)<sup>98</sup>.
- 5.17.30 No avoidance or mitigation measures additional to those reported in the main ES and draft CoCP are required.

#### **Assessment of impacts and effects**

- 5.17.31 All of the effects within this section are reported in the absence of other mitigation.

### *Designated sites*

- 5.17.32 The main ES reported a fragmentation effect upon Swynnerton Old Park LWS through severance of the hedgerow network linking the site to Hatton Common LWS, which would result in a permanent adverse effect at the local/parish level, which is not significant. The amendment will result in the loss of 2.7ha (0.7%) of habitats within Swynnerton Old Park LWS, however the majority of this loss comprises arable fields, improved grassland and hardstanding over a covered reservoir and an existing access track. Approximately 0.5ha of the habitat loss is mixed plantation woodland. Swynnerton Old Park LWS is designated for ancient replanted woodland with associated diverse ground flora. The woodland to be lost for the construction of the access track, as part of this amendment, is not a habitat type for which the LWS is designated. Therefore, the amendment will not give rise to a new or different significant effect on the structure or function of Swynnerton Old Park LWS.

### *Habitats*

- 5.17.33 It is not likely that any effects on habitats of relevance at more than the local/parish level will occur as a result of the amendment. Additional local/parish level effects arising from the AP2 revised scheme are listed in SES2 and AP2 ES Volume 5: Appendix EC-016-000.

### *Species*

- 5.17.34 No effects on the assumed bat assemblage at Swynnerton Old Park were reported within the main ES. The amendment will result in the loss of 0.5ha of mixed plantation woodland at Swynnerton Old Park LWS. On a precautionary basis this woodland is assumed to support bat roosts and to provide foraging and commuting habitat for bats. The loss of assumed roosts and foraging and commuting habitats will give rise to

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<sup>98</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at <https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a>

a new permanent adverse effect on the assumed bat assemblage associated with Swynnerton Old Park that is significant at up to regional level.

- 5.17.35 It is not likely that any other effects on species of relevance at more than the local/parish level will occur as a result of the amendment. Additional local/parish level effects arising from the AP2 revised scheme are listed in SES2 and AP2 ES Volume 5: Appendix EC-016-000.

### **Mitigation and residual effects**

#### *Other mitigation measures*

- 5.17.36 The main ES reported that a belt of woodland habitat creation on either side of Swynnerton Footpath 15 green overbridge would be provided to maintain connectivity between the woodlands at Swynnerton Old Park LWS and Hatton Common LWS and compensate for the loss of commuting habitats for bats. The amendment includes provision for an additional 0.5ha of woodland habitat creation to the south and east of the new access track at the treatment facility. Once established, these habitat creation measures will provide suitable bat foraging and commuting habitat. Artificial roosting provision will be provided within and adjacent to the habitat creation areas to replace bat roosts that will be lost to construction, in accordance with the Ecological Principles of Mitigation within the SMR Addendum. These measures will reduce the new permanent adverse effect resulting from this amendment on the assumed bat assemblage at Swynnerton Old Park to a level that is not significant.

#### *Summary of likely residual significant effects*

- 5.17.37 With the implementation of the mitigation proposed, the ecological effects arising from the amendment are reduced to a level where they are not considered to be significant. The significant effects of the amendment in this area are therefore unchanged from those reported in the main ES.

### **Cumulative effects**

- 5.17.38 There are no new or different likely significant cumulative effects for ecology and biodiversity as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments.

## **5.18 Additional land required and a change to Bill powers to modify the alignment of the realigned Dog Lane and introduce new field accesses (AP2-003-016)**

- 5.18.1 The Bill provides for the permanent realignment of Dog Lane over a distance of 950m, 125m north-west of its existing alignment, to cross over the HS2 route on the Dog Lane overbridge. The Bill further provides for the diversion of Bent Lane to the north of the HS2 route, over a distance of 750m, to create Bent Lane (North), which would run parallel to the HS2 route and pass south of Shelton under Harley, before continuing into the Whitmore Heath to Madeley area (CA4). See Map CT-06-228a, G3 to B5, in the main ES Volume 2, CA3 Map Book. There would be a section of landscape mitigation planting between the HS2 route and the Bent Lane (North) diversion, which would extend north-west towards Shelton culvert.

See Map CT-06-228a, E5 to D5, in the main ES Volume 2, CA3 Map Book. During the construction phase temporary material stockpiles would be present on both sides of the Dog Lane realignment and on either side of the junction between the realigned Dog Lane and the diverted Bent Lane (North). See Map CT-05-228a, G4 to D5, in the main ES Volume 2, CA3 Map Book.

- 5.18.2 Since submission of the Bill, further design development has been undertaken to improve road safety by means of increasing forward visibility for drivers along the Dog Lane realignment. To achieve this, the section of the realigned Dog Lane to the north of the HS2 route and to the east of its junction with the diverted Bent Lane (North) will be amended. The horizontal alignment will be moved to the north by up to 35m in order to provide a straighter alignment.
- 5.18.3 In order to tie-in the new alignment with the existing highway, the length of Dog Lane realignment will be increased, moving the tie-in point 130m further east along Dog Lane. The perimeter drainage and hedgerow planting on either side of the realignment will remain as proposed in the original scheme but will be relocated to follow the new alignment. Both will be extended to the east with the highway, to the new tie-in point, which will result in an increase in hedgerow planting by 260m to that proposed in the original scheme.
- 5.18.4 Due to the revised Dog Lane alignment the position of the junction between the realigned Dog Lane and the diverted Bent Lane (North) will be moved 8m to the north-east. West of this junction there is a very slight adjustment to the north-east of the Bent Lane (North) diversion until it ties back in to the alignment proposed in the original scheme, 100m west of the junction. As a result, the proposed area of landscape mitigation planting to the west of the junction, between the HS2 route and the Bent Lane (North) diversion, will be increased by 380m<sup>2</sup>.
- 5.18.5 To accommodate the highway realignment there will be amendments to the temporary material stockpiles during construction. There will be a reduction in area of the stockpile on the northern side of Dog Lane realignment, adjacent to the junction of the realigned Dog Lane and the diverted Bent Lane (North), due to the highway being moved north towards it. There will be a corresponding increase in area of the stockpile on the southern side of Dog Lane realignment, east of the junction of the realigned Dog Lane and the diverted Bent Lane (North), where the highway has been moved north away from the stockpile.
- 5.18.6 Two new field access junctions, one on each side of the road, will be introduced on the Dog Lane realignment midway between the junction of the realigned Dog Lane and the diverted Bent Lane (North) and the tie-in between the realigned Dog Lane and the existing Dog Lane. See Map CT-06-228a, F4, in the SES2 and AP2 ES Volume 2, CA3 Map Book. The two field access junctions will be opposite one another, effectively forming a crossroads junction. To accommodate the field accesses a culvert, 10m in length, will be introduced for the perimeter drainage and a 15m wide gap introduced in the hedgerow planting on each side of the road.
- 5.18.7 This AP2 amendment is in proximity to AP2-003-019: A change to Bill powers for a new permanent diversion for G2084 Shelton Under Harley Lane to form a new junction with Bent Lane (North) diversion, which introduces a diversion of G2084 Shelton under Harley Lane to create a new junction on Bent Lane (North) diversion.

This amendment causes minor changes to the Bent Lane (North) alignment in the vicinity of this new junction but the two amendments do not overlap.

- 5.18.8 This amendment will be constructed within the overall period for the construction of Dog Lane overbridge and realignment, one year and nine months, commencing in 2022.
- 5.18.9 The land required to modify the realignment of Dog Lane and introduce new field accesses is outside the limits of the Bill. This amendment will result in a change to Bill powers and a requirement for an additional 1.1ha of land, some of which will be from the following agricultural holdings: Shelton under Harley Farm (CA3/26) and Rowe Farm (CA3/24). See Map CT-06-228a, G2 to E5, in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that 0.8ha of the additional land will be returned to its existing use following construction.

### Topics included in the AP2 assessment

- 5.18.10 This amendment is considered to only require reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, for ecology and biodiversity. This is reported in this section.

### Ecology and biodiversity

#### *Scope, assumptions and limitations*

- 5.18.11 The assessment scope, key assumptions and limitations for ecology and biodiversity are as set out in Volume 1, the Scope and Methodology Report (SMR)<sup>99</sup> and SMR Addendum<sup>100</sup> of the main ES and SMR Addendum 2 (see SES2 and AP2 ES Volume 5: Appendix CT-001-000).
- 5.18.12 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for ecology and biodiversity.
- 5.18.13 Where data are limited, a precautionary baseline has been built up according to the guidance provided in the SMR and SMR Addendum. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 5.18.14 The precautionary approach to the assessment that has been adopted identifies the likely significant environmental effects of the amendment.

#### *Existing environmental baseline*

- 5.18.15 The ecological baseline of the area subject to the amendment has been based on field data collated for the main ES and SES1 and relevant information from regional and local sources.

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<sup>99</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report (Appendix CT-001-001). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>100</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report Addendum (Appendix CT-001-002). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

- 5.18.16 A summary of the baseline information relevant to the assessment of the amendment is provided below.
- 5.18.17 For those receptors described in the main ES, further details are provided in Volume 2, CA3, Section 8, and Volume 5: Appendix EC-001-000, including Map Series EC-01. Baseline ecology reports that accompanied the main ES are provided in BID-EC-002-000 to BID-EC-014-000, including Map Series EC-02 to EC-12<sup>101</sup>.
- 5.18.18 For those receptors described in SES1, further details are provided in Volume 2, CA3, Section 3. The baseline ecology report that accompanied SES1 and AP1 ES is provided in BID EC-004-000, including Map Series EC-02, EC-04, EC-05, EC-10, EC-11 and EC-12<sup>102</sup>.

### Designated sites

- 5.18.19 There are no designated sites of relevance to the assessment of the amendment.

### Habitats

- 5.18.20 Habitats within the area subject to the amendment include arable and improved grassland, species-rich hedgerows and tree belts. The habitats of potential relevance to the assessment of the amendment are described in further detail below.
- 5.18.21 Hedgerows within the area subject to the amendment are predominantly species-rich. Hedgerow with at least 80% cover of native woody species is a habitat of principal importance in Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006)<sup>103</sup> and a conservation priority of the Staffordshire Biodiversity Action Plan (BAP)<sup>104</sup>. These contribute towards a wider hedgerow network within the Stone and Swynnerton area that is of district/borough value.
- 5.18.22 Tree belts comprising semi-mature native broadleaved species are present along Dog Lane. These tree belts are located within the area subject to the amendment. The tree belts are of local/parish value.

### Species

- 5.18.23 Protected and/or notable species that are known or assumed to occur within the area subject to the amendment include bats, badger, polecat, harvest mouse, European hedgehog and brown hare.
- 5.18.24 The main ES reported a bat assemblage associated with habitats south of Swynnerton Old Park. Field surveys in this area recorded foraging and commuting activity by an assemblage including common pipistrelle, soprano pipistrelle, Myotis species, brown long-eared, noctule, serotine and Leisler's species bats. The area subject to the amendment contains potential bat roosting, foraging and commuting habitats that are likely to be used by this bat assemblage. The bat assemblage includes several

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<sup>101</sup> HS2 Ltd (2017). *High Speed Two (HS2) Phase 2a (West Midlands - Crewe), Background Information and Data*, Available online at: <https://www.gov.uk/government/publications/hs2-phase-2a-background-information-and-data-ecology-and-biodiversity>

<sup>102</sup> HS2 Ltd (2018). *High Speed Two (HS2) Phase 2a (West Midlands - Crewe), Background Information and Data*, Supplementary ecological baseline data (BID EC-004-000), Available online at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/692664/G33\\_Ecological\\_baseline\\_BID-EC-004-000\\_WEB.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/692664/G33_Ecological_baseline_BID-EC-004-000_WEB.pdf)

<sup>103</sup> Natural Environment and Rural Communities Act 2006 (2006 CHAPTER 16). Her Majesty's Stationery Office, London.

<sup>104</sup> Staffordshire Biodiversity Partnership. Staffordshire Biodiversity Action Plan [online]. Available at: <http://www.sbap.org.uk/>

species of principal importance and species that are conservation priorities of the Staffordshire BAP. The bat assemblage associated with habitats south of Swynnerton Old Park is of county value.

- 5.18.25 The main ES, as amended by SES1, reported at least 12 social groups of badger throughout the Stone and Swynnerton area, identified through field surveys. The area subject to the amendment includes suitable sett building and foraging habitats for badgers. The badger populations throughout the Stone and Swynnerton area are of local/parish value.
- 5.18.26 The main ES reported populations of other mammals including polecat, harvest mouse, European hedgehog and brown hare, identified through desk study records, as being potentially present throughout the Stone and Swynnerton area. The area subject to the amendment includes suitable habitats for these species. If present these populations are of local/parish value.

### *Future environmental baseline*

#### **Construction (2020)**

- 5.18.27 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### *Effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.18.28 The assessment assumes implementation of the measures set out within the draft Code of Construction Practice (CoCP)<sup>105</sup>.
- 5.18.29 No avoidance or mitigation measures additional to those reported in the main ES and draft CoCP are identified.

#### **Assessment of impacts and effects**

- 5.18.30 All of the effects within this section are reported in the absence of other mitigation.

### *Habitats*

- 5.18.31 It is not likely that any effects on habitats of relevance at more than the local/parish level will occur as a result of the amendment. Additional local/parish level effects arising from the AP2 revised scheme are listed in SES2 and AP2 ES Volume 5: Appendix EC-016-000.

### *Species*

- 5.18.32 The main ES reported a direct loss of roosts and a loss and fragmentation of foraging and commuting habitats used by the assemblage of bats associated with habitats to the south of Swynnerton Old Park, which would result in a permanent adverse effect that is significant at the county level. The amendment will result in the loss of 260m of tree belts on either side of Dog Lane, which provide suitable foraging and commuting

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<sup>105</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at <https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a>

habitats for bats and include one tree with high potential to support roosting bats. The loss of an assumed bat roost and the loss of foraging and commuting habitats will give rise to a different significant effect on the bat assemblage associated with habitats to the south of Swynnerton Old Park. However, this will not change the level of significance of the effect reported in the main ES.

- 5.18.33 It is not likely that any other effects on species of relevance at more than the local/parish level will occur as a result of the amendment. Additional local/parish level effects arising from the AP2 revised scheme are listed in SES2 and AP2 ES Volume 5: Appendix EC-016-000.

### **Mitigation and residual effects**

#### *Other mitigation measures*

- 5.18.34 The main ES reported a belt of woodland habitat creation on either side of Swynnerton Footpath 15 green overbridge which would maintain connectivity between the woodlands at Swynnerton Old Park Local Wildlife Site (LWS) and Hatton Common LWS and compensate for the loss of commuting habitats for bats. The amendment includes the provision of an additional 260m of hedgerow creation along either side of Dog Lane. Once established, these habitat creation measures will provide suitable bat foraging and commuting habitat. Artificial roosting provision will be provided within and adjacent to these habitat creation areas to replace bat roosts that will be lost to construction, in accordance with the Ecological Principles of Mitigation within the SMR Addendum. These measures will reduce the different adverse effect resulting from this amendment on the bat assemblage associated with habitats to the south of Swynnerton Old Park to a level that is not significant.

#### *Summary of likely residual significant effects*

- 5.18.35 With the implementation of the mitigation proposed, the ecological effects arising from the amendment are reduced to a level where they are not considered to be significant. The significant effects of the amendment in this area are therefore unchanged from those reported in the main ES.

### **Cumulative effects**

- 5.18.36 There are no new or different likely significant cumulative effects for ecology and biodiversity as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments. The combined effect on hedgerows as a result of the AP2 revised scheme is reported at a route-wide level in SES2 and AP2 ES, Volume 3, Route-wide effects.



## **5.19 Additional land required for modifications to the roundabout junction of the A500 Queensway/A519 Newcastle Road/A519 Clayton Road (Hanchurch Interchange) and the signalised crossroads junction of the A519 Newcastle Road/A5182 Trentham Road/B5038 Whitmore Road and a new temporary satellite construction compound (AP2-003-017)**

- 5.19.1 The majority of this amendment and all relevant potential receptors lie within the Stone and Swynnerton area, therefore a detailed description of the amendment and assessment of effects are reported below. Part of this amendment lies within the Whitmore Heath to Madeley area (CA4) and the works associated with this amendment within the Whitmore Heath to Madeley area are described in SES2 and AP2 ES, Volume 2, Community area 4, Whitmore Heath to Madeley.
- 5.19.2 The original scheme includes temporary construction traffic routes which pass through the A500 Queensway/A519 Newcastle Road and A519 Newcastle Road/A5182 Trentham Road junctions. These construction routes provide access from the strategic road network to construction compounds as follows:
- construction compounds in the Swynnerton area via the A500 Queensway and southbound on the A519 Newcastle Road;
  - construction compounds in the Whitmore area via the A500 Queensway, southbound on the A519 Newcastle Road, south-west on the A5182 Trentham Road and continuing south-west on the A53 Whitmore Road;
  - construction compounds in the Madeley area via the A500 Queensway, southbound on the A519 Newcastle Road, south-west on the A5182 Trentham Road and continuing south-west on the A53 Whitmore Road, north on the A51 London Road, and east on the A525 Bar Hill Road/Newcastle Road; and
  - construction compounds in the Checkley area via the A500 Queensway, southbound on the A519 Newcastle Road, south-west on the A5182 Trentham Road and continuing south-west on the A53 Whitmore Road, and north on the A51 London Road.
- 5.19.3 The main ES identifies significant construction traffic effects on the roundabout junction of the A500 Queensway/A519 Newcastle Road/Clayton Road (known as Hanchurch Interchange) and the signalised crossroads junction of the A5182 Trentham Road/A519 Newcastle Road in terms of queues and delays.
- 5.19.4 Since submission of the Bill, a requirement has been identified to improve traffic flow through these junctions, during construction. To achieve this, the following junction improvements at the existing Hanchurch Interchange roundabout and signalised crossroads will be provided:
- a permanent segregated left turn filter lane will be added to the north-western quadrant of the Hanchurch Interchange roundabout connecting the slip roads from the M6 to the A519 Clayton Road. This will allow traffic to turn left from the M6 slip roads onto the northbound A519 Clayton Road without

needing to give way to or delay traffic on the roundabout. See Map CT-06-228-R4, F7 to F6, in the SES2 and AP2 ES Volume 2, CA3 Map Book;

- a permanent segregated left turn filter lane will be added to the north-eastern quadrant of the Hanchurch Interchange roundabout connecting the A519 Clayton Road to the A500 Queensway. This will allow traffic to turn left from the southbound A519 Clayton Road into the eastbound A500 Queensway without needing to give way to or delay traffic on the roundabout. See Map CT-06-228-R4, F6 to G5, in the SES2 and AP2 ES Volume 2, CA3 Map Book;
- the carriageway of the westbound A500 Queensway will be widened on approach to the Hanchurch Interchange roundabout to provide an additional lane, increasing the number of lanes joining the roundabout from this road from two to three. See Map CT-06-228-R4, G6 to F6, in the SES2 and AP2 ES Volume 2, CA3 Map Book;
- the carriageway of the A519 Newcastle Road will be widened between the Hanchurch Interchange roundabout and the signalised crossroads with the A5182 Trentham Road and B5038 Whitmore Road to provide two lanes in each direction. This section of the A519 Newcastle Road currently provides a single lane in each direction, which widens to two lanes on approach to the roundabout for northbound traffic and on approach to the signalised junction for southbound traffic. Over the majority of this section of road, the widening will take place by moving the western kerb line only, with a short length of the eastern kerb line affected close to the roundabout junction. The existing lay-by on the northbound A519 Newcastle Road, located midway between the roundabout and the signalised crossroads, will be removed and re-provided on the widened A519 Newcastle Road. See Map CT-06-228-R4, G8 to F7, in the SES2 and AP2 ES Volume 2, CA3 Map Book; and
- the carriageway of the northbound A519 Newcastle Road will be widened on approach to the signalised crossroads to provide an additional through lane, increasing the number of lanes approaching the junction from this road from two to three. See Map CT-06-228-R4, G9 to G8, in the SES2 and AP2 ES Volume 2, CA3 Map Book.

5.19.5 Hedgerow mitigation planting, 120m in length, will be provided along the north-eastern quadrant of the Hanchurch Interchange roundabout adjacent to the A519 Clayton Road and the A500 Queensway, to replace hedgerow that will be removed to accommodate the segregated left turn filter lane. In addition, a band of woodland habitat creation will be provided alongside the hedgerow and continuing east alongside the eastbound A500 Queensway for approximately 200m, with a total area of 0.6ha.

5.19.6 An existing wooded embankment along the western side of the A519 Newcastle Road, which provides noise attenuation and visual screening between the existing haulage depot and the road, will be removed as part of the works. A noise fence barrier, with a height equivalent to the existing embankment, will be provided in the same location with 0.2ha of landscape mitigation planting between the barrier and the A519 Newcastle Road.

- 5.19.7 A new satellite construction compound will be provided for management of the junction modifications. The A519 Junction Modifications satellite compound will be located in the Whitmore Heath to Madeley area to the west of the A519 Clayton Road, 50m north of the works to the Hanchurch Interchange roundabout, adjacent to the boundary with the Stone and Swynnerton area. See Map CT-05-228-R4, F6, in the SES2 and AP2 ES Volume 2, CA3 Map Book. The A519 Junction Modifications satellite construction compound will be operational for one year, commencing in 2020, and will support an average of 10 workers per day (25 workers at peak times). Access to the new compound will be from the A519 Clayton Road and will share an existing entrance to Severn Trent Water Clayton Road sewerage pumping station and an existing Western Power Distribution electricity substation, which is sited in the field to the south-west of the proposed construction compound.
- 5.19.8 The junction modifications will be constructed over a period of up to one year, commencing in 2020.
- 5.19.9 The junction modifications are outside the limits of the Bill. This amendment will result in a requirement for an additional 4.6ha of land, the majority of which is assumed to be from within the highway boundary. No agricultural holdings are assumed to be affected. See Map CT-05-228-R4, G9 to F5, in the SES2 and AP2 ES Volume 2, CA3 Map Book.

### Topics included in the AP2 assessment

- 5.19.10 Within the Stone and Swynnerton area, this amendment is considered to require reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, for the following topics: community; ecology and biodiversity; landscape and visual; sound, noise and vibration; traffic and transport; and water resources and flood risk. These are reported within this section.
- 5.19.11 The assessment of the changes to construction traffic flows and traffic related effects as a result of this AP2 amendment in combination with all SES2 changes and AP2 amendments, is reported in Section 7.

### Community

#### *Scope, assumptions and limitations*

- 5.19.12 The assessment scope, key assumptions and limitations for community are as set out in Volume 1, the Scope and Methodology Report (SMR)<sup>106</sup> and SMR Addendum<sup>107</sup> of the main ES.
- 5.19.13 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for community.

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<sup>106</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report (Appendix CT-001-001). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>107</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report Addendum (Appendix CT-001-002). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

- 5.19.14 At this stage it has not been possible to undertake open space surveys at Ferndown Local Nature Reserve (LNR), therefore baseline information is based upon publicly available data.

#### *Existing environmental baseline*

- 5.19.15 The baseline community information for the Stone and Swynnerton area is described in the Volume 2, CA3, Section 6 of the main ES.
- 5.19.16 Clayton is a suburb of the town of Newcastle-under-Lyme, connected to Trentham to the south via the A519 Newcastle Road, and together with the adjoining settlement of Hanford contains approximately 1,900 residential properties.
- 5.19.17 Ferndown LNR, located north of the A500 Queensway, is a publicly accessible open space. The site covers an area of approximately 6.8ha and comprises meadow, marshland and scrub woodland with various informal pathways crossing the site. The site also includes a children's play area and an informal football pitch.

#### *Future environmental baseline*

#### **Construction (2020)**

- 5.19.18 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

#### *Effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.19.19 No avoidance or mitigation measures additional to those reported in the main ES and draft Code of Construction Practice (CoCP)<sup>108</sup> are identified.

#### **Assessment of impacts and effects**

- 5.19.20 The additional land required for modifications to Hanchurch Interchange was not included in the original scheme and the main ES did not report any significant effects on the properties in this area.
- 5.19.21 The amendment will result in a new significant visual effect on approximately 16 properties fronting the A519 Newcastle Road in Hanchurch, due to views of construction works associated with the amendment. This new visual effect, when combined with the significant heavy goods vehicle (HGV) effect on these properties as a result of the original scheme, will give rise to a new temporary major adverse in-combination effect, which is significant, at the 16 properties. For further information see SES2 and AP2 ES Volume 5: Appendix CM-001-003 and SES2 and AP2 ES Volume 5: Community Map Book.
- 5.19.22 The additional land required for modifications to Hanchurch Interchange was not included in the original scheme and the main ES did not report any significant effects on the Ferndown LNR.

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<sup>108</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at <https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a>

- 5.19.23 The land required for the amendment will give rise to a new permanent loss of land from Ferndown LNR however this will not result in a significant effect. The land required is a linear area along the south-western edge of the open space, comprising approximately 9% of the total LNR. This will be required permanently for the provision of a segregated left turn filter lane, connecting the A519 Clayton Road to the A500 Queensway, and replacement hedgerow habitat creation and woodland habitat creation. The loss of land is not likely to impact the overall function and community use of the site. The amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES. For further information see SES2 and AP2 ES Volume 5: Appendix CM-001-003.

### **Mitigation and residual effects**

#### *Other mitigation measures*

- 5.19.24 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

#### *Summary of likely residual significant effects*

- 5.19.25 The amendment will give rise to a new likely residual temporary significant in-combination effect on approximately 16 properties on the A519 Newcastle Road, due to significant visual and HGV effects.

### **Cumulative effects**

- 5.19.26 There are no new or different likely significant cumulative effects for community as a result of the amendment acting in-combination with any other AP2 amendments or AP1 amendments.

### **Ecology and biodiversity**

#### *Scope, assumptions and limitations*

- 5.19.27 The assessment scope, key assumptions and limitations for ecology and biodiversity are as set out in Volume 1, the SMR and SMR Addendum of the main ES and SMR Addendum 2 (see SES2 and AP2 ES Volume 5: Appendix CT-001-000).
- 5.19.28 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for ecology and biodiversity.
- 5.19.29 Where data are limited, a precautionary baseline has been built up according to the guidance provided in the SMR and SMR Addendum. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 5.19.30 The precautionary approach to the assessment that has been adopted identifies the likely significant environmental effects of the amendment.

#### *Existing environmental baseline*

- 5.19.31 The ecological baseline of the area subject to the amendment has been based on field data collated for the main ES and SES1, aerial photography, and relevant information from regional and local sources.

- 5.19.32 A summary of the baseline information relevant to the assessment of the amendment is provided below. Further detail on the relevant new or updated baseline information is provided in BID-EC-019-000, including Map Series EC-02 which accompanies the SES2 and AP2 ES, and SES2 and AP2 ES Volume 5: Appendix EC-001-000, including Map Series EC-01.
- 5.19.33 For those receptors described in the main ES, further details are provided in Volume 2, CA3, Section 8, and Volume 5: Appendix EC-001-000, including Map Series EC-01. Baseline ecology reports that accompanied the main ES are provided in BID-EC-002-000 to BID-EC-014-000, including Map Series EC-02 to EC-12<sup>109</sup>.
- 5.19.34 For those receptors described in SES1, further details are provided in Volume 2, CA3, Section 3. The baseline ecology report that accompanied SES1 and AP1 ES is provided in BID EC-004-000, including Map Series EC-02, EC-04, EC-05, EC-10, EC-11 and EC-12<sup>110</sup>.

### Designated sites

- 5.19.35 The area subject to the amendment is located within a Natural England Impact Risk Zone<sup>111</sup> for Kings and Hargreaves Woods Site of Special Scientific Interest (SSSI), which is of national value. Kings and Hargreaves Woods SSSI, covering an area of approximately 57.6ha, is designated for two ancient woodland sites with mature timber and dead wood that support an 'outstanding' assemblage of ground beetles, including nationally uncommon species. The site is also important for its moths and breeding bird assemblage. Kings and Hargreaves SSSI is located to the south of the B5038 Whitmore Road, approximately 180m from the area subject to the amendment.
- 5.19.36 There is one LNR of relevance to the assessment of the amendment, which is of county value. Ferndown LNR, covering an area of approximately 6.8ha, is designated for its meadow grassland, scrub and broadleaved woodland. This LNR was not reported in the main ES because it was not relevant to the assessment of the original scheme. Ferndown LNR is located to north of the A500 Queensway east of the A519 Newcastle Road, partially within the area subject to the amendment.
- 5.19.37 There is one Local Wildlife Site (LWS) of relevance to the assessment of the amendment, which is of county value. Cliff's Rough LWS, covering an area of 4.6ha, is designated for ancient woodland supporting a diverse woodland and ground flora. Cliff's Rough LWS is located to the west of the M6, 20m to the west of the area subject to the amendment.
- 5.19.38 There are two Ancient Woodland Inventory (AWI) sites of relevance to the assessment of the amendment, which are of county value. These sites were not reported in the

<sup>109</sup> HS2 Ltd (2017). *High Speed Two (HS2) Phase 2a (West Midlands - Crewe), Background Information and Data*, Available online at: <https://www.gov.uk/government/publications/hs2-phase-2a-background-information-and-data-ecology-and-biodiversity>

<sup>110</sup> HS2 Ltd (2018). *High Speed Two (HS2) Phase 2a (West Midlands - Crewe), Background Information and Data*, Supplementary ecological baseline data (BID EC-004-000), Available online at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/692664/G33\\_Ecological\\_baseline\\_BID-EC-004-000\\_WEB.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/692664/G33_Ecological_baseline_BID-EC-004-000_WEB.pdf)

<sup>111</sup> The Impact Risk Zones is a GIS tool developed by Natural England to make a rapid initial assessment of the potential risks to SSSI is posted by development proposal and indicate the types of development proposals which could potentially have adverse impacts. In this case the impact risk zone for infrastructure has been considered in this SSSI.

main ES as they were not relevant to the assessment due to distance from the original scheme. These are:

- Hargreaves Wood AWI site, covering an area of approximately 8.6ha, which forms part of the Kings and Hargreaves Wood SSSI and comprises of ancient broadleaved woodland. Hargreaves Wood AWI site is located to the south of the B5038 Whitmore Road, approximately 500m from the area subject to the amendment; and
- Cliff's Rough AWI site, covering an area of approximately 4.7ha, which forms part of Cliff's Rough LWS and comprises ancient woodland with a diverse ground flora. Cliff's Rough AWI site is located to west of the M6, 20m to the west of the area subject to the amendment.

5.19.39 There are two Biodiversity Alert Sites (BAS) of relevance to the assessment of the amendment, which are of district/borough value. These sites were not reported in the main ES as they were not relevant to the assessment of the original scheme. These are:

- Ferndown BAS, covering an area of 5.9ha, which is designated for its areas of open meadow grassland, scrub, hedgerows and broadleaved woodland. Ferndown BAS largely overlaps with Ferndown LNR. This BAS was not reported in the main ES as it was not considered relevant to the assessment of the original scheme. Ferndown BAS is located to north of the A500 Queensway east of the A519 Newcastle Road, partially within the area subject to the amendment; and
- Hanchurch Roundabout BAS, covering an area of 0.3ha, is designated for its scrubby broadleaved woodland and diverse grassland ground flora. Hanchurch Roundabout BAS is located to the south-west of the Hanchurch interchange roundabout, partially within the area subject to the amendment.

### Habitats

5.19.40 Habitats within the area subject to the amendment include broadleaved woodland, improved grassland, semi-improved grassland, species-rich hedgerows, tree belts and a watercourse. The habitats of relevance to the assessment of the amendment are described in further detail below.

5.19.41 Areas of woodland are present at Ferndown LNR and Hanchurch Roundabout BAS. Tree belts comprising semi-mature native broadleaved species are present alongside the A500 Queensway and the A519 Newcastle Road. The tree belts and areas of woodland are likely to qualify as lowland mixed deciduous woodland, which is a habitat of principal importance listed under the provisions of Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006)<sup>112</sup> and a conservation priority of the Staffordshire Biodiversity Action Plan<sup>113</sup> (BAP). The woodland habitat is of up to county value.

5.19.42 A tree belt comprising mixed deciduous trees is present from the south-east corner of Hanchurch Interchange roundabout along the southern boundary of the A500

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<sup>112</sup> Natural Environment and Rural Communities Act 2006 (2006 CHAPTER 16). Her Majesty's Stationery Office, London.

<sup>113</sup> Staffordshire Biodiversity Partnership. Staffordshire Biodiversity Action Plan [online]. Available at: <http://www.sbap.org.uk/>

Queensway. This tree belt is located partially within the area subject to the amendment. The tree belt is of local/parish value.

- 5.19.43 Semi-improved grassland is present at Ferndown LNR. This qualifies as lowland meadow, which is a habitat of principal importance and a conservation priority of the Staffordshire BAP. The grassland is located partially within the area subject to the amendment. The grassland is of county value.
- 5.19.44 Park Brook is located within the area subject to the amendment to the south of Clayton. Park Brook is likely to qualify as a habitat of principal importance and is a conservation priority of the Staffordshire BAP. Park Brook is of up to county value.

### Species

- 5.19.45 Protected and/or notable species that are known or assumed to occur within the area subject to the amendment include bats, otter, badger, polecat, harvest mouse, European hedgehog, brown hare and common reptile species.
- 5.19.46 Woodland and semi-improved grassland within the area subject to the amendment offer suitable habitats for bats that do not form part of an existing bat assemblage reported within the main ES. On a precautionary basis these habitats are assumed to support bat roosts and to provide foraging and commuting opportunities for bats. The assumed bat assemblage associated with the habitats adjacent to the A500 Queensway and the A519 Newcastle Road is of up to county value.
- 5.19.47 Two ponds are located within proximity to the area subject to the amendment, one located to the east of the A519 Newcastle Road, approximately 30m from the area subject to the amendment, and one located to the west of the M6, approximately 80m from the area subject to the amendment. On a precautionary basis, these ponds are assumed to support breeding populations of great crested newts that do not form part of an existing metapopulation reported within the main ES or SES1. Habitats within proximity to these ponds are assumed to offer terrestrial habitat for the assumed great crested newt populations within the ponds. Great crested newt is an Annex 2<sup>114</sup> species, a species of principal importance and a conservation priority of the Staffordshire BAP. The assumed great crested newt populations adjacent to the M6 and A519 Newcastle Road near Hanchurch Interchange roundabout are of up to county value.
- 5.19.48 The area subject to the amendment includes Park Brook and suitable adjacent habitats that are assumed to offer shelter, foraging and dispersal opportunities for otter. Otter is a species of principal importance and conservation priority of the Staffordshire BAP. The population of otter is of district/borough value.
- 5.19.49 The main ES, as amended by SES1, reported at least 12 social groups of badger throughout the Stone and Swynnerton area, identified through field surveys. The area subject to the amendment includes suitable sett building and foraging habitats for badgers. The badger populations throughout the Stone and Swynnerton area are of local/parish value.

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<sup>114</sup> Annex 2 of the EU's Habitats Directive (1992) lists priority species whose conservation requires the designation of Special Areas of Conservation (SAC).



- 5.19.50 The main ES reported populations of other mammals including polecat, harvest mouse, European hedgehog and brown hare, identified through desk study records, as being potentially present throughout the Stone and Swynnerton area. The area subject to the amendment includes suitable habitats for these species. If present, these populations are of local/parish value.
- 5.19.51 The main ES reported populations of common reptile species such as grass snake and slow-worm, identified through desk study records, as being potentially present at low numbers throughout the Stone and Swynnerton area. Grass snake and slow-worm are both species of principal importance. Grass snake is also a conservation priority of the Staffordshire BAP. The area subject to the amendment includes suitable habitats for these species. If present, these populations are of local/parish value.

### *Future environmental baseline*

#### **Construction (2020)**

- 5.19.52 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### *Effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.19.53 The assessment assumes implementation of the measures set out within the draft CoCP.
- 5.19.54 The area subject to the amendment crosses Park Brook. Construction works will be restricted to within the highway boundary of the A519 Newcastle Road. Park Brook passes through an existing culvert under the A519 Newcastle Road. The amendment will not therefore result in direct impacts to Park Brook or its associated habitats or the species it is likely to support. Indirect effects to these habitats and species will be controlled through implementation of measures as detailed within the draft CoCP.

#### **Assessment of impacts and effects**

- 5.19.55 All of the effects within this section are reported in the absence of other mitigation.

### *Designated sites*

- 5.19.56 No effects on Kings and Hargreaves Wood SSSI were reported within the main ES. The amendment will not result in the loss of any habitats that form the SSSI. The amendment will not result in any significant indirect effects, such as air quality effects, on the habitats that form the SSSI. The amendment will not give rise to new significant effects upon the designated features of this SSSI.
- 5.19.57 The amendment will result in the loss of 0.6ha (9%) of woodland and grassland habitats at Ferndown LNR, this comprises 0.4ha of mixed deciduous woodland and 0.2ha of lowland meadow. These habitat types form part of the reason for the designation of the site. The amendment will give rise to a new permanent adverse effect on the structure and function of Ferndown LNR that is significant at the county level.

- 5.19.58 The amendment will result in the loss of 0.7ha (12%) of woodland and grassland at Ferndown BAS (0.6ha of which is the same habitat lost from Ferndown LNR), this comprises 0.5ha of mixed deciduous woodland and 0.2ha of lowland meadow. These habitat types form part of the reason for the designation of the site. The amendment will give rise to a new permanent adverse effect on the structure and function of Ferndown BAS that is significant at the district/borough level.
- 5.19.59 The amendment will result in the loss of 0.2ha (58%) of broadleaved woodland with a diverse ground flora from Hanchurch Roundabout BAS. This habitat type is the reason for the designation of the site. The amendment will give rise to a new permanent adverse effect on the structure and function of Hanchurch Roundabout BAS that is significant at the district/borough level.

#### *Habitats*

- 5.19.60 No effects on lowland meadow at Ferndown LNR and BAS were reported within the main ES. The amendment will result in the loss of 0.2ha of lowland meadow at Ferndown LNR and BAS. The amendment will give rise to a new permanent effect on lowland meadow at Ferndown LNR and BAS that is significant at the county level.
- 5.19.61 No effects on mixed deciduous woodland at Ferndown LNR and BAS or the woodland belt alongside the A500 Queensway and A519 Newcastle Road, which includes Hanchurch Roundabout BAS, were reported within the main ES. The amendment will result in the loss of 0.5ha of lowland mixed deciduous woodland at Ferndown LNR and BAS and the loss of 0.6ha of lowland mixed deciduous woodland from the woodland belt alongside the A500 Queensway and A519 Newcastle road, which includes Hanchurch Roundabout BAS. The amendment will give rise to a new permanent adverse effect on woodland at these locations that is significant at up to the county level.
- 5.19.62 It is not likely that any other effects on habitats of relevance at more than the local/parish level will occur as a result of the amendment. Additional local/parish level effects arising from the AP2 revised scheme are listed in SES2 and AP2 ES Volume 5: Appendix EC-016-000.

#### *Species*

- 5.19.63 No effects on the assumed bat assemblage associated with habitats along the A500 Queensway and the A519 Newcastle Road were reported within the main ES. The amendment will result in the loss of 1.1ha of mixed broadleaved woodland. On a precautionary basis these habitats are assumed to support bat roosts and to provide foraging and commuting habitat for bats. The loss of assumed roosts and foraging and commuting habitats will give rise to a new permanent adverse effect on the assumed bat assemblage associated with habitats along the A500 Queensway and the A519 Newcastle Road that is significant at the county level.
- 5.19.64 It is not likely that any other effects on species of relevance at more than the local/parish level will occur as a result of the amendment. Additional local/parish level effects arising from the AP2 revised scheme are listed in SES2 and AP2 ES Volume 5: Appendix EC-016-000.

## Mitigation and residual effects

### *Other mitigation measures*

- 5.19.65 The amendment includes the provision of 0.6ha of woodland habitat creation within the existing boundary of Ferndown LNR and BAS. Once established these habitat creation measures will compensate for the loss of 0.5ha of lowland mixed deciduous woodland that occurs within Ferndown BAS (which also includes 0.4ha loss within Ferndown LNR). This will reduce the effect resulting from this amendment on the lowland mixed deciduous woodland within Ferndown LNR and BAS to a level that is not significant.
- 5.19.66 As described above, the amendment includes the provision of 0.6ha of woodland habitat creation within the existing boundary of Ferndown LNR and BAS. The amendment also includes the provision of 120m of hedgerow to the north-east of the Hanchurch Interchange roundabout. Once established, these habitat creation measures will provide suitable bat foraging and commuting habitat. Artificial roosting provision will be provided within and adjacent to these habitat creation areas to replace bat roosts that will be lost to construction, in accordance with the Ecological Principles of Mitigation within the SMR Addendum. These measures will reduce the adverse effect resulting from this amendment on the assumed bat assemblage associated with habitats along the A500 Queensway and the A519 Newcastle Road to a level that is not significant.

### *Summary of likely residual significant effects*

- 5.19.67 The amendment will result in the loss of 0.2ha of lowland meadow from Ferndown BAS and LNR, which will give rise to a new permanent adverse residual effect that is significant at the district/borough level.
- 5.19.68 The amendment will result in the loss of 0.6ha of lowland mixed deciduous woodland from the woodland belt along the A519 Newcastle Road which includes 0.2ha within Hanchurch Roundabout BAS, which will give rise to a new permanent adverse residual effect that is significant at the district/borough level.
- 5.19.69 In consultation with relevant stakeholders, suitable offsite compensatory measures are being sought in order to reduce the permanent adverse effects on lowland meadow at Ferndown BAS and LNR, and on lowland mixed deciduous woodland from the woodland belt that includes Hanchurch Roundabout BAS to a level that is no longer significant.

## Cumulative effects

- 5.19.70 There are no new or different likely significant cumulative effects for ecology and biodiversity as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments.

## Landscape and visual

### *Scope, assumptions and limitations*

- 5.19.71 The assessment scope, key assumptions and limitations for landscape and visual are as set out in Volume 1, the SMR and SMR Addendum of the main ES.

- 5.19.72 The amendment has the potential to result in new or different significant construction and operational visual effects. The effects of the amendment on landscape character will be localised and will not affect the wider Landscape Character Area (LCA) during construction or operation. There is therefore no construction or operational assessment for landscape.

### *Existing environmental baseline*

- 5.19.73 The baseline landscape and visual information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 11 of the main ES.

### **Visual baseline**

- 5.19.74 The amendment is located outside the study area for the original scheme, therefore a new viewpoint has been identified to represent the view from residential properties along the A519 Newcastle Road. This viewpoint is described in the SES2 and AP2 ES Volume 5: Appendix LV-001-003 and summarised below.

### *View north-west from A519 Newcastle Road (viewpoint 019.02.013)*

- 5.19.75 This new viewpoint has been identified to represent the views experienced by residents along the A519 Newcastle Road. The view currently comprises the busy A519 Newcastle Road that connects into the nearby M6. The foreground view comprises the road bounded by a densely wooded embankment with mature trees to the south-east. This substantially screens further views towards a haulage depot and the movement HGVs. To the north-west there are views along the road corridor towards a roundabout bounded by trees.

### *Future environmental baseline*

### **Construction (2020) and operation (2027)**

- 5.19.76 The future baseline for construction in 2020 and operation in 2027 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### *Temporary effects arising during construction*

### **Avoidance and mitigation measures**

- 5.19.77 No avoidance or mitigation measures additional to those reported in the main ES and draft CoCP are identified.

### **Assessment of impacts and effects**

### *View north-west from A519 Newcastle Road (viewpoint 019.02.013)*

- 5.19.78 This viewpoint was not assessed in the main ES as it was unaffected by the original scheme. Construction activity associated with the amendment will be visible in close distance views from viewpoint 019.02.013, which is located on the A519 Newcastle Road and represents the view from nearby properties.
- 5.19.79 Construction activity associated with the amendment will include removal of the dense belt of linear established woodland and landscape mound along the western side of the road. This will open up views of the haulage depot (including movement of HGVs) and the M6 beyond, which together with the presence of construction activity

and associated vehicle movements will substantially change the outlook from properties along the A519 Newcastle Road. Construction of the amendment will therefore give rise to a high magnitude of change and a new major adverse significant effect, not reported in the main ES.

- 5.19.80 For further information see SES2 and AP2 ES Volume 5: Appendix LV-001-003 and SES2 and AP2 ES Volume 5: Landscape and visual Map Book.

### **Mitigation and residual effects**

#### *Other mitigation measures*

- 5.19.81 No mitigation measures additional to those reported in the main ES and draft CoCP are identified.

#### *Summary of likely residual significant effects*

- 5.19.82 The temporary residual significant effect during construction remains as described above. This effect will be temporary and reversible in nature lasting only for the duration of the construction works. The residual effect will generally arise from the widespread presence of construction activity and construction plant within the landscape and viewed from surrounding residents, and users of public rights of way (PRoW) and main roads within the study area.
- 5.19.83 The significant effect that will remain after implementation of construction phase mitigation is summarised below.
- 5.19.84 The amendment to modify the roundabout junction of the A500 Queensway/A519 Newcastle Road/Clayton Road (Hanchurch Interchange) and the signalised crossroads junction of the A519 Newcastle Road/A5182 Trentham Road/B5038 Whitmore Road and provide a new temporary satellite construction compound will give rise to a new likely residual significant construction effect at the view north-west from A519 Newcastle Road (viewpoint 019.02.013), which will be major adverse.

### **Cumulative effects**

- 5.19.85 There are no new or different likely significant cumulative effects for landscape and visual as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments.

#### *Permanent effects arising during operation*

### **Avoidance and mitigation measures**

- 5.19.86 No avoidance or mitigation measures additional to those reported in the main ES are identified.

### **Assessment of impacts and effects**

#### *View north-west from A519 Newcastle Road (viewpoint 019.02.013)*

- 5.19.87 The amendment will be visible in close distance views from residential properties on the A519 Newcastle Road. There will be permanent loss of the dense belt of linear mature woodland on a landscape mound, which currently serves to screen views of a haulage depot (including movement of HGVs) and the M6. A belt of woodland

mitigation planting is proposed within the footprint of the existing woodland that would be removed during construction along the A519 Newcastle Road.

- 5.19.88 At year 1, occupants of nearby properties along the A519 Newcastle Road will have close distance views across and along the road towards the area formerly occupied by the wooded embankment. The woodland planting will be visible in front of a new noise fence barrier. This will screen the lower parts of the haulage depot but the noise fence barrier will in itself be a prominent and uncharacteristic feature. Operation of the amendment will therefore give rise to a medium magnitude of change and a new moderate adverse significant effect, not reported in the main ES.
- 5.19.89 At year 15 and year 60, the maturing mitigation planting along the A519 Newcastle Road will partially screen the noise fence barrier and the outlook from viewpoint 019.02.013 will return to one of woodland. Operation of the amendment will therefore give rise to a low magnitude of change and a new minor adverse non-significant effect, not reported in the main ES.

### **Cumulative effects**

- 5.19.90 There are no new likely significant cumulative effects for landscape and visual as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments.

### **Sound, noise and vibration**

#### *Scope, assumptions and limitations*

- 5.19.91 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1 and the SMR of the main ES.
- 5.19.92 This amendment has the potential to result in new or different construction and operational effects for sound, noise and vibration. Therefore, both construction and operational effects are considered in the assessment.

#### *Existing environmental baseline*

- 5.19.93 The baseline sound, noise and vibration information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 13 of the main ES. In addition, further baseline sound levels have been obtained at locations representative of the assessment locations affected by the amendment to be used in the construction and operational airborne noise assessments. The additional baseline sound levels are presented in SES2 and AP2 ES Volume 5: Appendix SV-002-000.
- 5.19.94 The area close to the amendment includes residential properties on A519 Newcastle Road. The existing baseline at this area is dominated by road traffic noise from the M6, the A519 Newcastle Road and the A500 Queensway.

#### *Future environmental baseline*

### **Construction (2020) and operation (2027)**

- 5.19.95 The future baseline for construction in 2020 and operation in 2027 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### *Effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.19.96 No avoidance or mitigation measures additional to those reported in the main ES and draft CoCP are identified.

#### **Assessment of impacts and effects**

- 5.19.97 The amendment is located outside of the area assessed in the main ES and therefore, no likely residual significant effects were identified close to this amendment.
- 5.19.98 An assessment of construction noise has been undertaken for the works associated with the junction modifications, and the predicted construction noise levels are below the relevant noise assessment category at these properties. The amendment therefore will not give rise to any new or different likely residual significant effects from those reported in the main ES. For further information see SES2 and AP2 ES Volume 5: Appendix SV-002-000.

#### **Cumulative effects**

- 5.19.99 There are no new likely significant cumulative effects for sound, noise and vibration as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments.

### *Effects arising from operation*

#### **Avoidance and mitigation measures**

- 5.19.100 A noise fence barrier is provided as part of the amendment. No further avoidance or mitigation measures to those reported in the main ES are required.

#### **Assessment of impacts and effects**

- 5.19.101 The amendment is located outside of the area assessed in the main ES, and therefore no likely residual significant sound, noise or vibration effects were identified for the original scheme. An assessment has been undertaken to determine whether the operational airborne noise levels, as a result of the amendment, will result in a new likely significant effect, using the significance criteria detailed in Volume 5: Appendix SV-001-000 of the main ES. The operational assessment has considered the implications of the operational noise at the residential properties on the A519 Newcastle Road, as a result of:
- the permanent changes in road traffic noise from vehicles on the A519 Newcastle Road; and
  - the removal of an existing wooded embankment located between the A519 Newcastle Road and the haulage depot.
- 5.19.102 The wooded embankment between the A519 Newcastle Road and the haulage depot is identified in the relevant planning documents for the haulage depot, which states:

“Before the use hereby permitted is commenced, (i) an earth bank to deflect sound shall be constructed along the eastern side of the site ...”

- 5.19.103 To ensure that noise from the haulage depot is controlled to the same extent as at present, where this amendment results in a reduction in the height of the wooded embankment, it will be replaced with a noise fence barrier providing an equivalent acoustic performance<sup>115</sup>. To control sound reflected off the barrier to the properties on the A519 Newcastle Road, sound absorbing material may be required on the A519 Newcastle Road side of the barrier.
- 5.19.104 The predicted operational sound levels as a result of the amendment, are presented in the SES2 and AP2 ES Volume 5: Appendix SV-002-000 (Table 19) for the residential properties. The amendment will not give rise to any new or different significant operational airborne noise or vibration effects.

### **Cumulative effects**

- 5.19.105 There are no new or different likely significant cumulative effects for sound, noise and vibration as a result of this amendment acting in combination with any other AP2 amendments or AP1 amendments.

### **Traffic and transport**

#### *Scope, assumptions and limitations*

- 5.19.106 The assessment scope, key assumptions and limitations for traffic and transport are as set out in Volume 1, the SMR and SMR Addendum of the main ES.
- 5.19.107 This amendment has the potential to result in new or different significant construction and operational effects for traffic and transport. Therefore, both construction and operational phases are considered in this assessment.
- 5.19.108 The assessment in this section considers the potential effects resulting from the construction works associated with the amendment. The assessment of the changes to construction traffic flows as a result of this amendment in combination with all SES2 changes and AP2 amendments is reported in Section 7.

#### *Existing environmental baseline*

- 5.19.109 The baseline traffic and transport information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 14 of the main ES.
- 5.19.110 There are two strategic roads that pass through the Stone and Swynnerton area, the M6 and the A500 Queensway. The M6 traverses the centre of the area along a north to south alignment. The HS2 route will intersect the M6 to the west of Stone. Junction 15 of the M6 is located on the northern boundary of the Stone and Swynnerton area, where it forms a junction with the A500 Queensway. The A500 Queensway provides a connection between the M6 and Stoke-on-Trent.
- 5.19.111 The main local roads in the area are: the A519 Newcastle Road, which connects Eccleshall with Newcastle-under-Lyme; and the A5182 Trentham Road, which connects the A519 Newcastle Road with the A53 Whitmore Road in the adjoining Whitmore Heath to Madeley area (CA4) to the west. The junction of the A500 Queensway and A519 Newcastle Road is a busy four arm roundabout. The junction of

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<sup>115</sup> Both in terms of screening attenuation and sound absorption.



the A519 Newcastle Road and A5182 Trentham Road is a busy four-arm signal controlled junction which also provides access to a haulage business. The strategic and primary road network can get busy at peak times and queues and delays can be experienced.

### *Future environmental baseline*

#### **Construction (2023) and operation (2027 and 2041)**

- 5.19.112 The future baseline for construction in 2023 and operation in 2027 and 2041 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### *Effects arising during construction*

#### **Avoidance and mitigation measures**

- 5.19.113 No avoidance or mitigation measures additional to those reported in the main ES and draft CoCP are identified.

#### **Assessment of impacts and effects**

- 5.19.114 The main ES reported that construction of the original scheme would result in queues and delays for vehicle occupants at the A500 Queensway and A519 Newcastle Road roundabout and the A519 Newcastle Road and A5182 Trentham Road signal junctions, which would give rise to major adverse traffic congestion and delay effects, at both the A500 Queensway and A519 Newcastle Road roundabout and the A519 Newcastle Road and A5182 Trentham Road signal junctions, which are significant.
- 5.19.115 Although the amendment will reduce the impacts of construction traffic at the junction (considered in combination with all SES2 changes and AP2 amendments in Section 7), the temporary construction works associated with the modifications to the A500 Queensway and A519 Newcastle Road roundabout and the A519 Newcastle Road and A5182 Trentham Road signal junction and associated traffic management measures will be likely to result in a temporary reduction in capacity and some delays at the junction during its construction. Although once completed the changes will reduce congestion and delays, this amendment will give rise to a new temporary moderate adverse effect on traffic flows and delays for road users during construction, which is significant.
- 5.19.116 For further information see SES2 and AP2 ES Volume 5: Appendix TR-001-000, and the SES2 and AP2 ES Volume 5: Traffic and transport Map Book.

#### **Mitigation and residual effects**

##### *Other mitigation measures*

- 5.19.117 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

##### *Summary of likely residual significant effects*

- 5.19.118 During the junction works, the amendment will give rise to a new likely residual temporary moderate adverse significant effect on traffic flows and delays for road

users at the A500 Queensway and A519 Newcastle Road roundabout and the A519 Newcastle Road and A5182 Trentham Road signal junction.

### **Cumulative effects**

- 5.19.119 There are no new or different likely significant cumulative effects for traffic and transport as a result of the amendment acting in combination with any other AP2 amendments, AP1 amendments or any relevant committed development.

### *Effects arising from operation*

### **Avoidance and mitigation measures**

- 5.19.120 No avoidance or mitigation measures additional to those reported in the main ES are required.

### **Assessment of impacts and effects**

- 5.19.121 Whilst the amendment is not required to support the AP2 revised scheme in the operational phase, as the scheme does not add any substantial permanent traffic to the area, the junction will be retained following construction.
- 5.19.122 The main ES reported that the existing junctions currently operate over capacity with significant queues and delays. In the absence of any improvements, there would be a substantial worsening of queues and delays at the junctions in the future assessment years of 2027 and 2041. For further information see SES2 and AP2 ES Volume 5: Appendix TR-001-000.
- 5.19.123 This amendment will substantially reduce queues and delays at the A500 Queensway and A519 Newcastle Road roundabout in the 2027 future assessment year with the junction operating at capacity, and although the junction is forecast to operate over capacity in the 2041 future assessment year, both queues and delays will be substantially reduced when compared to the baseline. The amendment will give rise to a major permanent beneficial traffic effect for road users at the A500 Queensway and A519 Newcastle Road roundabout in the future assessment year of 2027, which is significant. This will reduce to a moderate permanent beneficial traffic effect for road users in the future assessment year of 2041, which is significant.
- 5.19.124 The amendment will substantially reduce queues and delays at the A519 Newcastle Road and A5182 Trentham Road signal junction in the 2027 and 2041 future assessment years with the junction operating within capacity. The amendment will give rise to a major permanent beneficial traffic effect for road users at the A519 Newcastle Road and A5182 Trentham Road signal junction in the future assessment years of 2027 and 2041, which is significant.
- 5.19.125 For further information see SES2 and AP2 ES Volume 5: Appendix TR-001-000, and the SES2 and AP2 ES Volume 5: Map Book.

### **Mitigation and residual effects**

#### *Other mitigation measures*

- 5.19.126 No further mitigation measures additional to those reported in the main ES are required.

### *Summary of likely residual significant effects*

- 5.19.127 The amendment will give rise to a new likely residual major permanent beneficial significant traffic effect for road users at the A500 Queensway and A519 Newcastle Road roundabout in the future assessment year of 2027, which will reduce to a likely residual moderate permanent beneficial significant effect, in the future assessment year of 2041.
- 5.19.128 The amendment will give rise to a new likely residual major permanent beneficial significant traffic effect for road users at the A519 Newcastle Road and A5182 Trentham Road signal junction in the future assessment years of 2027 and 2041.

### **Cumulative effects**

- 5.19.129 There are no new or different likely significant cumulative effects for traffic and transport as a result of the amendment acting in combination with any other AP2 amendments, AP1 amendments or any relevant committed development.

### **Monitoring**

- 5.19.130 Volume 1 of the main ES sets out the general approach to environmental monitoring during operation of the original scheme.
- 5.19.131 There are no changes to the monitoring requirements identified in the main ES for traffic and transport as a result of this amendment.

### **Water resources and flood risk**

#### *Scope, assumptions and limitations*

- 5.19.132 The assessment scope, key assumptions and limitations for water resources and flood risk are as set out in Volume 1, the SMR and the SMR Addendum of the main ES and SMR Addendum 2 (see SES2 and AP2 ES Volume 5: Appendix CT-001-000).
- 5.19.133 This amendment has the potential to result in new or different significant construction effects only. Therefore, there is no operational assessment for water resources and flood risk.

#### *Existing environmental baseline*

- 5.19.134 The baseline water resources information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 15 of the main ES. Further details relating to water resources and flood risk for this area are provided in Volume 5: Appendix WR-002-003 and Appendix WR-003-003 and the Volume 5: Water resources and flood risk Map Book of the main ES.
- 5.19.135 This amendment is close to Park Brook, a tributary of the River Trent. It will involve construction activities of a nature and scale that have potential water quality implications.

### *Future environmental baseline*

#### **Construction (2020)**

- 5.19.136 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### *Effects arising during construction*

- 5.19.137 The main ES reported no significant effects on surface water quality due to site runoff and increased pollution risk in the vicinity of this amendment. The amendment has the potential to give rise to temporary adverse impacts on surface water quality which could affect the water environment. However, the amendment will be constructed in accordance with the measures specifically designed to safeguard water resources outlined in the draft CoCP.
- 5.19.138 Therefore, the amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

#### **Cumulative effects**

- 5.19.139 There are no new or different likely significant cumulative effects for water resources and flood risk as a result of the amendment acting in combination with any other AP2 amendments or AP1 amendments.

### **Summary of new or different likely residual significant effects as a result of the amendment**

- 5.19.140 The amendment will give rise to a new likely residual temporary significant in-combination effect on approximately 16 properties on the A519 Newcastle Road, due to significant visual and HGV effects.
- 5.19.141 The loss of 0.2ha of lowland meadow from Ferndown BAS and LNR during construction of the amendment will give rise to a new likely residual permanent adverse significant effect. Construction of the amendment will additionally result in the loss of 0.6ha of lowland mixed deciduous woodland from the woodland belt along the A519 Newcastle Road, which includes 0.2ha within Hanchurch Roundabout BAS, which will give rise to a new likely residual permanent adverse significant effect.
- 5.19.142 The amendment will give rise to a new likely residual major adverse significant construction effect at viewpoint 019.02.013.
- 5.19.143 During construction, the amendment will result in a new likely residual temporary moderate adverse significant effect on traffic flows and delays for road users at the A500 Queensway and A519 Newcastle Road roundabout and the A519 Newcastle Road and A5192 Trentham Road signal junction.
- 5.19.144 During operation, the amendment will give rise to a new likely residual major permanent beneficial significant traffic effect for road users at the A500 Queensway and A519 Newcastle Road roundabout in the future assessment year of 2027, which will reduce to a likely residual moderate permanent beneficial significant effect, in the future assessment year of 2041. The amendment will also give rise to a new likely residual major permanent beneficial significant traffic effect for road users at the A519

Newcastle Road and A5182 Trentham Road signal junction in the future assessment years of 2027 and 2041.

## **5.20 Additional land required and a change to Bill powers for the stopping up of Bent Lane (South) 400m west of Dog Lane overbridge (AP2-003-018)**

- 5.20.1 The Bill provided for the existing Bent Lane, which is crossed three times by the HS2 alignment, to be split into the Bent Lane (North) diversion and the Bent Lane (South) realignment. For through traffic, Bent Lane would be diverted to the north of the HS2 route, over a distance of 750m, to create Bent Lane (North), which would run parallel to the HS2 route and pass south of Shelton under Harley Farm, before continuing into the Whitmore Heath to Madeley area (CA4). See Map CT-06-228a, E5 to A5, in the main ES Volume 2, CA3 Map Book and Map CT-06-229, J5 to F4 in the main ES Volume 2, CA4 Map Book.
- 5.20.2 There would also be a realignment of Bent Lane on the southern side of the HS2 route, over a distance of 350m, to create Bent Lane (South), running parallel to the route of the scheme and continuing for 350m into the Whitmore Heath to Madeley area (CA4), where Bent Lane (South) would be stopped up and a turning head would be provided. See Map CT-06-228a, E9 to A6, in the main ES Volume 2, CA3 Map Book and Map CT-06-229, J6 to H6, in the main ES Volume 2, CA4 Map Book.
- 5.20.3 Swynnerton Footpath 10 accommodation underbridge would provide non-motorised user and private vehicle access to Shelton under Harley Farm, to the north-east of the HS2 route, by connecting the diverted Bent Lane (North) and the realigned Bent Lane (South). See Map CT-06-228a, B6 to B5, in the main ES Volume 2, CA3 Map Book. Swynnerton Footpath 10 would be diverted 50m north-west of its existing alignment to cross under the HS2 route via Swynnerton Footpath 10 accommodation underbridge. Bent Lane (South) would provide a connection between the existing Swynnerton Footpath 10 and the diverted Swynnerton Footpath 10 over a length of 75m. See Map CT-06-228a, B5 to B6, in the main ES Volume 2, CA3 Map Book.
- 5.20.4 The AP1 revised scheme (AP1-003-006: Additional land permanently required for the provision of a roundabout at the junction of the realigned Dog Lane, the A51 The Rowe, Bent Lane and the A51 through Stableford) introduced modifications to the alignment of Bent Lane (South) at its southern end, where a roundabout was introduced at the junction of A51 The Rowe, Dog Lane and Bent Lane (South). The southern end of Bent Lane (South) was realigned horizontally by 28m to the east and was raised by up to 0.6m to tie into the roundabout. See Map CT-06-228a, E9 to D8, in the SES1 and AP1 ES Volume 2, CA3 Map Book. Approximately 500m of additional hedgerow habitat creation would be provided along both sides of the Bent Lane (South) realignment, on the approach to the roundabout.
- 5.20.5 Since submission of the Bill, engagement with the landowner has identified an opportunity to amend the position at which Bent Lane (South) is stopped up. As a result, the Bent Lane (South) stopping up location will be moved south-east along the proposed road to a point 130m north of the junction of Bent Lane (South) and the realigned Dog Lane. See Map CT-06-228a, D8, in the SES2 and AP2 ES Volume 2, CA3 Map Book. At this location the existing Bent Lane has a widened verge to the west,

which will be used to form a turning space for vehicles. This is adjacent to an existing Network Rail compound and access for Network Rail will be maintained.

- 5.20.6 Beyond the new turning head, Bent Lane (South) will no longer be a public road. The alignment will be unchanged from the AP1 revised scheme and will be retained as an HS2 maintenance access and an accommodation access. Accommodation access for Shelton under Harley Farm via Swynnerton Footpath 10 accommodation underbridge will be maintained. The Swynnerton Footpath 10 diversion will be extended 75m south-east along a section of the Bent Lane (South) alignment to connect to the existing Swynnerton Footpath 10. At its southern end, an additional section of footpath will be provided to connect Swynnerton Footpath 10 to the realigned Bent Lane (South). See Map CT-06-228a, B6 to B5 and D9, in the SES2 and AP2 ES Volume 2, CA3 Map Book. This does not change the diversion route for users of the footpath but is necessary to maintain the public right of way (PRoW) along a section of Bent Lane (South) since it is no longer proposed to be a highway open to all traffic.
- 5.20.7 To accommodate the new turning head, 15m of hedgerow habitat creation proposed in the AP1 revised scheme to the west of Bent Lane (South) at the new location of the Bent Lane (South) stopping up point will no longer be provided.
- 5.20.8 The amendment will be constructed within the overall period for the realignment of Bent Lane (South), nine months, commencing in 2022.
- 5.20.9 The proposal to stop up Bent Lane (South) in a different location to that proposed within the Bill will require a change to Bill Powers. The southern extension of the Swynnerton Footpath 10 will result in a requirement for an additional 65m<sup>2</sup> of land, none of which is assumed to be from agricultural land holdings. See Map CT-06-228a, D9, in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that all of the additional land will be returned to its existing use following construction.

### **Topics included in the AP2 assessment**

- 5.20.10 This amendment is not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES, as amended by SES1 and SES2, with respect to any environmental topics.

## **5.21 A change to Bill powers for a new permanent diversion of G2084 Shelton under Harley Lane to form a new junction with Bent Lane (North) diversion (AP2-003-019)**

- 5.21.1 The Bill provides for the permanent diversion of Bent Lane to the northern side of the HS2 main line, over a distance of 750m, to create Bent Lane (North). Bent Lane (North) would run parallel to the HS2 main line, and pass south of Shelton under Harley, before continuing into the Whitmore Heath to Madeley area (CA4), with an increase in journey length of 55m. See Map CT-06-228a, E5 to A5, in the main ES Volume 2, CA3 Map Book. A junction between Bent Lane (North) diversion and the existing Green Lane, G2084 Shelton under Harley Lane, would be created close to the position of the existing junction between Bent Lane and G2084 Shelton under Harley Lane. There would be hedgerow habitat creation along part of the existing G2084 Shelton under Harley Lane, along the perimeter of Shelton under Harley Farm

cottages and along the diverted Bent Lane (North) to provide replacement habitat, ecological connectivity and visual screening. See Map CT-06-228a, C5 to D4, in the main ES Volume 2, CA3 Map Book.

- 5.21.2 Hatton North cutting satellite compound, from which the diversion and junction works would be managed, would be located close to the Bent Lane (North) diversion. See Map CT-05-228a, D5 to C4, in the main ES Volume 2, CA3 Map Book.
- 5.21.3 Since submission of the Bill, a requirement has been identified to improve visibility for vehicles turning into the diverted Bent Lane (North) from G2084 Shelton under Harley Lane. To improve visibility at the junction, a new diversion has been created for G2084 Shelton under Harley Lane, approximately 130m in length, to form a new junction with Bent Lane (North) in a location approximately 150m south-east of the junction position in the original scheme. Perimeter drainage will be provided along the new diverted route. A new bridleway, Swynnerton New Bridleway 3, will be provided along the existing G2084 Shelton under Harley Lane to maintain pedestrian and equestrian access. See Map CT-06- 228a, C5, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.21.4 A modification to the shape of the Hatton North cutting satellite compound will be required to accommodate the G2084 Shelton under Harley Lane diversion. This will not affect the function or characteristics of the compound as described in the original scheme.
- 5.21.5 Approximately 70m of hedgerow habitat creation, included in the original scheme, along the perimeter of Shelton under Harley Farm cottages and along the diverted Bent Lane (North) will be relocated. This amendment will result in a net reduction of 67m of hedgerow habitat creation compared to that proposed in the original scheme. See Map CT-06- 228a, C4 to C5, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.21.6 This amendment will be constructed within the overall period of nine months as set out for Bent Lane (North) diversion, commencing in 2021.
- 5.21.7 The diversion of G2084 Shelton under Harley Lane to form a new junction with the diverted Bent Lane (North) is outside the limits of the Bill and will require in a change to Bill powers. See Map CT-05-228a, D5 to C5, in the SES2 and AP2 ES Volume 2, CA3 Map Book.

### **Local alternatives**

- 5.21.8 A preliminary options appraisal was undertaken of three options of which one option was not taken forward for further consideration as it was not considered to be a reasonable alternative.
- 5.21.9 Option 1 related to the widening of the highway verge to improve visibility for vehicles turning from the junctions in to Bent Lane (North). It was not considered proportionate because the extent of verge widening on Bent Lane (North) would require extra land from the gardens of two properties on the north-eastern side of the road to the extent that it may have required demolition of these properties. It was therefore not progressed further.
- 5.21.10 The following two options were taken forward to a more detailed appraisal where engineering and construction feasibility, cost and environmental impacts were considered:

- Option 2: This option would straighten the alignment of the Bent Lane (North) diversion compared to that proposed in the original scheme and introduce a diversion of G2084 Shelton under Harley Lane. A section of the existing Bent Lane, in front of Shelton under Harley Farm, would provide a connection between the farm's vehicle access and the new Bent Lane (North) diversion by way of a new junction. A straighter alignment of Bent Lane (North) would increase visibility for vehicles turning into the road from the affected junctions and would increase forward visibility for drivers travelling along Bent Lane (North). The diversion of G2084 Shelton under Harley Lane would move the junction with Bent Lane (North) to a new position along the Bent Lane (North) diversion where visibility for vehicles turning into Bent Lane (North) would be improved. The new junction provided for access to Shelton under Harley Farm and would also connect to the Bent Lane (North) diversion at a point where visibility would be improved; and
- Option 3 (the AP2 revised scheme): would introduce the same diversion to G2084 Shelton under Harley Lane as in Option 2, but would retain the alignment of the Bent Lane (North) diversion and the vehicle access to Shelton under Harley Farm as in the original scheme. This option would include a reduced design speed for vehicles along Bent Lane (North). This option would improve visibility for vehicles turning from G2084 Shelton under Harley Lane into Bent Lane (North) by moving the junction position along the Bent Lane (North) diversion.

5.21.11 Option 3 was identified as the preferred option as on balance it presented the most favourable option from a cost and construction perspective, whilst only resulting in a minor increase in environmental impacts in comparison to the original scheme. Option 2 and Option 3 are broadly environmentally comparable, however Option 2 would introduce additional road construction and earthworks for the revised alignment of Bent Lane (North) that would be incongruous with the existing landform, but road traffic would be further away from residential properties. Both options would improve safety at the affected junctions and along Bent Lane (North). Option 2 would, however, be more expensive due to the need to realign a larger part of Bent Lane (North), increasing the length of new road construction and resulting in additional earthworks.

5.21.12 The analysis of engineering, cost and potential environmental impacts associated with the options is set out below, with the impacts of the preferred option presented first.

### *Option 3*

5.21.13 In comparison to the original scheme, Option 3 would improve safety for vehicles using the junctions of G2084 Shelton under Harley Lane and the vehicle access to Shelton under Harley Farm where they meet the Bent Lane (North) diversion. The option is broadly environmentally comparable to the original scheme but would result in a slight increase in the total net length of culverts on the unnamed tributary of Meece Brook, due to the diversion of G2084 Shelton under Harley Lane, and a slight increase in the number of hedgerows bisected. There are increased costs associated with this option, compared with the original scheme, due to the need to



divert G2084 Shelton under Harley Lane, culvert a watercourse and provide perimeter drainage sections along the realigned highways.

### *Option 2*

- 5.21.14 In comparison to Option 3, Option 2 would introduce additional earthworks for the revised alignment of Bent Lane (North) that would be incongruous with the existing landform. Option 2 would also require marginally more land from Shelton under Harley Farm and the number of hedgerows bisected would increase. The realignment of Bent Lane (North) further from the residential properties would, however, result in reduced disturbance from road traffic. The costs associated with this option are higher than Option 3 due to the need to realign Bent Lane (North) on a different alignment, which would therefore require sections of new highway which would not be required with Option 2.

### **Topics included in the AP2 assessment**

- 5.21.15 This amendment is not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES, as amended by SES1 and SES2, with respect to any environmental topics.

## **5.22 Additional land required and change to Bill powers for changes to the vertical and horizontal alignment between Hatton South cutting and Madeley Bridleway 1 accommodation green overbridge (AP2-004-002)**

- 5.22.1 The majority of this amendment and all relevant potential receptors lie within the Whitmore Heath to Madeley area (CA4), therefore a detailed description of the amendment and assessment of effects are reported in SES2 and AP2 ES, Volume, Community area 4, Whitmore Heath to Madeley. Part of this amendment lies within the Stone and Swynnerton area and the works associated with this amendment within the Stone and Swynnerton area are reported below.
- 5.22.2 The Bill provides for the HS2 route within the Hatton South cutting which would continue onto the Stableford South embankment. This section of the route would be within the Stone and Swynnerton area, before proceeding into the Whitmore Heath to Madeley area, west of Shelton under Harley Farm.
- 5.22.3 This section of HS2 route is illustrated on Map CT-06-227 to CT-06-228a in the main ES Volume 2: CA3 Map Book.
- 5.22.4 Due to the complexity of the amendment resulting from the changes to alignment, this amendment is described in the following two parts:
- Part 1 – amendments to the vertical alignment of the HS2 route from Hatton South cutting to River Lea viaduct. The land required to construct the vertical alignment amendments are outside the limits of the Bill and will result in the permanent requirement for approximately 15ha of additional land. A change to Bill powers is also required to alter the limits of deviation as set out in the Bill; and
  - Part 2 – amendments to the horizontal alignment of the HS2 route from Stableford North embankment to Madeley Bridleway 1 accommodation green

overbridge. Works associated with the horizontal alignment amendments will require a change to Bill powers to alter the limits of deviation as set out in the Bill.

5.22.5 Part 1 amendments are relevant to the Stone and Swynnerton area.

*Part 1: Additional land permanently required and a change to Bill powers for the change to the vertical alignment of the HS2 route from the Hatton South cutting to River Lea viaduct*

5.22.6 In the Stone and Swynnerton area, the Bill provides for the HS2 route within the Hatton South cutting and continuing onto the Stableford South embankment. See Maps CT-06-227 to CT-06-228a in the main ES Volume 2: CA3 Map Book.

5.22.7 In the Stone and Swynnerton area the Bill provides for the following:

- Hatton South cutting, 1.3km in length, up to 10m in depth and 72m in width. See Map CT-06-227, E6 to A5, and Map CT-06-228a, J6 to F6, in the main ES Volume 2: CA3 Map Book;
- Hatton North cutting, 695m in length, up to 5m in depth and 48m in width, with landscape mitigation planting on both sides of the HS2 route. See Map CT-06-228a, F5 to A5, in the main ES Volume 2: CA3 Map Book;
- closure and realignment of Bent Lane to the southern side of the HS2 route. The realignment would be 350m in length and 100m south-west of its existing alignment, passing along the southern side of the route to create Bent Lane (South). The realignment would continue along the southern side of the route for 600m, crossing into the Whitmore Heath to Madeley area (CA4) where the road would be stopped up. See Map CT-06-228a, D7 to A6, in the main ES Volume 2: CA3 Map Book and Map CT-06-229, J7 to H6, in the main ES Volume 2: CA4 Map Book;
- a balancing pond for railway drainage, on the southern side of the HS2 route, 350m west of Dog Lane overbridge. Access would be provided from Bent Lane (South). See Map CT-06-228a, D8 to C7, in the main ES Volume 2: CA3 Map Book; and
- Stableford South embankment, 165m in length and up to 10m in height, with landscape mitigation planting on the northern side of the HS2 route. See Map CT-06-228a, C6 to B6, in the main ES Volume 2: CA3 Map Book.

5.22.8 The Select Committee published their Second Report<sup>116</sup> confirming their in-principle decision that there should be an extension of the southern portal of Whitmore Heath tunnel. This has resulted in changes to the vertical alignment of the HS2 route between the Hatton South cutting and River Lea viaduct to enable the southern porous portal of the Whitmore Heath tunnel to be relocated south-east of the A53 Newcastle Road, to avoid the requirement to temporarily realign the A53 Newcastle Road, and to change the construction method of the Whitmore Heath tunnel from cut and cover and twin bore, to twin bore only.

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<sup>116</sup> House of Commons (2018). *High Speed Rail (West Midlands - Crewe) Bill Select Committee, Second Special Report of Session 2017-19*. Available online at: <https://publications.parliament.uk/pa/cm201719/cmselect/cmhs2/1452/1452.pdf>

- 5.22.9 In the Stone and Swynnerton area the following amendments will be required as part of changing the vertical alignment:
- the northern part of Hatton South cutting will be raised by up to 0.6m, to up to 9.4m in depth. See Map CT-06-227, C6 to A6, to Map CT-06-228a, J5 to F5, in the SES2 and AP2 ES Volume 2, CA3 Map Book; and
  - Hatton North cutting will be raised by up to 0.8m, to a depth of up to 4.2m. The associated earthworks will be reduced slightly in height by 0.3m and width by 1.9m. See Map CT-06-228a, F5 to A5, in the SES2 and AP2 ES Volume 2, CA3 Map Book.
- 5.22.10 The activities associated with this amendment in the Stone and Swynnerton and Whitmore Heath to Madeley areas will be constructed over a period of five years and nine months, commencing in 2020. Works will be managed from Hatton South cutting satellite compound and Hatton North cutting satellite compound in the Stone and Swynnerton area. Works will be managed from Stableford North embankment satellite compound, Whitmore Heath tunnel satellite compound, Whitmore Heath tunnel south portal satellite compound, Whitmore Heath tunnel north portal satellite compound, Whitmore North cutting satellite compound, and River Lea viaduct satellite compound in the Whitmore Heath to Madeley area.
- 5.22.11 The changes to the Whitmore Wood overbridge are outside the limits of the Bill and will require a change to Bill powers. The amendment to construct the twin-bore section and relocate the southern porous portal of Whitmore Heath tunnel is outside the limits of the Bill and will result in the requirement for approximately 15ha of additional land, all within the Whitmore Heath to Madeley area. See Map CT-06-231, C6 to C5, and Map CT-05-229, D9 to A8, in the SES2 and AP2 ES Volume 2, CA4 Map Book. It is assumed that all of the additional land will be returned to its existing use following construction.

### **Topics included in the AP2 assessment**

- 5.22.12 This amendment is not considered to require a reassessment of the environmental effects or mitigation within the Stone and Swynnerton area, as set out in the main ES, as amended by SES1 and SES2, with respect to any environmental topics.

## 6 Assessment of minor utility amendments in the Stone and Swynnerton area

### 6.1 Additional land for the permanent overhead diversion of a Western Power Distribution 11kV overhead line near Pirehill Grange Farm (AP2-003-101)

- 6.1.1 The Bill provides for the permanent underground diversion of a Western Power Distribution 11kV overhead line, 380m in length, parallel to the existing overhead line, crossing the HS2 route 30m south-east of Pirehill culvert. See Map CT-06-220b, D7 to C7, A7 and C4 to C3 and CT-06-221, I7 to H7, in the main ES Volume 2, CA3 Map Book.
- 6.1.2 Since submission of the Bill, further engagement with the utility provider has identified a need to change the alignment of the diversion. The diversion of the 11kV overhead line will be 800m in length, parallel to the western side of the HS2 route, 250m north of Pirehill Grange Farm. See Map CT-06-220b, D7 to A7, and CT-06-221, J7 to H7, in the SES2 and AP2 ES Volume 2, CA3 Map Book. The amendment will result in a requirement for an additional 3ha of land, some of which will be from the following agricultural holdings: Aston Pool Farm (CA3/3); Pirehall Cottage Farm (CA3/4) and North Pirehill Farm (CA3/5). See Map CT-05-220b, C4 to C3, D7 to C7 and A7, and CT-05-221, I7 to H7, in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that the majority of the additional land will be returned to its existing use following construction.
- 6.1.3 The activities will require the removal of any surface material from the area of the diversion route (this may include vegetation, soil, and road surfacing), the removal of existing utility infrastructure (where necessary) and installation of the utility. As required and where suitable, topsoil will be temporarily stored adjacent to the working area and will be used to reinstate the area once the works are complete. Activities to divert the utility are currently planned to be carried out in 2021-2022 and are expected to take approximately six months to complete.
- 6.1.4 This amendment is not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES, as amended by SES1 and SES2, with respect to any environmental topics.

### 6.2 Additional land for the permanent underground diversion of a Western Power Distribution 11kV overhead line near North Pirehill Farm (AP2-003-102)

- 6.2.1 The Bill provides for the permanent underground diversion of a Western Power Distribution 11kV overhead line, 290m in length, parallel to the existing overhead line, 70m west of North Pirehill Farm. See Map CT-06-220b, D7 to A4, and CT-06-221, J7 to G3, in the main ES Volume 2, CA3 Map Book.
- 6.2.2 Since submission of the Bill, further engagement with the utility provider has identified a need to change the alignment of the diversion. The diversion of the utility will be 385m in length, crossing the HS2 route 40m east of Pirehill Lane.

See Map CT-06-221, H4 to G4, in the SES2 and AP2 ES Volume 2, CA3 Map Book. The amendment will result in a requirement for an additional 0.4ha of land from North Pirehall Farm (CA3/5). See Map CT-05-221, H4 to G2, in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that all of the additional land will be returned to its existing use following construction.

- 6.2.3 The activities will require the removal of any surface material from the area of the diversion route (this may include vegetation, soil, and road surfacing), the removal of existing utility infrastructure (where necessary) and installation of the utility. As required and where suitable, topsoil will be temporarily stored adjacent to the working area and will be used to reinstate the area once the works are complete. Activities to divert the utility are currently planned to be carried out in 2021-2022 and are expected to take approximately six months to complete.
- 6.2.4 This amendment is considered to require reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, for the following topics: community, cultural heritage and sound, noise and vibration.

### *Community*

- 6.2.5 The additional land for the permanent underground diversion of a Western Power Distribution 11kV overhead line near North Pirehill Farm was not included in the original scheme and therefore the main ES did not report any significant in-combination effects associated with it. This amendment has been assessed for potential noise effects to determine if these give rise to a new significant in-combination effect on community resources in this area. The assessment has concluded that this amendment will not give rise to any new likely residual significant effects.

### *Cultural heritage*

- 6.2.6 The main ES reported a minor adverse temporary effect, which is not significant, on North Pirehill Farm, a courtyard farm of historic brick buildings (STS005), a non-designated asset of low value. Construction of the amendment will further affect the setting of the asset. This will give rise to a new temporary high adverse impact and a new temporary moderate adverse effect, which is significant.
- 6.2.7 For further information see the SES2 and AP2 ES Volume 5: Cultural heritage Map Book and the SES2 and AP2 ES Volume 5: Appendix CH-003-000.

### *Sound, noise and vibration*

- 6.2.8 The main ES did not identify any likely significant effects on a community basis close to this amendment. However, the amendment has the potential to result in a new or different likely significant construction noise effects at residential properties in the vicinity of North Pirehill Farm.
- 6.2.9 The assessment has considered the construction noise and vibration levels associated with the amendment and those identified in the main ES, the construction programme for the amendment and local mitigation identified in the main ES. The amendment will not give rise to any new or different likely residual significant effects compared to those reported in the main ES. For further information, see SES2 and AP2 ES Volume 5: Appendix SV-002-000.

### **6.3 Additional land for the permanent diversion of an underground Openreach telecommunications cable between Stafford motorway service area southbound and Pirehill Lane (AP2-003-103)**

- 6.3.1 Since submission of the Bill, further engagement with the utility provider has identified a need for additional land to permanently divert an Openreach telecommunications cable, 650m in length. Additional land between Stafford motorway service area southbound and Pirehill Lane will be temporarily required for access and additional land crossing the HS2 route at the Stone Rural Footpath 32 accommodation overbridge will be permanently required. See Map CT-06-221, I10 to E1, and Map CT-06-221-R1, E10 to D7, in the SES2 and AP2 ES Volume 2, CA3 Map Book. The amendment will result in a requirement for an additional 4.3ha of land, some of which will be from the following agricultural holdings: Walton House Farm (CA3/6) and North Pirehill Farm (CA3/5). See Map CT-05-221, I10 to E6 and F5 to E1, and Map CT-05-221-R1, E10 to D7, in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that all of the additional land will be returned to its existing use following construction.
- 6.3.2 The activities will require the removal of any surface material from the area of the diversion route (this may include vegetation, soil, and road surfacing), the removal of existing utility infrastructure (where necessary) and installation of the utility. As required and where suitable, topsoil will be temporarily stored adjacent to the working area and will be used to reinstate the area once the works are complete. Activities to divert the utility are currently planned to be carried out in 2021-2022 and are expected to take approximately six months to complete.
- 6.3.3 This amendment is not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES, as amended by SES1 and SES2, with respect to any environmental topics.

### **6.4 Additional land and change to Bill powers for temporary access to enable the removal of a Western Power Distribution 11kV underground cable and switchgear at Walton House Farm (AP2-003-104)**

- 6.4.1 The Bill provides for the permanent underground diversion of a Western Power Distribution 11kV underground electricity cable, 105m in length, from a pole located within Walton House Farm to a location 40m north-east of the HS2 route. See Map CT-06-221, D4 to B1, CT-06-222, J4 to I1, and CT-06-221-R1, B10 to B9, in the main ES Volume 2, CA3 Map Book.
- 6.4.2 Since submission of the Bill, further engagement with the utility provider has identified a need to remove the Western Power Distribution 11kV underground electricity cable and associated infrastructure. The removed section will be approximately 105m in length, from a pole located within Walton House Farm to a location 40m north-east of the HS2 route. See Map CT-05-221, D4 to B1, CT-05-222, J4 to I1, and CT-05-221-R1, B10 to B9, in the SES2 and AP2 ES Volume 2, CA3 Map Book. The amendment will result in a requirement for an additional 0.1ha of land, none of which is assumed to be from agricultural holdings.

See Map CT-05-221, D4 to B1, CT-05-222, J4 to I1, and CT-05-221-R1, B10 to B9 in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that all of the additional land will be returned to its existing use following construction.

- 6.4.3 The activities will require the removal of any surface material from the area of the utility to be removed (this may include vegetation, soil, and road surfacing) and removal of existing utility infrastructure. As required and where suitable, topsoil will be temporarily stored adjacent to the working area and will be used to reinstate the area once the works are complete. Activities to remove the utility are currently planned to be carried out in 2021-2022 and are expected to take approximately six months to complete.
- 6.4.4 This amendment is not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES, as amended by SES1 and SES2, with respect to any environmental topics.

## **6.5 Additional land for the permanent diversion of an underground Zayo telecommunications cable along the A34 The Fillybrooks and the B5026 Eccleshall Road (AP2-003-105)**

- 6.5.1 The AP1 revised scheme (AP1-003-105: Additional land for the permanent removal of Zayo underground telecommunications cables near Yarnfield Lane) provides for the permanent removal of an existing Zayo fibre optic telecommunications cable. A 600m section of the existing utility would be removed to the north of the HS2 route, near Yarnfield Lane. See Map CT-05-222, D4 to B5, in the SES1 and AP1 ES Volume 2, CA3 Map Book.
- 6.5.2 Since submission of SES1 and AP1 ES, further engagement with the utility provider has identified a need for additional land to permanently divert the underground Zayo telecommunications cable, 1.4km in length, running along the A34 The Fillybrooks from the junction with Yarnfield Lane, and the B5026 Eccleshall Road to the junction with Tilling Drive. See Map CT-06-222-R1, I4 to C3, in the SES2 and AP2 ES Volume 2, CA3 Map Book. The amendment will result in a requirement for an additional 7.4ha of land within the existing public highway boundary. See Map CT-05-222-R1, I4 to C3 in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that all of the additional land will be returned to its existing use following construction.
- 6.5.3 This amendment is dependent on AP1-003-105 (Additional land for the permanent removal of Zayo underground telecommunications cables near Yarnfield Lane) being approved, as part of the additional land included within the AP1 revised scheme is required for the utility works described in this AP2 amendment.
- 6.5.4 The activities will require the removal of any surface material from the area of the diversion route (this may include vegetation, soil, and road surfacing), the removal of existing utility infrastructure (where necessary) and installation of the utility. As required and where suitable, topsoil will be temporarily stored adjacent to the working area and will be used to reinstate the area once the works are complete. Activities to divert the utility are currently planned to be carried out in 2021-2022 and are expected to take approximately six months to complete.

- 6.5.5 This amendment is not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES, as amended by SES1 and SES2, with respect to any environmental topics.

## **6.6 Additional land for the permanent diversion of an underground Zayo telecommunications cable along the A34 The Fillybrooks and the A51 Bury Bank (AP2-003-106)**

- 6.6.1 The AP1 revised scheme (AP1-003-106: Additional land and change in Bill powers for the permanent removal of a Zayo underground telecommunications cable between Yarnfield Lane and the A51 Bury Bank) provides for the existing underground telecommunications cable between Yarnfield Lane and A51 Bury Bank to be removed. See Map CT-05-223-L1, I4 to A1, and Map CT-05-223, D10 to A8, in the SES1 and AP1 ES Volume 2, CA3 Map Book.
- 6.6.2 Since submission of SES1 and AP1 ES, further engagement with the utility provider has identified a need for additional land to permanently divert an underground Zayo telecommunications cable, 3.5km in length, running along the A34 The Fillybrooks from the junction with Yarnfield Lane, and the A51 Bury Bank to a location 60m north-west of the Severn Trent Water Swynnerton Pumping Station. See Map CT-06-222-R1, C4 to A2, Map CT-06-223-R1, J5 to A4, and Map CT-06-224-R1, J2 to C8, in the SES2 and AP2 ES Volume 2, CA3 Map Book. The amendment will result in a requirement for an additional 2.4ha of land, some of which will be from Swynnerton Estate (CA3/20). See Map CT-05-222-R1, C4 to A2, Map CT-05-223-R1, J5 to A4, and Map CT-05-224-R1, J2 to C8, in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that all of the additional land will be returned to its existing use following construction.
- 6.6.3 This amendment is dependent on the AP1-003-106 (Additional land and change in Bill powers for the permanent removal of a Zayo underground telecommunications cable between Yarnfield Lane and the A51 Bury Bank) being approved, as part of the additional land included within the AP1 revised scheme is also required for the utility works described in the AP2 amendment.
- 6.6.4 The activities will require the removal of any surface material from the area of the diversion route (this may include vegetation, soil, and road surfacing), the removal of existing utility infrastructure (where necessary) and installation of the utility. As required and where suitable, topsoil will be temporarily stored adjacent to the working area and will be used to reinstate the area once the works are complete. Activities to divert the utility are currently planned to be carried out in 2021-2022 and are expected to take approximately six months to complete.
- 6.6.5 This amendment is considered to require reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, for the following topics: community, ecology and biodiversity, and landscape and visual.

### *Community*

- 6.6.6 The additional land for the permanent diversion of an underground Zayo telecommunications cable along the A34 The Fillybrooks and the A51 Bury Bank was not included in the original scheme and therefore the main ES did not report any



significant in-combination effects associated with it. This amendment has been assessed for potential visual effects to determine if these give rise to a new significant in-combination effect on community resources in this area. The assessment has concluded that this amendment will not give rise to any new likely residual significant effects.

### *Ecology and biodiversity*

- 6.6.7 No loss of habitat from Trent Wood Local Wildlife Site (LWS) and ancient woodland inventory (AWI) site was reported in the main ES as this site is located outside of the land required for the construction of the original scheme. This site is of county value. Trent Wood LWS, covering an area of 14.1ha, is designated for its botanically diverse ancient replanted woodland and swamp habitats. The additional land required for the amendment includes 0.3ha of the area designated as Trent Wood LWS and AWI site. However, the extent of the areas designated as a LWS and AWI site do not accurately reflect the habitats present on the ground and overlap with the highway boundary and the land required for the amendment. Works associated with the amendment will be restricted to the highway boundary of the A34 The Fillybrooks and its verges and will not result in the loss of the ancient woodland or swamp habitats for which the site is designated. Indirect effects to these habitats will be controlled through implementation of measures as detailed within the draft Code of Construction Practice (CoCP)<sup>117</sup>. The amendment will not therefore give rise to a new significant effect on the structure and function of Trent Wood LWS and AWI.
- 6.6.8 No loss of habitat from the River Trent in the Stone and Swynnerton area was reported in the main ES as this watercourse is located outside of the land required for the construction of the original scheme. This watercourse is of county value. The land required for the amendment crosses the River Trent in two locations. Construction works will be restricted to within the highway boundary of the A34 The Fillybrooks passing over the River Trent and will not therefore result in direct impacts to the River Trent or adjacent habitats. Indirect effects to these habitats will be controlled through implementation of measures as detailed within the draft CoCP. The amendment will not therefore give rise to a new significant effect on the River Trent.
- 6.6.9 The main ES, as amended by SES<sub>1</sub>, reported the presence of otter on the River Trent, however, no effects were reported as this watercourse was located outside of the land required for the construction of the original scheme. Otter is an Annex 2<sup>118</sup> species, a species of principal importance listed under the provisions of Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006)<sup>119</sup> and a conservation priority of the Staffordshire Biodiversity Action Plan<sup>120</sup> (BAP). This species is of district/borough value. The land required for the amendment crosses the River Trent in two locations. It is assumed that otter are present within the stretch of the River Trent that falls within the land required for the amendment. Construction works will be restricted to within the highway boundary of the A34 The Fillybrooks passing over

<sup>117</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at <https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a>

<sup>118</sup> Annex 2 of the EU's Habitats Directive (1992) lists priority species whose conservation requires the designation of Special Areas of Conservation (SAC).

<sup>119</sup> Natural Environment and Rural Communities Act 2006 (2006 CHAPTER 16). Her Majesty's Stationery Office, London.

<sup>120</sup> Staffordshire Biodiversity Partnership. Staffordshire Biodiversity Action Plan [online]. Available at: <http://www.sbap.org.uk/>

the River Trent and will not therefore result in direct impacts to the River Trent or adjacent habitats. Indirect effects to these habitats will be controlled through implementation of measures as detailed within the draft CoCP. The amendment will not therefore give rise to a new significant effect on the otter population assumed to be present on the stretch of the River Trent along the A34 The Fillybrooks.

### *Landscape and visual*

- 6.6.10 This amendment will introduce construction activity into an area unaffected by the original scheme. The activities will require the removal of surface material, removal of existing utility infrastructure (where necessary) and diversion of the utility. These small scale construction works will take approximately six months to complete. The amendment will therefore not give rise to a new or different significant effect.

## **6.7 Additional land for the permanent diversion of an underground Zayo telecommunications cable along Yarnfield Lane (AP2-003-107)**

- 6.7.1 The AP1 revised scheme (AP1-003-105: Additional land for the permanent removal of Zayo underground telecommunications cables near Yarnfield Lane) provides for an existing underground telecommunications cable near Yarnfield Lane to be removed. A 600m section of the existing utility would be removed to the north of the HS2 route, near Yarnfield Lane. See Map CT-05-222, D4 to B5, in the SES1 and AP1 ES Volume 2, CA3 Map Book.
- 6.7.2 Since submission of SES1 and AP1 ES, further engagement with the utility provider has identified a need for additional land to permanently divert an underground Zayo telecommunications cable, 2.2km in length, along Yarnfield Lane from the junction with the A34 The Fillybrooks, crossing the HS2 route at Yarnfield Lane underbridge, to the junction with Moss Lane. See Map CT-06-223-L1, I4 to I1, Map CT-06-223, I10 to I1, and Map CT-06-223-R1, I10 to J5, in the SES2 and AP2 ES Volume 2, CA3 Map Book. The amendment will result in a requirement for an additional 7.7ha of land within the existing public highway boundary. See Map CT-06-223, I3 to I1, and Map CT-06-222-R1, A10 to B8 and B5 to C4, in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that all of the additional land will be returned to its existing use following construction.
- 6.7.3 This amendment is dependent on the AP1-003-105 (Additional land for the permanent removal of Zayo underground telecommunications cables near Yarnfield Lane) being approved, as part of the additional land included within the AP1 revised scheme is also required for the utility works described in the AP2 amendment.
- 6.7.4 The activities will require the removal of any surface material from the area of the diversion route (this may include vegetation, soil, and road surfacing), the removal of existing utility infrastructure (where necessary) and installation of the utility. As required and where suitable, topsoil will be temporarily stored adjacent to the working area and will be used to reinstate the area once the works are complete. Activities to divert the utility are currently planned to be carried out in 2021-2022 and are expected to take approximately six months to complete.

- 6.7.5 This amendment is not considered to require a reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, with respect to any environmental topics.

## **6.8 Additional land for the permanent underground diversion of a Western Power Distribution 11kV overhead line near the M6 Meaford viaduct (AP2-003-108)**

- 6.8.1 The Bill provides for the permanent underground diversion of a Western Power Distribution 11kV overhead line, 220m in length, from an existing Western Power Distribution pole 240m east of the M6, crossing the HS2 route 320m south of the M6 Meaford viaduct, to a Highways England electricity cabinet adjacent to the M6. See Map CT-06-223, D8 to D7, in the main ES Volume 2, CA3 Map Book.
- 6.8.2 Since submission of the Bill, further engagement with the utility provider has identified a need to change the alignment of the diversion. The diversion will be 350m in length, from an existing Western Power Distribution pole 240m east of the M6, crossing the HS2 route 320m south of M6 Meaford viaduct, following an HS2 access track to a Highways England electricity cabinet. See Map CT-06-223, C8 to D5, in the SES2 and AP2 ES Volume 2, CA3 Map Book. The amendment will result in a requirement for an additional 500m<sup>2</sup> of land from Darlaston Wood Farm (CA3/19). See Map CT-05-223, D6 to D5, in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that the majority of the additional land will be returned to its existing use following construction.
- 6.8.3 The activities will require the removal of any surface material from the area of the diversion route (this may include vegetation, soil, and road surfacing), the removal of existing utility infrastructure (where necessary) and installation of the utility. As required and where suitable, topsoil will be temporarily stored adjacent to the working area and will be used to reinstate the area once the works are complete. Activities to divert the utility are currently planned to be carried out in 2021-2022 and are expected to take approximately six months to complete.
- 6.8.4 This amendment is not considered to require a reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, with respect to any environmental topics.

## **6.9 Additional land for the provision of a new temporary underground Openreach telecommunications cable to Meaford North embankment satellite compound (AP2-003-109)**

- 6.9.1 The Bill provides for a new temporary underground Openreach telecommunications cable to Meaford North embankment satellite compound, 380m in length, from Swynnerton Footpath 27 to Meaford North embankment satellite compound. See Map CT-06-224, G7 to E5, in the main ES Volume 2, CA3 Map Book.
- 6.9.2 Since submission of the Bill, further engagement with the utility provider has identified a need for a new temporary underground Openreach telecommunications cable, 600m in length, from Hall Lane to the Meaford North embankment satellite compound. See Map CT-06-224, E8 to G6, in the SES2 and AP2 ES Volume 2, CA3

Map Book. The amendment will result in a requirement for an additional 0.1ha of land from Swynnerton Estate (CA3/20). See Map CT-05-224, E8 to E7, in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that all of the additional land will be returned to its existing use following construction.

6.9.3 The activities will require the removal of any surface material from the area of the connection route (this may include vegetation, soil, and road surfacing), the removal of existing utility infrastructure (where necessary) and installation of the utility. As required and where suitable, topsoil will be temporarily stored adjacent to the working area and will be used to reinstate the area once the works are complete. Activities to construct the utility are currently planned to be carried out in 2021-2022 and are expected to take approximately six months to complete.

6.9.4 This amendment is not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES, as amended by SES1 and SES2, with respect to any environmental topics.

## **6.10 Additional land and change to Bill powers for the permanent overhead and underground diversion of a Western Power Distribution 33kV overhead line south-west of Sandyford Farm (AP2-003-110)**

6.10.1 The Bill provides for the permanent underground diversion of a Western Power Distribution 33kV overhead line, 1.2km in length, from an existing Western Power Distribution pole adjacent to Lodge Covert, crossing the HS2 route and running parallel for 100m to the south-west of the HS2 route. See Map CT-06-225, J3 to D6, in the main ES Volume 2, CA3 Map Book.

6.10.2 Since submission of the Bill, further engagement with the utility provider has identified a need to change the alignment of the diversion. The underground and overhead diversion will be 1.3km in length, crossing the HS2 route at Swynnerton Estate South underbridge, running parallel to the south-west of the HS2 route for 100m and crossing the diverted Tittensor Road. Two sections of the diversion will be an underground cable, totalling 300m in length, and one section of the diversion will be an overhead line, 1km in length. See Map CT-06-225, J4 to D6, in the SES2 and AP2 ES Volume 2, CA3 Map Book. The amendment will result in a requirement for an additional 0.2ha of land, some of which will be from Swynnerton Estate (CA3/20). See Map CT-05-225, J4 and D6 to D7, in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that all of the additional land will be returned to its existing use following construction.

6.10.3 The activities will require the removal of any surface material from the area of the diversion route (this may include vegetation, soil, and road surfacing), the removal of existing utility infrastructure (where necessary) and installation of the utility. As required and where suitable, topsoil will be temporarily stored adjacent to the working area and will be used to reinstate the area once the works are complete. Activities to divert the utility are currently planned to be carried out in 2021-2022 and are expected to take approximately six months to complete.

- 6.10.4 This amendment is considered to require reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, for ecology and biodiversity.

*Ecology and biodiversity*

- 6.10.5 The main ES, as amended by SES2, reported a significant effect at the county level on the structure and function of Lodge Covert Biodiversity Alert Site (BAS), as a result of the loss of 2ha of mixed broadleaved woodland. Construction associated with the amendment will result in the additional loss of 500m<sup>2</sup> of mixed broadleaved woodland within Lodge Covert BAS. This will result in a different significant effect on Lodge Covert BAS, however, this will not change the level of significance of the effect reported in SES2. The habitat creation measures within the original scheme will compensate for the loss of mixed broadleaved woodland at Lodge Covert BAS.
- 6.10.6 The main ES reported a significant effect at the county level on the assemblage of bats between Lodge Covert and Birchwood as a result of the direct loss of roosts and loss and fragmentation of foraging and commuting habitat. The land required for the amendment will result in the loss of an additional 500m<sup>2</sup> of mixed broadleaved woodland, however none of the trees within this land have been identified as having bat roosting potential. The loss of mixed broadleaved woodland does, however, result in the loss of foraging and commuting habitats used by the assemblage of bats. This will result in a different significant effect on the bat assemblage between Lodge Covert and Birchwood, however this will not change the level of significance of the effect reported in the main ES. The habitat creation measures within the original scheme will compensate for the loss of foraging and commuting habitats likely to be used by the bat assemblage between Lodge Covert and Birchwood.
- 6.10.7 The main ES reported a significant effect at the county level as a result of the loss of 0.6ha of ancient woodland at Birchwood. The main ES reported the creation of approximately 1.7ha of woodland habitat within an area adjacent and connected to Lodge Covert, and 5.7ha of woodland habitat creation adjacent to the current extent of Birchwood. This woodland habitat creation was to partly compensate for the loss of Birchwood ancient woodland. Approximately 0.6ha of the woodland habitat creation adjacent to Lodge Covert is required as advanced planting in order to be used as an ancient woodland soil receptor site. The land required for the amendment will temporarily require 0.1ha of this advanced planting area. The temporary reduction in this area will have an adverse impact upon its function as an ancient woodland soil receptor site and mitigation to partly compensate the loss of Birchwood ancient woodland. This will result in a different significant effect on the ancient woodland compensation provided in the Stone and Swynnerton area. However, the area affected is small and, therefore, will not change the level of significance of the effects reported in the main ES. An alternative area of woodland habitat creation adjacent to The Shrubs woodland to the south-west of Lodge Covert will be used as the ancient woodland soil receptor for Birchwood.

## **6.11 Additional land for the permanent underground diversion of two Western Power Distribution 33kV underground electricity cables along A51 Stone Road diversion and A519 Newcastle Road (AP2-003-111)**

- 6.11.1 The Bill provides for the permanent underground diversion of two Western Power Distribution 33kV underground cables, 660m in length, crossing the HS2 route, along the A51 Stone Road from the junction with Tittensor Road diversion, to 160m west of the A51 Stone Road closure. See Map CT-06-225, D4 to A4, and Map CT-06-226, J5 to F8, in the main ES Volume 2, CA3 Map Book.
- 6.11.2 Since submission of the Bill, further engagement with the utility provider has identified a need to change the alignment of the diversion. The diversion of the utility will be 2.2km in length, along A51 Stone Road diversion and the A519 Newcastle Road, crossing the HS2 route along the A519 Newcastle Road overbridge, to reconnect on the southern side of the A51/A519 roundabout. See Map CT-06-225, D3 to A6, and CT-06-226, J5 to F8, in the SES2 and AP2 ES Volume 2, CA3 Map Book. The amendment will result in a requirement for an additional 0.4ha of land, some of which will be from Swynnerton Estate (CA3/20). See Map CT-05-226, F8 in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that all of the additional land will be returned to its existing use following construction.
- 6.11.3 The activities will require the removal of any surface material from the area of the diversion route (this may include vegetation, soil, and road surfacing), the removal of existing utility infrastructure (where necessary) and installation of the utility. As required and where suitable, topsoil will be temporarily stored adjacent to the working area and will be used to reinstate the area once the works are complete. Activities to divert the utilities are currently planned to be carried out in 2021-2022 and are expected to take approximately six months to complete.
- 6.11.4 This amendment is not considered to require a reassessment of the environmental effects or mitigation as set out in the main ES, as amended by SES1 and SES2, with respect to any environmental topics.

## **6.12 Additional land for the permanent diversion of three Severn Trent Water water mains supplies near the A51 Stone Road and Stab Lane (AP2-003-112)**

- 6.12.1 Since submission of the Bill, further engagement with the utility provider has identified a need for additional land to permanently divert three Severn Trent Water water mains supplies; one 150mm diameter main, one 300mm diameter main and one 9" diameter main. Each diversion will be 650m in length, from Stab Lane, running parallel to the HS2 route to the A51 Stone Road. See Map CT-06-225, C7 to A6, and CT-06-226, J7 to H6, in the SES2 and AP2 ES Volume 2, CA3 Map Book. The amendment will result in a requirement for an additional 1.8ha of land from Swynnerton Estate (CA3/20). See Map CT-05-225, C7 to A6, and CT-05-226, J7 to H6, in the SES2 and AP2 ES Volume 2, CA3 Map Book. It is assumed that all of the additional land will be returned to its existing use following construction.

6.12.2 The activities will require the removal of any surface material from the area of the diversion routes (this may include vegetation, soil, and road surfacing), the removal of existing utility infrastructure (where necessary) and installation of the utility. As required and where suitable, topsoil will be temporarily stored adjacent to the working area and will be used to reinstate the area once the works are complete. Activities to divert the utilities are currently planned to be carried out in 2021-2022 and are expected to take approximately six months to complete.

6.12.3 This amendment is considered to require reassessment of the environmental effects and mitigation in the main ES, as amended by SES1 and SES2, for the following topics: community, ecology and biodiversity and sound, noise and vibration.

#### *Community*

6.12.4 The land required for the amendment will be within the boundary of a residential property on Stab Lane. The impact of the utility diversion at this property will be small in scale and of short duration (approximately three months), resulting in a temporary minor adverse effect, which is not significant. For further information see SES2 and AP2 ES Volume 5: Appendix CM-001-003.

#### *Ecology and biodiversity*

6.12.5 The main ES, as amended by SES1, reported a significant effect at the district/borough level as a result of the combined loss and severance of hedgerows throughout the Stone and Swynnerton area. The land required for the amendment will result in the loss of approximately 170m of species poor hedgerow. In the context of the hedgerow network in the Stone and Swynnerton area, this loss will not result in a different significant effect.

6.12.6 The main ES reported a significant effect at the county level on the bat assemblage associated with Closepit and Stabhill plantations as a result of the direct loss of roosts and loss and fragmentation of foraging and commuting habitat. The land required for the amendment will result in the loss of additional trees that, in the absence of survey information, are assumed to support roosting bats and the loss of hedgerows used as commuting and foraging habitat. This will result in a different significant effect on the bat assemblage associated with Closepit and Stabhill plantations, however this will not change the level of significance of the effect reported in the main ES. The habitat creation measures within the original scheme will compensate for the loss and fragmentation of roosting, foraging and commuting habitats used by the bat assemblage associated with Closepit and Stabhill plantations.

#### *Sound, noise and vibration*

6.12.7 The main ES did not identify any likely significant effects on a community basis close to this amendment. However, the amendment has the potential to result in a new or different likely significant construction noise effects at residential properties in Swynnerton in the vicinity of Stab Lane.

6.12.8 The assessment has considered the construction noise and vibration levels associated with the amendment and those identified in the main ES, the construction programme for the amendment and local mitigation identified in the main ES.

The amendment will not give rise to any new or different likely residual significant effects compared to those reported in the main ES. For further information see SES2 and AP2 ES Volume 5: Appendix SV-002-000.



# 7 Combined effects of changes and amendments in the Stone and Swynnerton community area due to changes in construction traffic flows

## 7.1 Introduction

7.1.1 This section reports the combined assessment of new or different significant construction traffic effects, as a result of changes in construction traffic flows. These relate to changes associated with SES2 changes and AP2 amendments, where the change in traffic flows cannot be directly attributed to an SES2 change or an AP2 amendment.

7.1.2 The assessment has also considered any impacts in the Stone and Swynnerton area associated with SES2 changes and AP2 amendments in the adjoining community areas.

7.1.3 Traffic and transport effects are reported first, since the effects arise from changes in construction traffic flows. Other topics where a significant effect has been identified, are then reported in the following sequence:

- air quality;
- sound, noise and vibration;
- community; and
- socio-economics.

## 7.2 SES2 changes and AP2 amendments of relevance to this assessment

7.2.1 The assessment includes all changes to construction traffic. The primary contributors to construction traffic are the changes to the movement of excavated material, the construction programme and construction assumptions. The assessment takes into account measures to reduce the need to move material by the road network and use of site haul routes to limit construction traffic on the road network.

7.2.2 Of the design changes and amendments, the following make a particular contribution to the assessment of changes in traffic flows in the Stone and Swynnerton area:

- Additional land required for the provision of a new permanent left turn filter lane on the roundabout connecting the A51 Stone Bypass to the south-eastern arm of the A34 Stafford Road (AP2-003-003);
- Additional land required for the provision of new permanent traffic signals at the junction of Yarnfield Lane and the A34 The Fillybrooks (AP2-003-007);
- Additional land required for modifications to the roundabout junction of the A500 Queensway/A519 Newcastle Road/A519 Clayton Road (Hanchurch Interchange) and the signalised crossroads junction of the A519 Newcastle Road/A5182

Trentham Road/B5038 Whitmore Road and a new temporary satellite construction compound (AP2-003-017);

- Landscape earthworks in the vicinity of the Stone Infrastructure Maintenance Base-Rail (IMB-R) (SES2-003-002);
- Increase in length and change to design of the M6 Meaford viaduct (SES2-003-003);
- Local placement of surplus excavated material to the south of Yarlet embankment (SES2-003-001), on the north and south side of Hatton South cutting (SES2-003-006), and to the north of Swynnerton North cutting (SES2-003-005); and
- compounds to support utilities works as listed in Table 7 below.

## 7.3 Traffic and transport

### Scope, assumptions and limitations

- 7.3.1 The assessment scope, key assumptions and limitations for traffic and transport are as set out in Volume 1, the Scope and Methodology Report<sup>121</sup> (SMR) and SMR Addendum<sup>122</sup> of the main ES.

### Environmental baseline

#### *Existing baseline*

- 7.3.2 The baseline traffic and transport information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 14 of the main ES.
- 7.3.3 Since production of SES1, additional information on traffic flows on three roads and/or junctions in the Stone and Swynnerton area has been collected. This is set out in the Background Information and Data (BID) document TR-001-000 which accompanies the SES2 and AP2 ES.
- 7.3.4 There are two strategic roads that pass through the Stone and Swynnerton area, the M6 and the A500 Queensway. The M6 traverses the centre of the area along a north to south alignment. The HS2 route will intersect the M6 to the west of Stone. Junction 15 of the M6 is located on the northern boundary of the Stone and Swynnerton area, where it forms a junction with the A500 Queensway. The A500 Queensway provides a connection between the M6 and Stoke-on-Trent.
- 7.3.5 There are four primary 'A' roads that pass through the Stone and Swynnerton area, these are: the A34 Stafford Road/The Fillybrooks, which connects Trentham in the north to Aston-by-Stone in the south; the A51 Stone Road, which connects Stone to Stableford via Swynnerton; the A519 Newcastle Road, which connects Eccleshall with Newcastle-under-Lyme; and the A5182 Trentham Road, which connects the A519 Newcastle Road with the A53 Whitmore Road in the adjoining Whitmore Heath to

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<sup>121</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report (Appendix CT-001-001). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

<sup>122</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, Environmental Impact Assessment Scope and Methodology Report Addendum (Appendix CT-001-002). Available online at: <https://www.gov.uk/government/publications/scope-and-methodology-report-for-hs2-phase-2a>

Madeley area (CA4) to the west. The strategic and primary road network, particularly around Stone, Stoke-on-Trent and Newcastle-under-Lyme, can get busy at peak times and delays can be experienced.

- 7.3.6 The main local roads that are of relevance to the assessment are: the B5026 Eccleshall Road, connecting the settlements of Eccleshall, Norton Bridge and Walton to Stone in the east; Yarnfield Lane, connecting Yarnfield to the A34 Stafford Road/The Fillybrooks and Stone in the east; Bent Lane and Dog Lane which provide local access in the Stableford area; Tittensor Road and Stab Lane which provide local access in the Swynnerton area; and Pirehill Lane which provides local access in the Walton area. The local road network in this area generally operates well although some localised delays can be experienced particularly at peak times.
- 7.3.7 There are pedestrian footways adjacent to many of the roads in the built up areas of Stone, Walton, Yarnfield and Swynnerton. Footways vary in width and condition within these areas. Where there is no formal footway provision adjacent to a road, non-motorised user numbers are generally low.
- 7.3.8 There are advisory cycle routes passing through Swynnerton, including on Stab Lane and Cotes Lane. In addition, National Cycle Network Route 5 passes through the area on an off-road route alongside the A34 Stafford Road/The Fillybrooks.

### *Future baseline*

#### **Construction (2023)**

- 7.3.9 The future baseline for construction in 2023 has been updated to include the additional information gathered in the baseline traffic surveys. The approach adopted in deriving the future baseline remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### **Effects arising during construction**

#### *Avoidance and mitigation measures*

- 7.3.10 No avoidance or mitigation measures additional to those reported in the main ES and draft Code of Construction Practice (CoCP)<sup>123</sup> are identified.

#### *Assessment of impacts and effects*

#### **Temporary effects**

##### *Construction compounds*

- 7.3.11 Volume 2, CA3, Section 14 of the main ES provides details of construction compounds in the Stone and Swynnerton area. This information has been updated to reflect the provision of new compounds and changes to existing compounds resulting from the SES2 changes and AP2 amendments. This information is provided in Table 7.

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<sup>123</sup> HS2 Ltd (2017). *High Speed Rail (West Midlands - Crewe) Environmental Statement*, Volume 5: Technical appendices, draft Code of Construction Practice (CT-003-000). Available online at <https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2a>

## SES2 and AP2 ES Volume 2 – Community area 3, Stone and Swynnerton

Table 7: Typical vehicle trip generation for construction sites in the Stone and Swynnerton area

Compound type	Location	Access to / from compound to main road network	Indicative start/set up date	Estimated duration of use (years) <sup>124</sup>	Estimated duration of busy period (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity <sup>125</sup>	
						Cars/LGV	HGV
Satellite	Yarlet embankment satellite compound (including Stone crossovers satellite compound)	Pirehill Lane to B5026 Eccleshall Road, A34 Stone Road for site setup and servicing, followed by site haul route thereafter to the A34 Stone Road	Civil engineering - January 2021	Four years and three months	9	56-77	41-52
			Site reinstatement - January 2026	Three months	3		44-44
			Rail systems - December 2025	Three months	2	7-9	up to 10
Satellite	Yarlet utility compound	A34 Stone Road northbound	March 2023	Six months	1	23-30	23-23
Satellite	Yarlet North cutting satellite compound	B5026 Eccleshall Road to A34 Stone Road	Civil engineering - September 2020	Four years and nine months	17	152-209	48-71
			Site reinstatement - September 2026	Three months	1		49-49
Satellite	Stone connection satellite compound	B5026 Eccleshall Road to A34 Stone Road	September 2021	Six months	4	72-94	12-16
Main	Stone railhead main compound	M6 via railhead	July 2024	Two years	6	236-300	141-202
Satellite	Yarnfield North embankment satellite compound	Yarnfield Lane to A34 The Fillybrooks for early works and servicing, followed by site haul route to Stone railhead and thereafter to the M6	Civil engineering - July 2020	Four years and nine months for civils but compound remains for a further one year and nine months due to worker accommodation	19	264-363	76-153
			Site reinstatement - November 2026	Three months	2		56-64

<sup>124</sup> The Volume 2 scheme description of the construction phase represents the duration of works in a different way to the Volume 5 Transport Assessment addendum (SES2 and AP2 ES Volume 5 Appendix TR-001-000. The Volume 2 scheme description is based on quarters (each representing three months), e.g. December (Quarter 4) to February (Quarter 1) is rounded to six months, whereas the Volume 5 Transport Assessment addendum counts the absolute duration and is then rounded e.g. three months.

<sup>125</sup> For each compound the peak month of activity is the month within which HGV traffic is at its highest for that compound. The busy period is the period during which HGV traffic serving that compound will be greater than 50% of the HGV traffic in the peak month. The average daily combined two-way vehicle trips for the busy period is the lower end of the range shown in the table below. Two-way trips refer to the total number of vehicle movements in both directions (i.e. with 200 westbound vehicles and 100 eastbound vehicles, there would be 300 two-way trips).

SES2 and AP2 ES Volume 2 – Community area 3, Stone and Swynnerton

Compound type	Location	Access to / from compound to main road network	Indicative start/set up date	Estimated duration of use (years) <sup>124</sup>	Estimated duration of busy period (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity <sup>125</sup>	
						Cars/LGV	HGV
Transfer node	Transfer node associated with Yarnfield North embankment satellite compound	Yarnfield Lane to A34 The Fillybrooks for early works, followed by site haul route to Stone railhead thereafter to the M6	October 2020	Four years and three months	5	N/A	1886-2329
Satellite	M6 Meaford viaduct satellite compound	Yarnfield Lane and onto A34 The Fillybrooks for early works and servicing, followed by site haul route to Stone railhead thereafter to the M6	Civil engineering - October 2020  Site reinstatement – February 2026	Three years and six months  Six months	18  3	24-33	44-66  30-33
Satellite	Meaford North embankment satellite compound	Tittensor Road to A51 Stone Road for site setup, main access via site haul route to Stone railhead thereafter to the M6	Civil engineering - November 2020  Site reinstatement – May 2026	Four years and three months  Three months	5  2	72-99	49-75  31-37
Satellite	Swynnerton utility compound North	Stone Rural BOAT 34 and Tittensor Road to A51 Bury Bank	April 2021	Nine months	6	23-30	9-14
Satellite	Swynnerton utility compound South	Stone Rural BOAT 34 and Tittensor Road to A51 Bury Bank	April 2021	Nine months	6	23-30	9-14
Satellite	Severn Trent Water Swynnerton compound	A51 Stone Road	July 2020	Six months	1	23-30	24-24
Satellite	Swynnerton embankment satellite compound	Tittensor Road to A51 Stone Road for site setup, main access via site haul route to A519	Civil engineering - October 2020  Site reinstatement - July 2026	Three years and nine months  Three months	4  1	24-33	79-82  52-52

SES2 and AP2 ES Volume 2 – Community area 3, Stone and Swynnerton

Compound type	Location	Access to / from compound to main road network	Indicative start/set up date	Estimated duration of use (years) <sup>124</sup>	Estimated duration of busy period (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity <sup>125</sup>	
						Cars/LGV	HGV
		Newcastle Road	Railway systems - August 2024	One year and three months	4	67-91	160-162
Satellite	Severn Trent Water Mill Meece compound	Mill Meece Marsh to A519 Newcastle Road	July 2020	Six months	1	20-30	40-40
Main	Swynnerton North cutting main compound	A519 Newcastle Road and A51 Stone Road for site setup with a limited continued access. Main access via site haul route to A519 Newcastle Road	Civil engineering - July 2020	Five years	13	400-550	65-86
			Site reinstatement - August 2026	Three months	2		66-79
Transfer node	Transfer node associated with Swynnerton North cutting main compound	A519 Newcastle Road	October 2021	Three years and three months	8	N/A	186-265
	Tittensor Road utility compound	Tittensor Road to A51 Stone Road	March 2023	Six months	1	23-30	42-42
Satellite	Hatton South cutting satellite compound	Bent Lane to A51 The Rowe for site setup, main access via site haul route to A519 Newcastle Road	Civil engineering – October 2020	Four years and three months	11	48-66	42-54
			Site reinstatement – January 2026	Three months	2		34-35
Satellite	Hatton North cutting satellite compound	Bent Lane to A51 The Rowe and the realigned Bent Lane to the A51 The Rowe	Civil engineering - October 2020	Four years and six months	7	24-33	51-73
			Site reinstatement – March 2026	Three months	1		19
	Bent Lane utility compound	Realigned Bent Lane to A51 The Rowe	September 2021	One year and three months	1	23-30	18-18

Compound type	Location	Access to / from compound to main road network	Indicative start/set up date	Estimated duration of use (years) <sup>124</sup>	Estimated duration of busy period (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity <sup>125</sup>	
						Cars/LGV	HGV
	Severn Trent Water Hanchurch compound	Drayton Road to A519 Newcastle Road	July 2020	Six months	1	21-30	40-40
Satellite	Stableford auto-transformer station satellite compound	Realigned Bent Lane to A51 The Rowe	August 2024	One year and three months	7	32-44	up to 10

7.3.12 Information on the indicative construction programme is provided in Section 2 of the SES2 and the construction methodology is summarised in Volume 1, Section 6 of the main ES. This illustrates how the phasing of activities at different compounds will generally be staggered and that construction activities at individual compounds may not occur over the whole duration presented in Table 7.

7.3.13 Where construction routes serve more than one construction compound, the combined vehicle movements during the busiest period for each section of each route have been assessed. The effects resulting from changes to construction compounds have been considered and are reported in the highway network section.

#### *Highway network*

7.3.14 The main ES considered the traffic and transport effects in the area during construction. In particular, the effects associated with the combined construction traffic flows into and through the area were identified. The main ES reported that effects related to increases in congestion and delay for vehicle occupants were at the following locations:

- A34 Stafford Road/A51 Stone Bypass/Brooms Road roundabout – major adverse effect;
- A34 Stafford Road/A34 The Fillybrooks/B5026 Eccleshall Road roundabout – major adverse effect;
- A500 Queensway/A519 Newcastle Road roundabout – major adverse effect;
- A519 Newcastle Road/A5182 Trentham Road signals – major adverse effect;
- B5026 Eccleshall Road/Pirehill Lane – major adverse effect; and
- A500 Queensway/A34 Stone Road – major adverse effect.

7.3.15 The SES2 scheme in this area includes SES2 changes to reduce construction traffic flows. These included improved use of site haul routes and changes to the movement and use of surplus excavated material.

- 7.3.16 The AP2 revised scheme includes AP2 amendments to modify junctions to mitigate the impact of construction traffic, these are: the A34 Stafford Road and A51 Stone Bypass roundabout (AP2-003-003); the A34 The Fillybrooks and Yarnfield Lane (AP2-003-007); and the A500 Queensway and A519 Newcastle Road roundabout and A519 Newcastle Road and A5182 Trentham Road signals (AP2-003-017).
- 7.3.17 The SES2 changes and AP2 amendments will result in the following changes to the congestion and delay effects for vehicle occupants in the area, as reported in the main ES, at the following locations:
- A34 Stafford Road/A51 Stone Bypass/Brooms Road roundabout – the modifications to the A34 Stafford Road and A51 Stone Bypass junction (AP2-003-003), combined with the SES2 changes and AP2 amendments, will remove the temporary major adverse significant effect at the A34 Stafford Road/A51 Stone Bypass/Brooms Road roundabout;
  - A500 Queensway/A519 Newcastle Road roundabout – the modifications to the A500 Queensway and A519 Newcastle Road junction (AP2-003-017), combined with changes to the movement and use of surplus excavated material, will reduce queues at the junction. Although the junction remains over capacity, residual queues and delays will be less than the future baseline assessment. The SES2 changes and AP2 amendments will remove the temporary major adverse significant effect at the A500 Queensway/A519 Newcastle Road roundabout;
  - A519 Newcastle Road/A5182 Trentham Road signals – the modifications to the A519 Newcastle Road and A5182 Trentham Road junction (AP2-003-017), combined with changes to the movement and use of surplus excavated material, will remove the temporary major adverse significant effect at the A519 Newcastle Road/A5182 Trentham Road signals; and
  - B5026 Eccleshall Road/Pirehill Lane – the improved use of site haul routes and consequential reduction in HS2 construction traffic will reduce the level of significance of the effect at the B5026 Eccleshall Road/Pirehill Lane junction from a temporary major adverse effect to a temporary moderate adverse effect, which is significant.
- 7.3.18 The new construction traffic route from Stone to Weston via Sandon (SES2-002-010) in the Colwich to Yarlet area (CA2) and changes to the movement and use of surplus excavated material will introduce additional construction traffic flows on to the A51 Stone Bypass/London Road which will give rise to a new temporary moderate adverse congestion and delay effect, which is significant, on the vehicle occupants of the A51 Stone Bypass/Aston Bridge Lane staggered crossroads junction.
- 7.3.19 Changes to the movement and use of surplus excavated material, in combination with additional information on traffic flows collected since the production of SES1 at the A34 The Fillybrooks/Meaford Road roundabout junction, will give rise to a new temporary moderate adverse congestion and delay effect, which is significant, on the A34 The Fillybrooks/Meaford Road roundabout junction.
- 7.3.20 There are other changes to traffic congestion and delay arising from the combination of SES2 changes and AP2 amendments. However, these do not result in new or



different significant traffic effects. Changes to traffic are reported in SES2 and AP2 ES Volume 5: Appendix TR-001-000.

7.3.21

The main ES reported traffic severance<sup>126</sup> effects for non-motorised users from increases in either all traffic (including worker trips, light goods vehicle (LGV) and heavy goods vehicle (HGV) traffic) or HGV traffic, which were significant, at the following locations:

- A51 The Rowe between Common Lane (Swynnerton) and Dog Lane – moderate adverse effect as a result of an increase in HGV traffic;
- A51 The Rowe between the A519 Newcastle Road and Common Lane (Swynnerton) – minor adverse effect as a result of an increase in HGV traffic;
- A51 Stone Road/Bury Bank between the A519 Newcastle Road and the A34 Stafford Road/The Fillybrooks – minor adverse effect as a result of an increase in HGV traffic;
- A519 Newcastle Road between the A51 Stone Road and the A500 Queensway – major adverse effect as a result of an increase in all traffic;
- B5026 Eccleshall Road between the A34 Stafford Road/The Fillybrooks and Pirehill Lane – moderate adverse effect as a result of an increase in HGV traffic;
- Dog Lane between the A51 The Rowe and the HS2 route – moderate adverse effect as a result of an increase in all traffic;
- Bent Lane between the A51 The Rowe and the HS2 route – major adverse effect as a result of an increase in all traffic;
- Tittensor Road between Stab Lane and the A51 Stone Road – moderate adverse effect as a result of an increase in HGV traffic;
- Yarnfield Lane between the HS2 route and the A34 The Fillybrooks – major adverse effect as a result of an increase in HGV traffic;
- Pirehill Lane between the HS2 route and the B5026 Eccleshall Road – moderate adverse effect as a result of an increase in all traffic; and
- Bottom Lane between the A51 Stone Road and the A519 Newcastle Road – moderate adverse effect as a result of an increase in HGV traffic.

7.3.22

Changes to the movement and use of surplus excavated material, will result in changes to the traffic severance effects for non-motorised users, as reported in the main ES, at the following locations:

- A51 The Rowe between Common Lane (Swynnerton) and Dog Lane – a reduction in construction traffic flows on this section will reduce the level of significance of

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<sup>126</sup> In the context of traffic and transport, severance is used to relate to a change in ease of non-motorised users due to, for example, a change in travel distance or travel time or a change in traffic levels on a route that makes it harder for non-motorised users to cross. A reference to severance does not imply a route is closed to access.

the effect from a temporary moderate adverse significant effect to temporary minor adverse effect, which is significant;

- A519 Newcastle Road between the A51 Stone Road and the A500 Queensway – an increase in the duration of the busy period and an increase in the total construction traffic flows on this section will result in a different temporary major adverse effect, which is significant;
- B5026 Eccleshall Road between the A34 Stafford Road/The Fillybrooks and Pirehill Lane – a reduction in construction traffic flows on this section will reduce the level of significance of the effect from a temporary moderate adverse significant effect to temporary minor adverse effect, which is significant;
- Bent Lane between the A51 The Rowe and the HS2 route – a reduction in construction traffic flows on this section will reduce the level of significance of the effect from a temporary major adverse significant effect to a temporary moderate adverse effect, which is significant; and
- Yarnfield Lane between the HS2 route and the A34 The Fillybrooks – a reduction in construction traffic flows on this section will reduce the level of significance of the effect from a temporary major adverse significant effect to a temporary moderate adverse effect, which is significant.

7.3.23 There are other changes to construction traffic flows arising from the combination of SES2 changes and AP2 amendments, however these do not result in new or different significant traffic effects. Changes to traffic are reported in SES2 and AP2 ES Volume 5: Appendix TR-001-000.

### **Permanent effects**

7.3.24 There are no permanent traffic and transport effects resulting from changes in construction traffic flows in the Stone and Swynnerton area.

### *Other mitigation measures*

7.3.25 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

### *Summary of likely residual significant effects*

7.3.26 The SES2 changes and AP2 amendments will remove the temporary major adverse significant congestion and delay effects on vehicle occupants, as reported in the main ES, at the following locations:

- A34 Stafford Road/A51 Stone Bypass/Brooms Road roundabout;
- A500 Queensway/A519 Newcastle Road roundabout; and
- A519 Newcastle Road/A5182 Trentham Road signals.

7.3.27 The SES2 changes and AP2 amendments will reduce the level of significance of the effect on congestion and delay to vehicle users of the B5026 Eccleshall Road/Pirehill Lane junction from a temporary major adverse significant effect to a temporary moderate adverse significant effect.

- 7.3.28 The SES2 changes and AP2 amendments will give rise to a new moderate adverse significant effect on congestion and delay to vehicle users at:
- A51 Stone Bypass/Aston Bridge Lane staggered crossroad junction; and
  - A34 The Fillybrooks/Meaford Road roundabout junction.
- 7.3.29 The SES2 changes and AP2 amendments will result in the following changes to the traffic severance effects for non-motorised users, as reported in the main ES, at the following locations:
- A51 The Rowe between Common Lane (Swynnerton) and Dog Lane – will reduce from a temporary moderate adverse significant effect to likely residual temporary minor adverse significant effect;
  - A519 Newcastle Road between the A51 Stone Road and the A500 Queensway – will result in a materially different likely residual temporary major adverse significant effect;
  - B5026 Eccleshall Road between the A34 Stafford Road/The Fillybrooks and Pirehill Lane – will reduce from a temporary moderate adverse significant effect to likely residual temporary minor adverse significant effect;
  - Bent Lane between the A51 The Rowe and the HS2 route – will reduce from a temporary major adverse significant effect to likely residual temporary moderate adverse significant effect; and
  - Yarnfield Lane between the HS2 route and the A34 Stone Road – will reduce from a temporary major adverse significant effect to likely residual temporary moderate adverse significant effect.

### *Cumulative effects*

- 7.3.30 This combined assessment has taken into account cumulative effects from background traffic growth, committed developments and traffic and transport impacts arising from the SES2 changes and AP2 amendments in this area and other community areas.

## **7.4 Air quality**

### **Scope, assumptions and limitations**

- 7.4.1 The assessment scope, key assumptions and limitations for air quality are as set out in Volume 1, the SMR and SMR Addendum of the main ES.
- 7.4.2 As set out in Volume 1, since the production of the main ES, updated background pollutant concentrations and road vehicle emission factors have become available from the Department for Environment, Food and Rural Affairs (Defra). These have been used in this assessment. The updated road vehicle emission factors are higher for NO<sub>x</sub> than those used in the main ES, especially along motorways. Therefore, higher concentrations have been predicted for the future baseline scenario (without the HS2 scheme). At locations where NO<sub>2</sub> concentrations are predicted to exceed the air quality standard of 40µg/m<sub>3</sub> without the scheme, it is more likely that a small increase in concentrations due to the scheme will result in a significant effect.

## Environmental baseline

### *Existing baseline*

- 7.4.3 The existing baseline for air quality is as described in Volume 2, CA3, Section 5 of the main ES.
- 7.4.4 Since the production of the main ES, air quality measurements for the baseline year of 2016 have become available. There are currently 16 relevant diffusion tube sites located within the Stone and Swynnerton area for monitoring NO<sub>2</sub> concentrations. These are located along the A34 Stone Road, the A34 The Fillybrooks, the A34 Stafford Road, the A520 Longton Road, the A500 Queensway, the A519 Newcastle Road, Ernald Gardens, Hanchurch Lane and Park Lane. Measured annual mean concentrations in 2016 were above the air quality standard at one of these sites, located along the A34 Stone Road in Stoke-on-Trent. Details of their location and data measurements are provided in the SES2 and AP2 ES Volume 5: Appendix AQ-001-003 and Map Series AQ-01 which accompany the SES2 and AP2 ES.
- 7.4.5 The updated background concentrations from Defra<sup>127</sup> are within the air quality standards for all pollutants in the baseline year of 2016 within the Stone and Swynnerton area. Details are provided in BID-AQ-002-000, which accompanies the SES2 and AP2 ES.

### *Future baseline*

#### **Construction (2020)**

- 7.4.6 The updated background concentrations from Defra for the first year of construction in 2020 predict NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> levels in 2020 to be lower than in the 2016 baseline and within the relevant air quality standards.
- 7.4.7 Volume 5: Appendix CT-004-000 of the SES2 and AP2 ES provides details of the developments which are assumed to have been implemented by 2020 for construction, additional to those identified in the main ES. These have been included as future receptors in the assessment of air quality impacts and are detailed in Volume 5: Appendix AQ-001-003.
- 7.4.8 None of the identified developments affect the assessment of the SES2 scheme and AP2 revised scheme's likely construction impacts on air quality.

## Effects arising during construction

### *Avoidance and mitigation measures*

- 7.4.9 No avoidance or mitigation measures additional to those reported in the main ES and draft CoCP are required.

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<sup>127</sup> Department for Environment, Food and Rural Affairs (Defra) (2015) Defra Background Pollutant Concentration Maps; Available online at: <http://uk-air.defra.gov.uk/data/laqm-background-maps?year=2013>; Accessed: August 2018

### *Assessment of impacts and effects*

#### **Temporary effects**

- 7.4.10 Construction activity could affect local air quality through the additional traffic generated on local roads as a result of construction vehicles and through changes to traffic patterns arising from temporary road diversions and realignments.
- 7.4.11 The assessment of construction traffic emissions has been undertaken for a 'without scheme' and a 'with scheme' scenario. The traffic data for each scenario includes the additional traffic from future committed developments.
- 7.4.12 Construction traffic data in the area have been screened to identify roads that required further assessment and to confirm the likely effect of the change in emissions from vehicles using those roads in the construction period. These were primarily the main roads within the study area, namely the M6, the A5182 Trentham Road, the A500 Queensway, the A34 Stafford Road, the A51 Butterhill Bank, the A51 Stone South, the A50 Uttoxeter Road, Yarnfield Lane and new construction slip roads on the M6 around Yarnfield Lane and near the A34 Stone Road.
- 7.4.13 Concentrations of NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> are predicted to be within the relevant air quality standards during construction of the scheme.
- 7.4.14 No new or different significant effects are predicted at any receptor during construction of the AP2 revised scheme in the Stone and Swynnerton area. Details are provided in the SES2 and AP2 ES Volume 5: Appendix AQ-001-003.
- 7.4.15 No new or different significant effects are predicted at any ecological receptors during construction of the AP2 revised scheme.

#### **Permanent effects**

- 7.4.16 No permanent effects on local air quality are likely to arise from changes in construction traffic flows in the Stone and Swynnerton area.

### *Other mitigation measures*

- 7.4.17 No mitigation measures additional to those reported in the main ES and draft CoCP are required.

### *Summary of likely residual significant effects*

- 7.4.18 No new or different likely residual significant effects are anticipated for air quality in this area during construction of the AP2 revised scheme.

### *Cumulative effects*

- 7.4.19 This combined assessment has taken into account cumulative effects from background traffic growth, committed developments and impacts related to traffic emissions arising from the SES2 changes and AP2 amendments in this area and other community areas.

## 7.5 Sound, noise and vibration

### Scope, assumptions and limitations

- 7.5.1 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1 and the SMR of the main ES.

### Environmental baseline

#### *Existing baseline*

- 7.5.2 The baseline sound, noise and vibration information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 13 of the main ES.

#### *Future baseline*

### Construction (2020)

- 7.5.3 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### Effects arising during construction

#### *Avoidance and mitigation measures*

- 7.5.4 No avoidance or mitigation measures additional to those reported in the main ES and draft CoCP are required.

#### *Assessment of impacts and effects*

- 7.5.5 The main ES identified that during the peak month of construction, a major construction noise impact would occur, which would result in an indirect likely significant noise effect on a community basis at approximately 45 residential dwellings located adjacent to Pirehill Lane/Green Lane from the junction with Whitgreave Lane in Whitgreave to the main body of Walton. This was denoted as CSV03-Co1 in the main ES Volume 5: Appendix SV-002-003.
- 7.5.6 The change in construction traffic reduces the amount of construction traffic on this route, such that the major construction noise impact identified in the main ES is reduced to a moderate construction noise impact. This remains a likely significant effect on a community basis. For further information see SES2 and AP2 ES Volume 5: Appendix SV-002-000.

#### *Other mitigation measures*

- 7.5.7 No mitigation measures additional to those reported in the main ES and draft CoCP are identified.

#### *Summary of likely residual significant effects*

- 7.5.8 The changes in construction traffic will not give rise to a new or different likely residual significant effect to that reported in the main ES.

### *Cumulative effects*

- 7.5.9 This combined assessment has taken into account cumulative effects from changes in traffic flows as a result of all SES2 changes and AP2 amendments in this area and other community areas.

## **7.6 Community**

### **Scope, assumptions and limitations**

- 7.6.1 The assessment scope, key assumptions and limitations for community are as set out in Volume 1, the SMR and SMR Addendum of the main ES.

### **Environmental baseline**

#### *Existing baseline*

- 7.6.2 The baseline community information for the Stone and Swynnerton area is as described in Volume 2, CA3, Section 6 of the main ES.
- 7.6.3 Shelton under Harley is a small hamlet of approximately five residential properties linked to Shelton under Harley Farm. It is located approximately 1.7km south of Whitmore and 800m north of Stableford.

#### *Future baseline*

### **Construction (2020)**

- 7.6.4 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.

### **Effects arising during construction**

#### *Avoidance and mitigation measures*

- 7.6.5 No avoidance or mitigation measures additional to those reported in the main ES and draft CoCP are required.

#### *Assessment of impacts and effects*

### **Temporary effects**

- 7.6.6 The main ES reported that two residential properties would be permanently lost in Shelton under Harley. The three remaining properties would experience significant temporary adverse visual effects due to construction works. The main ES further reported that all of these properties would experience a significant temporary HGV effect and one of the properties would experience a significant temporary noise effect. The in-combination effect would result in a temporary major adverse significant effect at the three properties.
- 7.6.7 The changes to construction traffic flows will reduce the duration of the HGV effect on the three remaining properties in Shelton under Harley from one year and two months, as reported in the main ES, to nine months. The changes in traffic flows are primarily due to changes to the construction programme and movement of excavated materials. This will reduce the overall duration of the in-combination effect on these

properties from up to one year and two months, as reported in the main ES, to nine months. The reduced duration will give rise to a different significant effect, however this will not change the level of significance of the effect reported in the main ES. For further information see SES2 and AP2 ES Volume 5: Appendix CM-001-003 and SES2 and AP2 ES Volume 5: Community Map Book.

### **Permanent effects**

- 7.6.8 The changes in traffic flows will not give rise to a new or different significant permanent effect and will not change the level of significance of the permanent effects, as reported in the main ES.

#### *Other mitigation measures*

- 7.6.9 No mitigation measures additional to those reported in the main ES and draft CoCP are identified.

#### *Summary of likely residual significant effects*

- 7.6.10 The changes in traffic flows will give rise to a different likely residual temporary significant effect at properties in Shelton under Harley, due to a reduction in the duration of the significant HGV effect and therefore a reduction in the duration of overall in-combination effect. However this will not change the level of significance of the effect reported in the main ES.

#### *Cumulative effects*

- 7.6.11 This combined assessment has taken into account cumulative effects from changes in traffic flows as a result of the all SES2 changes and AP2 amendments in this area and other community areas.

## **7.7 Socio-economics**

### **Scope, assumptions and limitations**

- 7.7.1 The assessment scope, key assumptions and limitations for socio-economics are as set out in Volume 1 and the SMR of the main ES.

### **Environmental baseline**

#### *Existing baseline*

- 7.7.2 The existing baseline for socio-economics is as described in Volume 2, CA3, Section 12 of the main ES.

#### *Future baseline*

### **Construction (2020)**

- 7.7.3 The future baseline for construction in 2020 remains unchanged from that reported in the main ES Volume 5: Appendix CT-004-000.



## Effects arising during construction

### *Avoidance and mitigation measures*

- 7.7.4 No avoidance or mitigation measures additional to those reported in the main ES and draft CoCP are required.

### *Assessment of impacts and effects*

#### **Temporary effects**

- 7.7.5 Construction activity could affect businesses as a result of the environmental effects associated with the additional traffic generated on local roads by construction vehicles and changes to traffic patterns arising from temporary road diversions and realignments. These environmental effects include road congestion, increased noise and air pollution.
- 7.7.6 A combination of these effects on businesses may lead users to divert trade to other locations which do not experience these effects. Only certain types of businesses will be particularly sensitive to their surroundings and these will be drawn from sectors like hospitality, catering, recreational/cultural and retail (depending on circumstances).
- 7.7.7 Businesses identified as sensitive to environmental effects with two or more significant adverse effects drawn from other environmental topics are considered to be affected by in-combination effects, as set out in the SMR and SMR Addendum of the main ES.
- 7.7.8 Based on a review of the environmental effects, no new or different significant in-combination effects are predicted at any business receptors as a result of the changes to construction traffic flows.

#### **Permanent effects**

- 7.7.9 The changes in traffic flows will not give rise to a new or different significant permanent effect and will not change the level of significance of the permanent effects, as reported in the main ES.

### *Other mitigation measures*

- 7.7.10 No mitigation measures additional to those reported in the main ES and the draft CoCP are required.

### *Summary of likely residual significant effects*

- 7.7.11 No new or different significant effects are likely in the Stone and Swynnerton area as a result of changes to construction traffic flows from the SES2 design changes and AP2 amendments.

### *Cumulative effects*

- 7.7.12 This combined assessment has taken into account cumulative effects from changes in traffic flows as a result of the all SES2 changes and AP2 amendments in this area and other community areas.

## **7.8 Summary of new or different likely residual significant effects as a result of combined effects due to changes in traffic flows**

- 7.8.1 The SES2 changes and AP2 amendments will remove the temporary significant congestion and delay effects at the A34 Stafford Road/A51 Stone Bypass/Brooms Road roundabout; the A500 Queensway/A519 Newcastle Road roundabout; and the A519 Newcastle Road/A5182 Trentham Road signals.
- 7.8.2 The SES2 changes and AP2 amendments will reduce the level of significance of the effect on congestion and delay to vehicle users of the B5026 Eccleshall Road/Pirehill Lane junction to a temporary moderate adverse significant effect. There will, however, be new moderate adverse significant effects on congestion and delay to vehicle users at A51 Stone Bypass/Aston Bridge Lane staggered crossroads junction and the A34 The Fillybrooks/Meaford Road roundabout junction.
- 7.8.3 The SES2 changes and AP2 amendments will reduce the level of significance of the traffic severance effects for non-motorised users at the A51 The Rowe between Common Lane (Swynnerton) and Dog Lane; the B5026 Eccleshall Road between the A34 Stafford Road/The Fillybrooks and Pirehill Lane; Bent Lane between the A51 The Rowe and the HS2 route; and Yarnfield Lane between the HS2 route and the A34 Stone Road. There will be a different significant effect for non-motorised users at the A519 Newcastle Road between the A51 Stone Road and the A500 Queensway.
- 7.8.4 The changes in construction traffic flows will also give rise to a different likely residual temporary significant community effect at properties in Shelton under Harley, due to a reduction in the duration of the significant HGV effect and therefore a reduction in the duration of overall in-combination effect.







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