

HIGH SPEED RAIL (LONDON - WEST MIDLANDS)

Supplementary Environmental Statement 2 and
Additional Provision 3 Environmental Statement

Volume 1 | Introduction and methodology

September 2015

SES2 and AP3 ES 3.1.1



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Department
for Transport

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

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1 Introduction

1.1 Background to High Speed Two

- 1.1.1 The hybrid Bill for High Speed Rail between London and the West Midlands ('the Bill') was submitted to Parliament together with an Environmental Statement (ES) in November 2013 ('the main ES'). If enacted by Parliament, the Bill will provide the powers to construct, operate and maintain Phase One of High Speed Two (HS2). This phase of HS2 will provide a new north-south railway between London, Birmingham and the West Midlands. Phase Two of HS2 will comprise new lines between the West Midlands, Leeds and Manchester, completing what is known as the 'Y network'. Phase Two is not the subject of this document.
- 1.1.2 Since the deposit of the Bill, the need for a number of amendments (i.e. changes that require amendments to the Bill) to the scheme have been identified. These have been promoted in Parliament through two additional provisions (APs). The first was deposited in Parliament in September 2014 ('AP1'), which focused on community forum areas (CFAs) 7 (Colne Valley) to 26 (Washwood Heath to Curzon Street). The second was deposited to Parliament in July 2015 ('AP2'), which focused on CFAs 4 (Kilburn (Brent) to Old Oak Common) to 26. These were each accompanied by AP ESs.
- 1.1.3 In addition, a Supplementary Environmental Statement ('SES') was deposited in July 2015 alongside AP2. The SES focused on CFAs 4 to 26 and described and assessed the consequences of new environmental baseline information, changes to construction assumptions, design changes that do not require amendments to the Bill, and corrections to the main ES.
- 1.1.4 The need for a number of additional amendments to the Bill have been identified for CFAs 1 to 3. Those amendments that require amendments to the Bill are being promoted via Additional Provision 3 ('AP3'). The associated AP3 ES describes these amendments and reports the associated likely significant environmental effects.
- 1.1.5 In addition to these amendments, there are also a number of design changes within CFAs 1 (Euston station and approach) to 3 (Primrose Hill to Kilburn (Camden)) and other changes within CFAs 1 to 5 that do not require amendments to the Bill. These are reported in a second Supplementary Environmental Statement ('the SES2').
- 1.1.6 The most significant of the SES2 changes relate to Euston Station. Following deposit of the Bill and subsequent discussions with stakeholders, Sir David Higgins undertook a wide ranging review of the delivery of HS2 Phase One, as set out in HS2 Plus¹, in March 2014. The review questioned whether the Euston proposal was ambitious enough in delivering the best value to the local area and the national economy and suggested further work should be undertaken on an alternative level deck design².
- 1.1.7 Following the HS2 Plus report, the Department for Transport (DfT), HS2 Ltd, Network Rail and Transport for London (TfL) began to develop revised proposals for Euston station, taking account of the need to minimise disruption to the operation of the

¹Department for Transport, (2014), HS2 Plus: a report by David Higgins.

² Level deck design: where the conventional tracks would be lowered to provide a level deck across the HS2 and conventional parts of the station.

conventional station and to enable oversight development (OSD) in order to meet the aspiration of the Euston Area Plan (EAP). This included engagement with the London Borough of Camden (LBC) and relevant train operating companies. This has involved the reconsideration of previous options, including a level deck option, and the development of new options in the light of the changed requirements. This has led to a revised design and construction programme for CFA1 that is assessed in the SES2 and the AP3 ES.

- 1.1.8 As the design changes within CFA1 are substantial, the CFA1 report presents a full assessment of the entire revised scheme within the Euston station and approach area and replaces the CFA1 report from the main ES. Since the majority of the design changes within CFA1 can be carried out without amendments to the Bill the assessment is reported in the SES2 section of the CFA1 report. In addition to design changes, the SES2 for CFA1 also reports the assessment of new environmental baseline information, changes to construction assumptions, updates to traffic models and corrections to the main ES.
- 1.1.9 The rest of the SES2 covers CFAs 2 to 5. The contents of the relevant CFA reports depends on the nature of the new environmental information presented for these areas:
- CFAs 2 and 3: reports any new or different likely significant environmental effects from a number of design changes in these areas, new environmental baseline information, changes to construction assumptions, and updates to traffic models;
 - CFA4: reports any new or different likely significant environmental effects from changes to construction assumptions, updates to traffic models, changes to passenger numbers at Old Oak Common station as a result of design changes in CFA1 and the removal of the HS1-HS2 Link, and a correction to the main ES. There are no design changes in this CFA area; and
 - CFA5: reports any new or different likely significant environmental effects from the changes in the design and construction assumptions at Euston. There are no design changes in this CFA area.
- 1.1.10 The AP3 ES reports the assessment of the likely significant effects from amendments in CFAs 1 to 3. There are no amendments in CFAs 4 or 5.
- 1.1.11 A description of the design changes and amendments within CFAs 1 to 3 is provided in Section 1.3 of this report. Section 1.3 also highlights any changes to construction assumptions.
- 1.1.12 A formal consultation will be undertaken on the SES2 and the AP3 ES. There will also be a petitioning period for those directly and specially affected by the changes. Any petitions against these changes will be heard by the High Speed Rail (London - West Midlands) Select Committee ('the Select Committee') in due course.

1.2 Terminology used to describe the HS2 scheme

1.2.1 In order to differentiate between the original scheme assessed as part of the main ES and subsequent changes, the terms in Table 1 are used throughout the SES2 and the AP3 ES.

Table 1 Scheme definitions

Scheme name	Definition	Relevant CFAs
the original scheme	the Bill scheme submitted to Parliament in November 2013, which was assessed in the main ES	1 - 26
the AP1 revised scheme	the original scheme as amended by the AP submitted in September 2014	7 - 26
the SES scheme	the original scheme with the design changes described in the SES submitted in July 2015	4 - 26
the AP2 revised scheme	the SES scheme as amended by the AP2 submitted in July 2015	4 - 26
the SES2 scheme	the original scheme as updated by the SES scheme, with the design changes described in the SES2 submitted in September 2015	1 - 5
the AP3 revised scheme	the SES2 scheme as amended by the AP3 submitted in September 2015	1 - 5

1.2.2 The following terms are also used to differentiate between design changes included in the SES2 and amendments included in the AP3 ES:

- 'SES2 design changes' - changes to the scheme reported in the SES2 that do not require amendments to the Bill; and
- 'AP3 amendments' - changes to the scheme reported in the AP3 ES that require amendments to the Bill.

1.3 The SES2 and the AP3 ES

1.3.1 The SES2 and the AP3 ES are separate environmental statements, but have been produced as combined volumes (see section 1.4 of this report for further details).

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1.3.2 The CFA1 report presents a complete assessment of the revised scheme within the Euston Station and approach area and provides a summary of key changes to the assessment of the original scheme reported in the main ES. As the AP3 amendments are relatively minor and form part of the revised scheme these are included in the assessment, along with the SES2 changes.

1.3.3 For CFAs 2 to 5, the SES2 presents an assessment of design changes that do not require an amendment to the Bill, and that result in new or different likely significant environmental effects. In some cases, SES2 changes are also included where they do not result in new or different likely significant environmental effects (this is discussed in paragraph 1.3.4 of this report).

1.3.4 The SES2 reports any new or different likely significant environmental effects resulting from:

- updated/new environmental baseline information;
 - ecology: surveys for bats, Black Redstart and desk based research regarding the hedgehog population at Regent’s Park relevant to the SES2 and AP3 ES assessment; and
 - traffic and transport: updates to traffic models and traffic surveys of roads in the vicinity of Euston Station.
- design changes that can be made without further amendments to the Bill, including:
 - a revised scheme for the Euston station and approach area in CFA1:

The revised scheme will include a subsurface high speed station, with a ground level concourse. The high speed station will be constructed in two stages (as opposed to the single construction stage proposed as part of the original scheme). Construction Stage A will allow HS2 Phase One to become operational in 2026 through the provision of six high speed platforms. Construction Stage B1 will provide an additional five platforms for long-term capacity and HS2 Phase Two services by 2033.

The design and staged construction programme of the revised scheme has been planned to minimise disruption to the operation of the conventional station, but also to be compatible with the potential future redevelopment of the conventional station. Any such development would be for Network Rail to progress outside of the Bill powers (this potential future construction stage has been described as construction Stage B2, which is not covered in the ES). At least 16 platforms in the existing conventional station will be retained until 2026 (rather than the 13 proposed in the original scheme) to meet train operating companies’ requirements, while the first six high speed platforms are under construction.

After 2026, the conventional station will be reduced to a minimum of 11 platforms to allow for the construction of five additional high speed platforms by 2033. The additional capacity for travel to and from the West Midlands will be provided by the six high speed platforms, operational by this stage. On completion in 2033, there will be a minimum of 11 conventional platforms and 11 high speed platforms.

Upon completion the revised scheme includes improvements to the public realm in Euston Square Gardens and will facilitate improved connectivity for pedestrians moving through the area. As with the original scheme, replacement open space is lost during the construction period. However the intended replacement open space provided in the revised scheme will be an improvement over that proposed in the original scheme.

The revised design of Euston station and approach will also be compatible with future development of the conventional station and will enable OSD to be

undertaken above the station and the approach to the north of the station.

removal of the proposed section of the HS1-HS2 Link (proposed as part of the original scheme) in CFAs 2 and 3 and all associated construction works;

- changes to construction assumptions from those in the main ES, the SES and the AP2 ES, where relevant:
 - changes to the use of the HS1-HS2 Link portal main construction compound in CFA3, which was to be used to facilitate the construction of the HS1-HS2 Link and railway installation works and modifications to the existing railway. Although the HS1-HS2 Link will no longer be required, the construction compound (now renamed the Juniper Crescent satellite compound) will still be required to facilitate the railway reconfiguration works associated with the West Coast Main Line (WCML) between Euston station and Primrose Hill;
 - use of Euro VI³ heavy goods vehicles⁴ (HGVs) to transport excavated material in CFAs 1 to 3; the main ES assumed that HGVs with any Euro standard engine could be used to transport excavated material. The impacts on air quality of using Euro VI vehicles has already been assessed for CFAs 4 to 6, as reported in the SES and the AP2 ES; and
 - change in the use and duration of the operation of the Willesden F-Sidings satellite compound in CFA5; the compound will be used periodically for 17 years (instead of nine years reported in the main ES) to support both high speed and conventional railway enabling works in the Euston area.
- corrections to the main ES.

1.3.5 The SES2 also reports the following, that may not result in any new or different likely significant environmental effects:

- a change in construction assumption that does not result in a new or different significant effect, but will considerably increase the duration of the operation of the Willesden Euroterminal main construction compound in CFA4 from seven years and six months to approximately 17 years;
- the full set of ecology survey results for CFAs 1 to 3 to complete a commitment made to the Select Committee to publish all ecology surveys undertaken up to the end of 2014; and
- corrections to factual inaccuracies identified in the main ES where they relate to a significant environmental effect.

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1.3.6 The AP3 amendments for CFAs 1 to 3 include:

³ Engines certified to have substantially lower emissions of NOx and particulate matter than older engines. (Euro VI as defined by EU Directive 2007/46/EC, and amended by subsequent regulations).

⁴ Heavy goods vehicles are defined as those with an unladen weight greater than 3.5 tonnes.

- a number of relatively minor amendments within CFA1:
 - additional land for construction off Stephenson Way (to allow oversailing by cranes);
 - additional land for diversion of utilities at Stanhope Street;
 - additional land at Barnby Street for improvements to open space within the Amphill Estate;
 - additional land for highway works at Hampstead Road and Harrington Square;
 - additional land for the installation of ground anchors at Park Village East, north of Mornington Street Bridge;
 - additional land for the extension to the lorry holding area and replacement parking in Regent's Park;
 - extension of a cycle track along Cobourg Street;
 - provision of an access road and ramp to the high speed station basement from Hampstead Road Bridge;
 - provision of a taxi road and cycle track at the northern station entrance from Hampstead Road;
 - provision of a loop road for a bus stand and staff welfare facilities off Eversholt Street;
 - the provision of a bridge across the railway for temporary utility diversions, south of Hampstead Road Bridge;
 - addition of the Grade II listed Euston Lodges and associated structures to Schedule 17 of the Bill; and
 - reinstatement of Line X⁵;
- temporary access rights for a section of Juniper Crescent in CFA2 to enable construction vehicles to access the Juniper Crescent satellite compound;
- additional land required on Alexandra Place in CFA3 during construction to create a turning circle for vehicles; and
- addition of Alexandra Road Estate concrete ramp and planter to Schedule 17 of the Bill.

1.4 Structure of the SES2 and the AP3 ES

1.4.1 The SES2 and the AP3 ES are separate documents. However, they are bound together and presented in a number of volumes. Each volume generally contains an introduction section and separate SES2 and AP3 ES sections, presented as Part 1 and

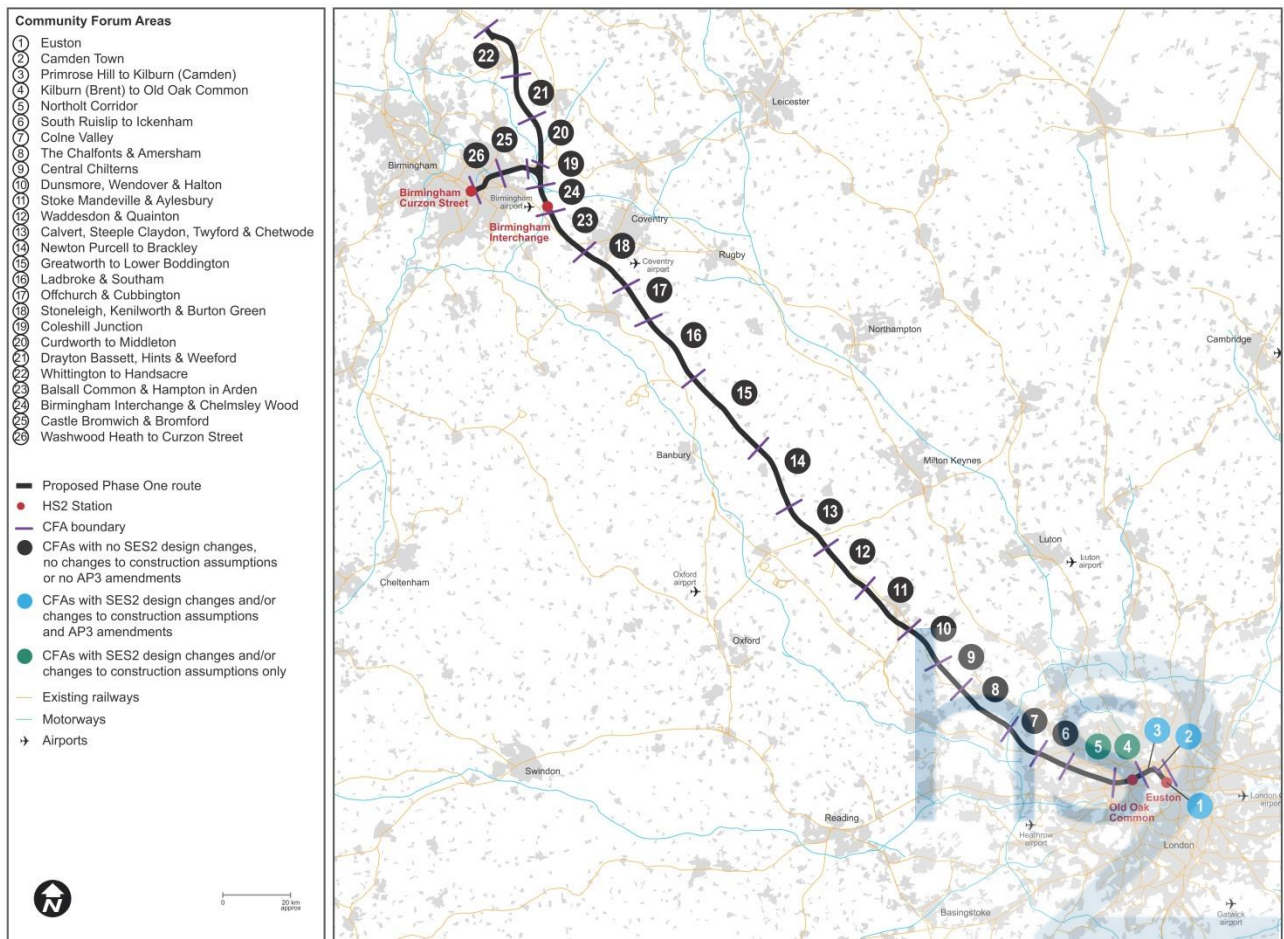
⁵ An existing railway dive under located on the approach to Euston Station that allows trains to cross from one side of the station to the other.

Part 2 respectively. The introductory sections in each volume apply to both the SES2 (Part 1) and the AP3 ES (Part 2) sections. The SES2 and the AP3 ES comprise:

- Non-technical summary (NTS). This provides a summary in non-technical language of the SES2 (Part 1) and the AP3 ES (Part 2) and of the likely residual significant environmental effects, both beneficial and adverse, including those which are new or different to those reported in the main ES;
- Volume 1: Introduction to the SES2 and the AP3 ES. This introduces the supplementary environmental information and design changes included within the SES2 and amendments which have resulted in the need to amend the Bill within the AP3 ES. It also explains any changes to the scope, methodology, assumptions and limitations required for the environmental impact assessment (EIA) and approach to consultation;
- Volume 2: CFA reports for CFAs 1 to 5 and associated map books. The structure of the CFA reports within Volume 2 vary as follows:
 - CFA1 is split into two parts. Part 1 comprises the SES2 changes for the Euston Station and approach area. Part 2 describes the amendments within the AP3 ES, which have resulted in the need to amend the Bill. Part 1 is further split into Part 1A and Part 1B. Part 1A provides a summary of: new environmental baseline information; a description of the revised scheme, including a comparison with the original scheme described in the main ES; and a summary of the key changes to the likely residual significant effects arising from the revised scheme for Euston compared to the original scheme. Part 1B provides a complete assessment of the revised scheme, for the Euston station and approach area, including the effect of a number of minor amendments to the Bill. Part 1B replaces the Volume 2 CFA1 report of the main ES;
 - CFAs 2 and 3 report any new or different likely significant environmental effects arising from the SES2 changes and AP3 amendments compared to those reported in the main ES;
 - CFAs 4 and 5 report any new or different significant environmental effects arising from the SES2 changes compared to the SES submitted in July 2015 and taking into account any relevant AP2 amendments assessed in the AP2 ES submitted in July 2015;
- Volume 3: Route-wide effects. This describes new or different likely significant route-wide effects arising from the supplementary environmental information and design changes included within the SES2 (Part 1) and amendments within the AP3 ES (Part 2) compared to those reported in the main ES, as updated by the SES. The AP2 amendments are also taken into account where relevant;
- Volume 5: Appendices and map books. This contains supporting environmental information and associated maps; and
- Glossary of terms and list of abbreviations. This contains any new or different terms and abbreviations which are not already explained in the main ES.

- 1.4.2 In the main ES and the AP2 ES, Volume 4 presented an assessment of the likely significant environmental effects that will occur in locations away from the route. None of the SES2 changes or AP3 amendments occur, or have likely significant effects in off-route areas (i.e. outside the CFAs). Volume 4 is therefore not included within the SES2 and the AP3 ES.
- 1.4.3 Figure 1 shows the CFAs along the Phase One route, highlighting which have SES2 design changes, changes to construction assumptions and/or AP3 amendments.

Figure 1 Phase One route showing the community forum areas with and without SES2 design changes and changes to construction assumptions and AP3 amendments



1.5 Structure of this report

- Section 2: Introduction to the SES2 and the AP3 ES;
- Section 3: Scope and methodology of the SES2 and the AP3 ES;
- Section 4: Approach to the appendices in the SES2 and the AP3 ES;
- Section 5: Approach to mapping in the SES2 and the AP3 ES;
- Section 6: Changes to the construction programme and construction methods;
- Section 7: Approach to mitigation associated with the SES2 and the AP3 ES;
- Section 8: Consultation on the SES2 and the AP3 ES; and
- Section 9: References.

2 Introduction to the SES2 and the AP3 ES

2.1 Introduction to the SES2

2.1.1 The CFA₁ report presents a complete assessment of the revised scheme within the Euston Station and approach area.

2.1.2 For CFAs 2 to 5, the SES2 presents an assessment of any new or different likely significant environmental effects that result from the SES2 changes. Where relevant, this includes:

- updated and new environmental baseline information (including updates to traffic modelling);
- changes to the design and construction assumptions of the scheme that do not require amendments to the Bill; and
- corrections to the main ES.

Updated/new environmental baseline information

2.1.3 Environmental baseline surveys for the scheme have continued to be undertaken since the completion of the main ES. Despite the efforts of HS2 Ltd to undertake comprehensive surveys on the land affected by the scheme in advance of Bill deposit in 2013, access to some sites was denied or became available too late to be incorporated into the main ES. A precautionary assessment was therefore undertaken for the main ES, based on environmental information gathered from desk-based research, information provided by third parties and professional judgement.

2.1.4 Since the production of the main ES, additional access has been granted and further surveys have been undertaken. New areas of land have also been identified and surveyed and additional desk based baseline information has become available for some environmental topics. These surveys and additional desk-based information address the following environmental topics:

- ecology: surveys for bats, Black Redstart and desk study information regarding the hedgehog population at Regent's Park relevant to the SES2 and the AP3 ES assessment; and
- traffic and transport: revised traffic modelling; and traffic surveys of roads in the vicinity of Euston Station, and pedestrian counts at the station in June 2014.

2.1.5 Further information on updated/new environmental baseline information can be found within the SES2 and the AP3 ES Volume 2 CFA reports.

2.1.6 The SES2 only reports new baseline information where it is relevant to the assessment of a new or different likely significant environmental effect. The exception is for ecology where, to complete a commitment made to the Select Committee, the full set of results from further ecology surveys undertaken up to the end of 2014 for CFAs 1 to 3 has been published. The new and updated ecology information for CFAs 4 to 6 was published as part of the SES.

- 2.1.7 The SES2 also includes updates to the traffic and transport baseline information. Since submission of the main ES, TfL has updated their Railplan and CLoHAM models. CLoHAM and Railplan were used in the assessment for CFAs 1 to 4. An updated West London Highway Assignment Model (WeLHAM) was also used in the assessment for CFAs 4 and 5. These model updates have incorporated new baseline data, background growth assumptions and committed transport schemes. In particular, Railplan now includes significantly higher rates of underlying growth in rail passenger demand than that used in the main ES, while CLoHAM and WeLHAM incorporate the latest committed highway improvement schemes. The updates to these models have been taken into account in the assessments within the SES2 and AP3 ES for CFAs 1 to 5.

Changes to the design and to construction assumptions that do not require amendments to the Bill

- 2.1.8 Design changes relevant to the assessment within CFA1 that do not require amendments to the Bill are reported whether or not they result in new or different significant effects, as this is a complete reassessment.
- 2.1.9 Design changes that do not require amendments to the Bill within CFA2 and 3 are only reported where they result in new or different likely significant environmental effects from those reported in the main ES.
- 2.1.10 Changes to construction assumptions are also reported in the relevant Volume 2 CFA reports.

Corrections to the main ES

- 2.1.11 Since the deposit of the main ES, the need for a small number of corrections has been identified. Each correction has been reviewed to determine whether it will potentially lead to new or different likely significant environmental effects from those described in the main ES. Where they do, corrections are reported in Part 1 of the relevant Volume 2 CFA reports.

2.2 Introduction to the AP3 ES

- 2.2.1 The need for a number of amendments to the scheme has been identified. These amendments each include requirements for the use of land that require amendments to the Bill, or other extensions of powers conferred by the Bill.
- 2.2.2 The AP3 amendments are described in each Volume 2 CFA report. There are no AP3 amendments that are in locations away from the HS2 route (i.e. off-route). Therefore there is no Volume 4 in the SES2 and the AP3 ES.

3 Scope and methodology of the SES2 and the AP3 ES

3.1 Scope and methodology for the main ES

- 3.1.1 The HS2 Scope and Methodology Report (SMR) (main ES, Volume 5: Appendix CT-001-000/1) was published in September 2012 and set out the proposed scope and methodology for the EIA of the HS2 scheme.
- 3.1.2 An SMR Addendum (main ES, Volume 5: Appendix CT-001-000/2) was published in November 2013 and outlined where the methodology presented within the SMR had been amended or advanced as a result of:
- changes to legislation or industry best practice guidance;
 - the methodology undergoing refinement as a result of its application within the EIA; and
 - further feedback on the outlined methodology received from stakeholders including statutory bodies following the publication and application of that methodology.

3.2 Scope and methodology for the AP1 ES

- 3.2.1 Assessment of the impacts and effects for AP1 was undertaken in accordance with the methodology outlined for each environmental topic in the SMR and SMR Addendum.
- 3.2.2 A number of changes to this methodology were required for ecology and landscape and visual assessment and are described in Section 3 of Volume 1 of the AP1 ES (paragraphs 3.1.23 to 3.3.4).

3.3 Scope and methodology for the SES and the AP2 ES

Air quality

- 3.3.1 Since submission of the Bill, the Institute of Air Quality Management (IAQM) issued new guidance⁶ on assessing the impact of construction dust emissions. The air quality methodology was updated to reflect this and the updated methodology was used to assess the impact of dust emissions from construction. A second SMR Addendum was produced (Volume 5 of the SES and the AP2 ES: Appendix CT-001-000/3) as a result of changes to the air quality methodology.
- 3.3.2 Since the deposit of AP1, HS2 Ltd has decided that any HS2 HGVs entering low emission zones during construction for the purposes of the movement of excavated material will be powered by Euro VI (or lower emission) engines. This was taken into account in the air quality assessments for the SES and the AP2 ES.

⁶ Institute of Air Quality Management, (2014), Guidance on the assessment of dust from demolition and construction.

Ecology

- 3.3.3 Since submission of the main ES, a number of additional woodlands were added to the ancient woodland inventory, and some areas were identified as being likely to be ancient woodland. The SES and the AP2 ES took these newly identified areas (and potential areas) of ancient woodland into account in the assessment.

Landscape and visual assessment

- 3.3.4 Photomontages prepared for the main ES were updated and included in the SES and the AP2 ES where a design change resulted in a new or different significant environmental effect and/or was noticeable in the view.
- 3.3.5 A small number of additional viewpoints were identified for the AP2 amendments. Photomontages were prepared for a selection of these viewpoints in line with the first SMR Addendum Annex G (main ES, Volume 5: Appendix CT-001-000/2), where there is likely to be a significant environmental effect.

3.4 Scope and methodology for the SES2 and the AP3 ES

- 3.4.1 As with the approach taken for the previous ESs, prior to assessing the environmental effects of each SES2 change and AP3 amendment, a scoping exercise was undertaken based on a precautionary approach.
- 3.4.2 The scoping exercise was used to determine whether the SES2 changes and the AP3 amendments had the potential to result in any new or different likely significant environmental effects.
- 3.4.3 Any design changes and amendments identified as having the potential to result in any new or different likely significant environmental effects were then subject to further assessment work, following the methodology outlined for each environmental topic in the SMR and the subsequent addendums and updates to the methodology.
- 3.4.4 The approach for producing additional photomontages that was used in the SES and the AP2 ES (outlined in paragraphs 3.3.4 and 3.3.5) is also applied in the SES2 and AP3 ES.
- 3.4.5 As with the SES and AP2 ES, the results of the climate change risk assessment reported in the main ES are still considered valid for the AP3 revised scheme. Climate risks on the SES2 and AP3 revised scheme will be addressed through future design, during construction (through implementation of the draft CoCP), and in future operation and maintenance plans.
- 3.4.6 There have also been some refinements to the scope and methodology for air quality and ecology, which have been applied within this SES2 and the AP3 ES.

Air quality

- 3.4.7 In order to reduce the impact on local air quality in areas where there is action in place to meet European Union (EU) limit values through the introduction of low emission zones (such as the London Low Emission Zone), HS2 Ltd will require HGVs entering these designated zones during construction, for the purposes of transporting excavated material, to be powered by Euro VI (or lower emission) engines. The use of these vehicles has been assumed in the air quality assessment of the transport

modelling output in CFAs 1 to 3 (including the modelling that takes account of the updated TfL CLoHAM model). This approach was taken previously in the assessments for CFAs 4 to 6 in the SES and the AP2 ES.

- 3.4.8 Since submission of the Bill two guidance documents which informed the methodology used in the main ES have been updated:
- IAQM has issued new guidance on assessing the impact of dust emissions during construction. This guidance was taken into account in the assessments for CFAs 4 to 6 in the SES and the AP2 ES; and
 - IAQM and Environmental Protection UK (EPUK) have issued new guidance⁷ (2015) on the consideration of air quality within the land use planning and development control process. This guidance makes changes from the previous 2010 EPUK guidance in the process of determining the impact descriptors at each receptor.
- 3.4.9 The impact descriptors of the new IAQM/EPUK guidance have been applied to the air quality assessment in the SES2 and the AP3 ES. Use of these new impact descriptors generally result in a larger number of receptors being reported as experiencing a significant effect. This is because with the same predicted change in pollutant concentration at a receptor, the new guidance is more likely to result in an impact being described as 'moderate' or 'substantial' compared with the use of the previous version of the guidance. For example, where the baseline nitrogen dioxide (NO₂) concentration is 38µg/m³ and the concentration at a receptor would increase with the scheme by 1.5µg/m³ to 39.5µg/m³, the 2010 guidance would describe the impact as 'slight adverse' whilst, for the same situation, the use of the 2015 guidance would describe the impact as 'moderate adverse'. Given that the HS2 air quality methodology defines moderate (or substantial) impacts as having a significant effect, using the new guidance for the example illustrated above would result in a significant effect where previously there was no significant effect reported.
- 3.4.10 This outcome is more likely for receptors where the baseline NO₂ concentration is in excess of the air quality standard value, which is 40 µg/m³.
- 3.4.11 A comparison of the difference in impact descriptors arising from the new guidance is shown in the tables of results for construction stage impacts in Volume 5 Appendices, for annual NO₂, annual mean PM₁₀ and 24 hour PM₁₀.
- 3.4.12 The updated guidance from IAQM and IAQM/EPUK is taken account of in a revised SMR and technical note for air quality (Appendix CT-001-000/4 of the SES2 and the AP3 ES).
- Ecology**
- 3.4.13 The SES2 and AP3 ES incorporates all supplementary baseline ecology data obtained between September 2013 and December 2014, namely additional survey for bats and Black Redstart.

⁷ Moorcroft and Barrowcliffe et al., (2015), Land-Use Planning & Development Control: Planning for Air Quality. London: Institute of Air Quality Management.

- 3.4.14 This survey work was conducted in accordance with both the methods and survey extents set out within the Ecology Technical Note: Field Survey Methods and Standards (main ES, Volume 5: Appendix CT-001-000/1).
- 3.4.15 HS2 Ltd continues to make efforts to collect supplementary ecological baseline data and survey work undertaken during 2015 has been conducted according to the technical methods set out in Ecology Technical Note: Field Survey Methods and Standards. However, the survey extents in 2015 have been refined from those set out in the Field Survey Methods and Standards and greater emphasis has been placed on targeting survey work at those locations where it is known, or it is likely that, adverse impacts arising from the construction and operation of the scheme will occur.
- 3.4.16 A summary of the survey extents utilised by default during 2015 are provided in the following bulleted list. These represent a deviation from the survey extents detailed within the in Ecology Technical Note: Field Survey Methods and Standards:
- Phase 1 habitat survey: areas within or adjacent to the land required;
 - Bats: areas within or adjacent to the land required for scoping/bat roost potential surveys, detailed inspections of potential roosts and emergence surveys; and
 - Birds: areas within or adjacent to the land required with potential to support Black Redstart.
- 3.4.17 Where appropriate, professional judgement has been applied to refine the default survey extents based on local conditions and potential impacts of the scheme.
- 3.4.18 In order to ensure that the assessments in SES2 and AP3 ES consider the most up to date relevant baseline information, the interim results of on-going 2015 survey work have been taken into account where this information relates to a proposed SES2 design change or AP3 amendment.

Traffic and transport

- 3.4.19 The SES2 and AP3 Addendum 3 to the SMR includes amendments to address the assessment of combined impacts arising post 2026 from the operation of HS2 Phase 1 and Euston construction works.

General assumptions and limitations

- 3.4.20 During the preparation of an ES, there are sometimes circumstances in which the information available to inform the assessment process is limited. For example, there is inevitably some uncertainty in predicting future baseline conditions, impacts and effects, especially given that the scheme is not due to begin operating until 2026.
- 3.4.21 In addition, while it has been possible to access land where permission had previously not been given, it has not been possible to carry out surveys on all the land affected. Nevertheless, it is considered that the baseline is sufficiently robust to allow the assessment of the likely significant environmental effects of the scheme on the basis of a precautionary approach.
- 3.4.22 Where relevant for each environmental topic, key assumptions made in undertaking the assessment have been explained, and their consequences on the completeness or

potential accuracy of the conclusions have been identified. Section 8 in Volume 1 of the main ES provides a description of general assumptions and limitations for each environmental topic. Local assumptions and limitations are described within each SES2 and the AP3 ES, Volume 2 CFA report.

Sound, noise and vibration

3.4.23 Volume 1 of the main ES included an operational assumptions section for sound, noise and vibration. This section outlined the assumptions used in order to determine the likely significant environmental effects arising during operation.

3.4.24 Paragraph 8.9.44 of Volume 1 of the main ES stated:

Trains joining the Proposed Scheme from HS1 via the HS1-HS2 Link are assumed to be compliant with EU noise emission regulations, would be up to 400m in length and would operate on the route at speeds up to 330kph where the design permits.

3.4.25 Although the HS1-HS2 link has been removed from the scheme, it remains likely that up to ten percent of trains on HS2 infrastructure will have passby sound levels that are equal to the limits in the 2008 Technical Specifications for Interoperability⁸. Such trains have been assumed to be 400m in length and would likely operate on the route at speeds up to 330kph where the design permits. The inclusion of such trains in the operational noise modelling therefore remains valid, although maximum sound levels from these trains have been predicted for speeds up to 360kph.

⁸ 2008/232/CE: Commission Decision of 21 February 2008 concerning a technical specification for interoperability relating to the 'rolling stock' sub-system of the trans-European high-speed rail system (notified under document C (2008) 648).

4 Approach to appendices in the SES2 and the AP3 ES

- 4.1.1 As with Volume 5 of the main ES, Volume 5 of the SES2 and the AP3 ES contains supporting environmental information in the form of appendices.
- 4.1.2 Generally, the SES2 and the AP3 ES appendices update the corresponding appendices within the main ES and should therefore be read in conjunction with them. The SES2 and the AP3 ES appendices do not repeat information contained within the relevant main ES appendix if that information does not require updating as a result of the changes within the SES2 and the AP3 ES (e.g. policy framework, and information on methodologies).
- 4.1.3 All baseline data from ecology surveys undertaken during 2014 within CFAs 1 to 3 is included within Volume 5 Appendix EC-001-001. This brings the Volume 5 appendices for CFAs 1 to 3 into line with the corresponding updates for CFAs 4 to 26 inclusive which were presented in the SES and AP2 ES.
- 4.1.4 Volume 5 also presents an update of the electromagnetic interference (EMI) assessment (Appendix EM-001-000) of the main ES, the SES and the AP2 ES. This update considers whether the conclusion of the corresponding main ES appendices change as a result of the AP3 amendments.

5 Approach to mapping in the SES2 and the AP3 ES

- 5.1.1 Construction (CT-05) and operation (CT-06) mapping has been produced to indicate the location of the SES2 design changes and AP3 amendments. In each case, the relevant map from the main ES has been reproduced showing the original scheme and a second map showing the SES2 scheme and revised scheme. On these maps a colour coded 'cloud' system is used, where:
- a grey 'cloud' indicates the location of SES design changes and AP2 amendments (if applicable);
 - a blue 'cloud' indicates the location of SES2 design changes; and
 - a red 'cloud' indicates the location of AP3 amendments.
- 5.1.2 For CFA1, only amendments requiring additional land outside existing Bill limits are identified on the CT-05 and CT-06 map series with a red cloud. As the SES2 design change comprises the revised design of Euston station, the maps do not have a blue cloud, but instead have a blue text box in the top right hand corner to indicate that the whole map reflects an SES2 design change.
- 5.1.3 The CT-05 and CT-06 maps are included in the Volume 2 map book for each of the relevant CFAs.
- 5.1.4 The relevant environmental maps in the Volume 2 and 5 map books have been produced where a new or different likely significant environmental effect from those reported in the main ES, or where relevant, the SES and the AP2 ES will occur or where features, resources, receptors, or viewpoints are changed from the main ES. On the maps, in general:
- red labels are used to show an increase in the magnitude of a likely significant environmental effect; and
 - green labels are used to show a reduction.
- 5.1.5 There are however exceptions to the above as follows:
- for CFA1 Volume 2 environmental maps have been reproduced in full. Volume 5 environmental maps have been produced where they have been amended as a result of SES2 and AP3 ES however as CFA1 is a new assessment the maps are not annotated with labels to highlight the changes; and
 - for CFA2 Volume 2 and 5 environmental maps that only show receptors that are no longer affected or significant effects that have been removed as a result of the removal of the HS1-HS2 Link have not been reproduced.
- 5.1.6 Ecology maps in Volume 5 containing new survey data have been updated for CFAs 1 to 3. New survey data is highlighted and is limited to 2014.
- 5.1.7 New committed developments which are relevant have been updated on the CT-13 maps in Volume 5.

- 5.1.8 The Zone of Theoretical Visibility (ZTV) maps in Volume 5 have also been produced to reflect the amendments within CFA₁ and follow the same approach as set out in the SMR and the first SMR Addendum.

6 Changes to the construction programme and construction methods

- 6.1.1 The SES2 and the AP3 ES describes a number of changes in the construction programme (e.g. increased/decreased construction durations) from those reported within the main ES for the original scheme. In the case of most minor design changes and amendments, it is likely that they will not generate a change in the construction programme. The length of time that construction compounds will be required will also change in accordance with the changes to the construction programme. For major changes, such as the redesign of the Euston Station and approach area, any material difference in the construction programme is described and assessed in the relevant Volume 2 CFA report.
- 6.1.2 The assessment was based on the construction methods described in the main ES (e.g. approach to constructing stations, depots, cuttings, embankments, tunnels, viaducts and bridges). Further detail on construction methods can be found within Section 6 of Volume 1 of the main ES and Section 2 of Volume 1 of the AP1 ES.

7 Approach to mitigation associated with the SES2 and the AP3 ES

- 7.1.1 The 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, including the NTS, and the draft CoCP, which sets out measures to manage and control the effects of construction. These were provided to Parliament at the same time the Bill was deposited in November 2013. The same generic mitigation measures described in the main ES still apply. Site-specific mitigation measures are described within volumes 2 and 3 of the SES2 and the AP3 ES, where required.

8 Consultation on the SES2 and the AP3 ES

- 8.1.1 A formal public consultation on both the SES2 and the AP3 ES is required by Parliamentary standing orders. Consultees will have 42 days to respond to the consultation following the deposit of the SES2 and the AP3 ES in Parliament and the first publication of the necessary newspaper notices that follow. Parliamentary officials have appointed an independent assessor who will summarise consultation responses and provide a report to Parliament before the Third Reading of the Bill.
- 8.1.2 There will also be a separate petitioning period. This period will provide an opportunity for individuals or organisations specifically and directly affected by the changes in the SES2 and the amendments in the AP3 ES to petition Parliament in relation to any particular aspect of the changes in the SES2 or the AP3 amendments to the Bill.
- 8.1.3 More information on who may petition against the Bill, and how to do so, is available on Parliament's website (<http://www.parliament.uk>).

9 References

2008/232/CE: Commission Decision of 21 February 2008 concerning a technical specification for interoperability relating to the 'rolling stock' sub-system of the trans-European high-speed rail system (notified under document C (2008) 648).

Department for Transport, (2014), HS2 Plus: a report by David Higgins.

Institute of Air Quality Management, (2014), Guidance on the assessment of dust from demolition and construction.

Moorcroft and Barrowcliffe et al., (2015), Land-Use Planning & Development Control: Planning for Air Quality. London: Institute of Air Quality Management.

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