

HIGH SPEED RAIL (LONDON - WEST MIDLANDS)

Supplementary Environmental Statement 2 and Additional Provision 3 Environmental Statement

Volume 2 | Community forum area report

CFA2 | Camden Town

CFA3 | Primrose Hill to Kilburn (Camden)

CFA4 | Kilburn (Brent) to Old Oak Common

CFA5 | Northolt Corridor

September 2015

SES2 and AP3 ES 3.2.1.2



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Department for Transport

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Additional Provision 3 Environmental Statement

Volume 2 | Community forum area reports
CFA2 | Camden Town

Contents

Structure of the HS2 Supplementary Environmental Statement 2 and Additional Provision 3 Environmental Statement	1
Structure of this report	3
1 Introduction	5
Part 1: Supplementary Environmental Statement 2	7
2 Summary of changes	7
2.1 New environmental baseline information	7
2.2 Changes to the design or to construction assumptions not requiring a change to the Bill	7
2.3 Update to transport models	13
2.4 Topics included in the SES2 assessment	14
3 Assessment of changes	15
3.1 Air quality	15
3.2 Community	20
3.3 Cultural heritage	23
3.4 Ecology	25
3.5 Land quality	28
3.6 Landscape and visual assessment	30
3.7 Socio-economics	36
3.8 Sound, noise and vibration	38
3.9 Traffic and transport	45
Part 2: Additional Provision 3 Environmental Statement	57
4 Summary of amendments	57
5 Assessment of amendments	59
5.1 Additional rights of access at Juniper Crescent to permit vehicular access to Chalk Farm Road (AP3-002-001)	59
6 Combined effects of amendments in this CFA due to changes in traffic flows	60
List of figures	
Figure 1: Locations of design changes in CFA2	9
Figure 2: Location of the amendment in CFA2	58

List of tables

Table 1: Scheme definitions	5
Table 2: Summary of changes to the design or to construction assumptions not requiring a change to the Bill in CFA2	8
Table 3: Significant construction noise effects arising from HS1-HS2 Link works that are no longer likely	41
Table 4: New significant increases in daily traffic flows resulting in traffic related severance	49
Table 5: Significant decreases in daily traffic flows resulting in reduced traffic related severance for non-motorised users	50
Table 6: Roads with increased traffic flows resulting in increased traffic related severance for non-motorised users, 2026 and 2031	52
Table 7: Roads with increased traffic flow resulting in increased traffic-related severance for non-motorised users	54
Table 8: Summary of amendments in CFA2	57

Structure of the HS2 Supplementary Environmental Statement 2 and Additional Provision 3 Environmental Statement

The Supplementary Environmental Statement 2 (SES2) and Additional Provision 3 Environmental Statement (AP3 ES) comprises:

- non-technical summary (NTS). This provides a summary in non-technical language of the SES2 (Part 1) and AP3 ES (Part 2) and of the likely significant environmental effects, both beneficial and adverse, including those which are new or different to those reported in the High Speed Two (HS2) Phase One Environmental Statement (ES) submitted to Parliament in November 2013 in support of the hybrid Bill ('the Bill') for Phase One of HS2 (hereafter referred to as 'the main ES'). In the case of community forum areas (CFAs) 4 and 5 and relevant route-wide effects, account is also taken of the Supplementary Environmental Statement (SES) and Additional Provision 2 Environmental Statement (AP2 ES) submitted in July 2015;
- Volume 1: introduction to the SES2 and AP3 ES. This introduces the supplementary environmental information and design changes included within 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;
- Volume 2: CFA reports and map books. It should be noted that the structure of the CFA reports within Volume 2 vary as follows:
 - CFA1 is split into two parts. Part 1 comprises the SES2 for the Euston station and approach area. Part 2 describes the amendments requiring additional provisions in 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 for Euston, including a comparison with the original scheme described in the main ES, and 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 Euston station and approach area, whether or not these are different likely significant environmental effects from those reported in the main ES. This assessment includes the effects of the amendments to the Bill. It should be noted that the SES2 and AP3 ES Volume 2 CFA1 report therefore 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 in CFAs 1-3 compared to

those reported in the main ES; and

- 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 reports new or different likely significant route-wide effects arising from the supplementary environmental information 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 environmental information and associated maps in support of the CFA sections of Volume 2; 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.

In the main ES, Volume 4 presented an assessment of the likely significant environmental effects that will occur in locations away from the route (i.e. outside the CFAs). As none of the SES2 design changes or AP3 amendments relate to off-route areas, off-route effects have been scoped out of the assessment. Consequently, the SES2 and AP3 ES does not contain a Volume 4.

Structure of this report

This volume of the SES2 and AP3 ES is divided into CFA reports, which are in turn divided into two parts.

Part 1 provides supplementary environmental information relating to:

- new baseline information with respect to European Protected Species surveys undertaken since the submission of the Bill;
- changes to the design or construction assumptions which do not require changes to the Bill; and
- updates to transport models.

Part 1 of each CFA report includes, where relevant:

- a description of the changes or updates within the CFA that have triggered the need for reassessment.
- an assessment of the environmental effects of the changes for relevant environmental topics considering the:
 - scope, assumptions and limitations of the SES2 assessment;
 - changes of relevance to the assessment;
 - environmental baseline;
 - effects arising during construction;
 - effects arising from operation; and
 - mitigation and residual effects; and
- a summary of any new or different likely residual significant effects as a result of the changes.

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. The following is included where relevant:

- a summary of the proposed amendments within each CFA that have triggered the need for reassessment;
- a description of each amendment;
- an assessment of the environmental effects of each amendment for relevant environmental topics considering the:
 - scope, assumptions and limitations of the AP3 ES assessment;
 - environmental baseline;
 - effects arising during construction;

SES2 and AP3 ES Volume 2 – CFA2, Camden Town

- effects arising from operation; and
- mitigation and residual effects; and
- a summary of any new or different likely residual significant effects as a result of each proposed amendment.

1 Introduction

- 1.1.1 The Bill for High Speed Rail between London and the West Midlands was submitted to Parliament together with the main ES in November 2013. The SES and AP2 ES (submitted in July 2015) updated the main ES and contained a number of changes and amendments to the design of the original scheme in CFAs 4 – 26. The SES2 and AP3 ES contains further updates to the main ES and SES and assesses a number of changes and amendments to the design of the original scheme in CFAs 1 – 5.
- 1.1.2 The Bill and associated Additional Provisions (APs) to the Bill, if enacted by Parliament, will provide the powers to construct, operate and maintain Phase One of HS2.
- 1.1.3 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 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

- 1.1.4 SES2 (Part 1 of this report) contains updated environmental baseline information and scheme information relating to changes that have occurred within the current limits and powers of the Bill, and therefore do not require an AP to the Bill. This includes:
- additional environmental baseline information;
 - changes to the design or to construction assumptions which do not require changes to the Bill; and
 - an update to the Central London Highway Assignment Model (CLOHAM) and Railplan transport models which relate to construction and operation.
- 1.1.5 Design changes assessed within SES2 for this CFA include:
- removal of the HS1-HS2 Link; and
 - amended use of the construction compound formerly known as the HS1-HS2 Link portal main compound and now renamed as the Juniper Crescent satellite compound.

- 1.1.6 Effects arising in CFA2 as a result of the revised design of Euston station within CFA1 are also assessed.
- 1.1.7 The changes are described in Part 1 under a series of sub-headings and assessed on a topic by topic basis using the same approach adopted in the main ES.
- 1.1.8 The purpose of the SES2 for this CFA is to provide an assessment of any new or different likely significant environmental effects arising from the changes described compared to the original scheme.
- 1.1.9 The AP3 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, or other extensions to the powers conferred by the Bill, making it necessary to submit an AP to the Bill.
- 1.1.10 The amendment assessed within the AP3 ES for this CFA is the additional rights of access at Juniper Crescent to permit vehicular access to Chalk Farm Road.
- 1.1.11 The AP3 ES assesses the amendment for all relevant topics. The purpose of the AP3 ES is to provide an assessment of any new or different likely significant environmental effects arising from the amendments compared to the SES2 scheme.
- 1.1.12 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 (CoCP) submitted in support of the Bill. Implementation of these measures has been assumed in this SES2 and AP3 ES.

Part 1: Supplementary Environmental Statement 2

2 Summary of changes

2.1 New environmental baseline information

Ecology

- 2.1.1 Further bat surveys have been undertaken in this area since production of the main ES (September 2013).
- 2.1.2 Details of all survey work gathered between September 2013 and December 2014 which is relevant to this area is provided in the SES2 and AP3 ES, Volume 5: Appendix EC-001-001.
- 2.1.3 A summary of supplementary ecological information that is relevant to the SES2 assessment is included within Section 3 under 'Ecology'.
- 2.1.4 The additional local/parish level effects which occur as a consequence of SES2 changes but are not significant are identified in the SES2 and AP3 ES, Volume 5: Appendix EC-003-001.

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

- 2.2.1 Table 2 provides a summary of the changes to the design or to construction assumptions not requiring a change to the Bill which will result in new or different significant effects in the Camden Town CFA. Figure 1 shows the locations.

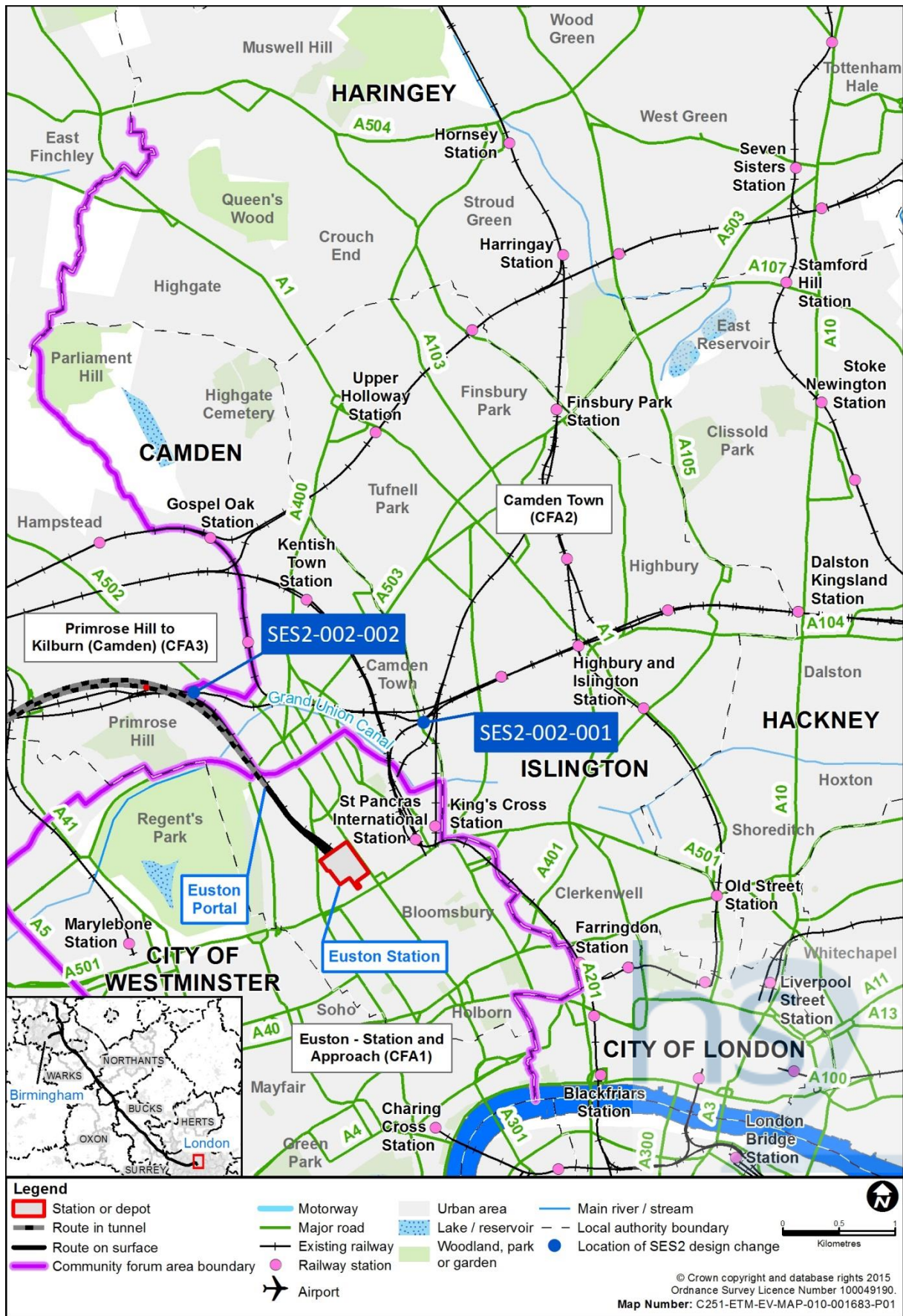
Table 2: Summary of changes to the design or to construction assumptions not requiring a change to the Bill in CFA2

Name of design change or construction assumption	Description of the original scheme	Description of the SES2 scheme
<p>Removal of the HS1-HS2 Link</p> <p>SES2-002-001</p>	<p>The Bill provides for a single-bore tunnel linking Old Oak Common station (in CFA4) to the HS1-HS2 Link portal located north-west of Primrose Hill (in CFA2) and works along the North London Line Viaduct.</p> <p>Infrastructure associated with the HS1-HS2 Link in CFA2 included the HS1-HS2 Link tunnel portal (which is the entrance to the HS1-HS2 Link tunnel); a headhouse above the cut-and-cover section of the tunnel portal which is to be used for emergency intervention and evacuation; and the widening of the north side of the Kentish Town Viaduct.</p>	<p>Since the submission of the Bill, the Secretary of State has decided not to pursue the HS1-HS2 Link, and has given this commitment to Parliament.</p> <p>The Link will not be provided. The portal, headhouse and the works to Kentish Town Viaduct will not be required.</p>
<p>Amended use of the construction compound at Juniper Crescent</p> <p>SES2-002-002</p>	<p>The temporary provision of the HS1-HS2 Link portal main compound to be used for the construction of the HS1-HS2 Link tunnel portal comprising the tunnel portal box, headhouse and approach ramp retaining structure. It would also provide support for the reconstruction of the Chalk Farm Road Bridge, the viaduct refurbishment eastwards towards Camden Road station and railway installation works and modifications to the existing railway.</p>	<p>Since the submission of the Bill, the HS1-HS2 Link alignment, tunnel and associated portal have been removed from the SES2 scheme.</p> <p>The SES2 scheme will, however, require the use of the compound formerly known as the HS1-HS2 Link portal main compound and now renamed as the Juniper Crescent satellite compound to facilitate the railway reconfiguration works associated with the West Coast Main Line (WCML) between Euston Station and Primrose Hill.</p>
<p>Use of Euro VI Heavy Goods Vehicles (HGV)^{1,2}</p> <p>SES2-002-003</p>	<p>The original scheme allowed for any Euro standard engines to be used in HGVs transporting excavated material.</p>	<p>In order to mitigate impacts 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.</p>

¹ Euro VI engines are required to have substantially lower emissions of NO_x and particulate matter than older engines.

² Heavy Goods Vehicles are defined as those with a weight greater than 3.5 tonnes.

Figure 1: Locations of design changes in CFA2



Description of changes to the design or to construction assumptions

Removal of the HS1-HS2 Link (SES2-002-001)

- 2.2.2 The Bill provides for a single-bore tunnel linking Old Oak Common station (in the Kilburn (Brent) to Old Oak Common area, CFA₄) to the HS1-HS2 Link portal located north-west of Primrose Hill (in CFA₂) and works along the North London Line Viaduct (refer to the main ES, Volume 2, CFA₂ Map Book: Maps CT-05-003a, CT-05-143, CT-05-004a, CT-06-003a, CT-06-143 and CT06-004a).
- 2.2.3 The HS1-HS2 Link would have been approximately 2.3km in length in CFA₂ and located mainly on a viaduct. The works required the realignment of two Network Rail tracks to the north of the viaduct to carry the North London Line and freight services, provision of a dedicated alignment for HS₂ rail services along the southern side of the viaduct, a number of partial or full bridge replacements, and viaduct refurbishment along the route and a ramp connected to a tunnel portal to the east of Regent's Park Road Bridge connecting to the HS1-HS2 Link tunnel.
- 2.2.4 The entrance to the HS1-HS2 Link tunnel was to be via the HS1-HS2 Link tunnel portal, which would have been constructed between Juniper Crescent and the Roundhouse. The portal would have comprised an approximately 280m long approach ramp and approximately 70m cut-and-cover tunnel.
- 2.2.5 Above the cut-and-cover section of the tunnel portal, a headhouse would have been constructed for HS1-HS2 Link emergency intervention and evacuation, containing mechanical and electrical equipment. It would have been approximately 60m long by 20m wide and 4.5m in height (in relation to the current railway track level).
- 2.2.6 Key features associated with this work would have included:
- demolition of the former Primrose Hill station, which included two commercial properties and a residential property facing on to Regent's Park Road;
 - a new HS1-HS2 Link electricity substation, which would be constructed south-east of the former Primrose Hill station;
 - replacement of an existing Network Rail electricity substation, south-east of the former Primrose Hill station, to create room for the original scheme;
 - demolition of approximately 100m of the disused Up Empty Carriage Tunnel³, as part of the works to construct the HS1-HS2 Link tunnel portal, to the east of Regent's Park Road Bridge. Sections of the Up Empty Carriage Tunnel on either side of the demolished section would be backfilled and sealed; and
 - a permanent security fence around the tunnel portal headhouse site boundary.
- 2.2.7 The construction works would have included, in summary:
- advanced works including: site investigations; preliminary mitigation works; and preliminary enabling works, including demolitions at the following locations:

³ The Up Empty Carriage Tunnel is a disused underground railway tunnel that passes through CFA₂.

SES2 and AP3 ES Volume 2 – CFA2, Camden Town

- commercial properties at 120 to 136 Camley Street;
 - commercial and residential properties at 110 Camden Road to the north and a commercial property at 178b Royal College Street;
 - a dental surgery at 51 Kentish Town Road with two residential dwellings above, and two residential dwellings at 53 Kentish Town Road;
 - former Primrose Hill Station, which includes two commercial properties and a residential property facing on to Regent's Park Road; and
 - an approximately 100m long section of the disused Up Empty Carriage Tunnel; and
- the installation of the HS1-HS2 Link alignment between A5200 York Way and the HS1-HS2 Link tunnel portal;
 - the refurbishment and/or widening of the viaducts and rebuilding of bridges and associated abutments along the north and southern side of the existing viaducts;
 - the installation of the HS1-HS2 Link tunnel portal, comprising an approach ramp and a cut-and-cover tunnel, with a tunnel boring machine reception chamber and a section of the HS1-HS2 Link tunnel;
 - the installation, testing and commissioning of the overhead line equipment (OLE), communications, power and signalling equipment for the Network Rail track and the HS1-HS2 Link track; and
 - the establishment of the Camley Street and HS1-HS2 Link portal main compound and satellite compounds in between A5200 York Way and the HS1-HS2 Link tunnel portal that would have been used for HS2 civil engineering and railway installation works, and works to the existing railway network.

2.2.8 The advanced works would have commenced in 2016 and continue until mid-2017, with the civil construction works occurring intermittently until 2023. The rail infrastructure and system works would have continued from 2023 until the end of 2026.

2.2.9 Since the submission of the Bill, the Secretary of State has decided not to pursue the HS1-HS2 Link, and has given this commitment to Parliament. As a result there will be no construction works in CFA2 apart from the railway reconfiguration required by the redevelopment of Euston station in CFA1 from Parkway to Regent's Park Road Bridge; conventional railway modifications in the Camden carriage sidings area; and the use of the Juniper Crescent satellite compound to support these works, which is considered in Section 3 (refer to SES2 and AP3 ES, Volume 2, CFA2 Map Book: Maps CT-05-003a, CT-05-143 and CT05-004a).

2.2.10 The following roads will therefore no longer be used as construction traffic routes within the SES2 scheme:

- Camley Street;
- St Pancras Way;

- Royal College Street;
- Baynes Street;
- Randolph Street;
- Rousden Street;
- Ivor Street;
- Kentish Town Road;
- Dorbay Street;
- Castlehaven Road;
- Gloucester Avenue;
- Prince of Wales Road; and
- Regent's Park Road.

Amended use of the construction compound at Juniper Crescent (SES2-002-002)

- 2.2.11 The Bill provides for the HS1-HS2 Link portal main compound which was to be used for the construction of the HS1-HS2 Link tunnel portal comprising the portal box, headhouse and approach-ramp retaining structure. It was also to provide support for the reconstruction of the Chalk Farm Road Bridge, the viaduct refurbishment eastwards towards Camden Road station and railway installation works and modifications to the existing railway (refer to map CT-05-004a in the main ES, Volume 2, CFA2 Map Book.)
- 2.2.12 As noted above, since the submission of the Bill, the HS1-HS2 Link alignment, tunnel and associated portal have been removed from the SES2 scheme. The SES2 scheme will still require the use of the Juniper Crescent satellite compound (known as the HS1-HS2 Link main compound in the original scheme) to facilitate the railway reconfiguration works associated with the WCML between Euston station and Primrose Hill (refer to SES2 and AP3 ES, Volume 2, CFA2 Map Book: Map CT-05-004a).
- 2.2.13 The Juniper Crescent satellite compound will be operational intermittently over a longer period than that reported in the main ES between 2016 and 2033. This is compared to the original scheme which was to be used between 2017 and 2023.
- 2.2.14 The railway reconfiguration works within the Juniper Crescent satellite compound will be located entirely within the limits of the Bill and:
- be accessed by road, via Juniper Crescent and the supermarket access road, from A502 Chalk Farm Road. This is the same route as for the original scheme, although it will no longer be necessary to widen the south side of this access road and construct replacement acoustic barriers;
 - provide access/egress to the Network Rail access strip parallel to the WCML;
 - support up to 100 workers each day during peak times of the rail systems

installations works period;

- provide office accommodation for staff, local storage for plant and materials, car parking for staff and site operatives, and welfare facilities;
- be managed from National Temperance Hospital main compound in the Euston station and approach area (CFA1);
- be used during week days; and
- where required, be used for work to take place at night, weekends or during bank holidays.

Use of Euro VI Heavy Goods Vehicles (SES2-002-003)

- 2.2.15 The original scheme allowed for any Euro standard engine powered HGVs to be used for the transport of excavated material.
- 2.2.16 In order to mitigate impacts on local air quality, in areas where action has been taken to meet 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.
- 2.2.17 The SES2 scheme in this CFA is assessed on the basis of the HS2 Ltd policy regarding use of relevant HGVs powered by Euro VI (or lower emission) engines.
- 2.2.18 This change in construction assumptions results in new or different significant effects for air quality and this is reported in Section 3.

Changes to the design or to construction assumptions in other CFAs affecting this CFA

- 2.2.19 The revised design of Euston station within CFA1 affects CFA2.
- 2.2.20 The high speed station at Euston will be constructed in two stages, the first to allow operation of HS2 Phase One services to commence in 2026 (following the completion of construction Stage A 2017-2026) and the second to provide additional platforms to allow for growth in services and to allow HS2 Phase Two services to commence in 2033 (following the completion of construction Stage B1 2026-2033).
- 2.2.21 For a full description of the revised design of Euston station, refer to Part 1B of the SES2 and AP3 ES, Volume 2, CFA1 report.
- 2.2.22 As a consequence of these changes, the network of designated construction traffic routes within CFA2 will change and traffic flows will differ in comparison to the original scheme (refer to SES2 and AP3 ES, Volume 2, CFA2 Map Book: Maps CT-05-003a, CT-05-143 and CT-05-004a). The revised design of Euston station also affects traffic movements in CFA2 during operation.

2.3 Update to transport models

- 2.3.1 The assessment of the traffic and transport effects of the SES2 changes within CFAs 1-3 requires updated traffic and public transport modelling. The highway traffic model base used for the CFA2 assessment in the main ES was the 2012 CLOHAM and the

2012 Railplan model for public transport, both developed by Transport for London (TfL). However, since 2013 there have been major revisions to the CLoHAM and Railplan models by TfL and HS2 Ltd to provide improved forecasting capabilities. These revised models have been used to provide updated baselines and in the assessment of the SES2 scheme in CFA2.

2.4 Topics included in the SES2 assessment

- 2.4.1 The changes described above in Sections 2.1 to 2.3 result in new or different significant effects in respect of: air quality; community; cultural heritage; ecology; land quality; landscape and visual; socio-economics; sound, noise and vibration; and traffic and transport.
- 2.4.2 The assessment of air quality; community; socio-economics; sound, noise and vibration and traffic and transport have taken account of the construction stages for the revised scheme at Euston described in Section 2.2.

3 Assessment of changes

3.1 Air quality

Introduction

- 3.1.1 This section of the report describes the environmental baseline in relation to air quality that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the original scheme.

Scope, assumptions and limitations

- 3.1.2 The assessment scope, key assumptions and limitations for the air quality assessment are as set out in the SMR Addendum 3 (Appendix CT-001-000/4) of the SES2 and AP3 ES.
- 3.1.3 Environmental Protection UK (EPUK)⁴ and the Institute of Air Quality Management (IAQM) have issued new guidance (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.
- 3.1.4 Use of the approach to assess significance from the revised IAQM/EPUK guidance in the air quality assessments for SES2 and AP3 ES rather than the previous HS2 air quality methodology is likely to 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 previous version of the guidance. For example, where the baseline 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.
- 3.1.5 This outcome is more likely for receptors where the baseline NO₂ concentration is in excess of the air quality standard value, which is 40µg/m³.
- 3.1.6 A comparison of the difference in impact descriptors arising from following the new guidance is shown in the tables of results for construction stage impacts in the Volume 5 Appendix, for annual NO₂, annual mean PM₁₀ and 24 hour PM₁₀.
- 3.1.7 As a result of the revised design of Euston station in CFA1, the construction and operation programme for the SES2 scheme differs from that used in the main ES. The assessment of traffic emissions in the SES2 scheme has used traffic data that are based on an estimate of the average daily flows in peak months during the Stage A

⁴ Environmental Protection UK is a national charity that provides expert policy analysis and advice on air quality, land quality, waste and noise, and their effects on people and communities in terms of a wide range of issues including public health, planning, transport, energy and climate.

construction period (2017-2026) and the Stage B1 combined construction and operation period (2026-2033)⁵. The construction scenarios assessed therefore represent peak vehicle movements during each assessment period, following a conservative approach.

- 3.1.8 There are three construction traffic scenarios that have been assessed during the Stage A period. Some receptors have both positive and negative effects, dependent on the scenario assessed. In these cases, only the adverse effects are reported here, on a conservative basis. The full results are presented in the SES2 and AP3 ES, Volume 5: Appendix AQ-001-002. One peak traffic scenario has been assessed during the Stage B1 combined construction and operational period. These scenarios are summarised in Section 3.9: Traffic and transport.

SES2 changes of relevance to this assessment

- 3.1.9 The following SES2 changes are relevant to this assessment:
- removal of the HS1-HS2 Link (SES2-002-001);
 - the revised design of Euston station within CFA1 (SES2-001-001);
 - the consequential use of the revised CLoHAM traffic model; and
 - the use of Euro VI HGVs for the movement of excavated materials in the London Low Emission Zone (SES2-002-003).

Environmental baseline

Existing baseline

- 3.1.10 The baseline air quality information for the Camden Town area is described in the main ES, Volume 2, CFA2 report: Section 4 and Volume 5: Appendix AQ-001-002. Details of the receptors considered within this assessment are provided within the SES2 and AP3 ES, Volume 5: Appendix AQ-001-002.

Future baseline

Construction (2017 - 2026)

- 3.1.11 The future baseline for construction in 2017 has been updated to reflect updates in the Department for Environment, Food and Rural Affairs (Defra) maps and changes in vehicle emission factors.
- 3.1.12 SES2 and AP3 ES, Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES.

Construction and operation (2026 - 2033)

- 3.1.13 The future baseline for construction and operation post 2026 has been updated to reflect updates in the Defra maps and changes in vehicle emission factors.

⁵ See Paragraph 2.2.20 for explanation of the construction stages at Euston.

- 3.1.14 SES2 and AP3 ES Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented post 2026, additional to those identified in the main ES.

Effects arising during Stage A construction (2017 - 2026)

Avoidance and mitigation measures

- 3.1.15 The assessment of construction impacts has incorporated HS2 Ltd's policy on the type of HGVs to be used, which states: "In order to help mitigate impacts on local air quality, in areas where there is action in place to meet EU limit values through the introduction of Low Emission Zones (such as the London Low Emission Zone), the nominated undertaker 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". Euro VI engines are required to have substantially lower emissions of NO_x and particulate matter than older engines.
- 3.1.16 No other avoidance or mitigation measures, additional to those reported in the main ES, are required.

Assessment of impacts and effects

Temporary effects

- 3.1.17 Impacts from the construction of the SES2 scheme in Stage A could arise from emissions from traffic. Therefore, the assessment of construction impacts on air quality has been undertaken for human receptors sensitive to exposure to NO₂ and PM₁₀.
- 3.1.18 The assessment takes account of several factors, which, relative to the main ES, have positive and negative influences on the outcome of the assessment of air quality. Air quality is affected by vehicle emissions; their location; the impact of emissions on the baseline situation, particularly relative to the air quality standard for NO₂; and the consequent assessment of significance of the air quality effects. The main factors are the:
- change to the CLoHAM model – this changes the future baseline traffic prediction, and thus the future baseline air quality forecast;
 - change to the construction traffic routes – removing construction traffic routes as a result of the removal of the HS1-HS2 Link has a positive influence, relative to the main ES;
 - change to diverted traffic in each scenario as it is treated in the revised CLoHAM model, resulting from changes in this CFA and others – this can have either a positive or negative influence relative to the main ES;
 - use of Euro VI HGVs to transport excavated material (which have lower NO_x and PM₁₀ emissions than the fleet mix assessed in the main ES) – this has a positive influence relative to the main ES; and
 - application of the revised air quality methodology – this leads to the identification of more locations with significant effects, relative to the main ES, as more importance is attached to smaller air quality changes.

- 3.1.19 The changes to air quality effects in this CFA relative to the main ES come about through the combination of these factors. The traffic changes are described in Section 3.9: Traffic and transport for each scenario assessed.
- 3.1.20 As a result of the removal of the HS1-HS2 Link, the only construction traffic routes, which will be required in CFA2 are those used by traffic associated with construction works at Euston station and the Juniper Crescent satellite compound. Additionally, no temporary road closures will be required. No significant effects in relation to construction traffic emissions were identified in the main ES.
- 3.1.21 The assessment of construction traffic emissions has been undertaken for each peak construction year as described in paragraph 3.1.8 for 'without the scheme' and 'with the scheme' scenarios. The traffic data include the additional traffic from future committed developments.
- 3.1.22 Examination of the changes in traffic flows along the affected roads has identified some areas that meet the criteria for a more detailed assessment, as set out in the SMR Addendum 3 (see Volume 5, Appendix CT-001-000/4 of the SES2 and AP3 ES).
- 3.1.23 The SES2 scheme assessment identified a number of receptors where there may be moderate or substantial adverse air quality impacts. Details of all the predicted effects are presented in the SES2 and AP3 ES, Volume 5: Appendix AQ-001-002.
- 3.1.24 As a result of the SES2 changes, a number of new receptor locations are assessed for the air quality impact of new traffic changes. The assessment identifies new significant adverse effects for NO₂ at assessed receptors on: Oval Road, Jamestown Road, Parkway, Delancey Street, Royal College Street, Castlehaven Road, Crinan Street, Prince of Wales Road, Arlington Road and Camden High Street.
- 3.1.25 The assessment also results in new significant adverse effects at receptors considered for traffic change impacts in the main ES on: Camden High Street, Chalk Farm Road, Castlehaven Road, Camden Road, Greenland Road, Bayham Street, Pratt Street and Kentish Town Road.
- 3.1.26 It should be noted that these new significant adverse effects are reported due to the change in methodology for describing impacts, as described in Volume 1 and here in paragraph 3.1.4, and are further reported within SES2 and AP3 ES, Volume 5: Appendix AQ-001-002. Using the approach for describing impacts in the main ES, these effects would not be considered significant.
- 3.1.27 The SES2 changes are not anticipated to result in new or different significant effects for PM₁₀.

Permanent effects

- 3.1.28 The proposed SES2 changes 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.

Other mitigation measures

- 3.1.29 No other mitigation measures are proposed.

Cumulative effects

- 3.1.30 There are no new or different likely significant cumulative effects for air quality as a result of any SES2 changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

- 3.1.31 New residual significant adverse effects are likely during some peak periods of construction activity for some receptors along: Castlehaven Road; Camden Road; Oval Road; Jamestown Road; Parkway; Delancey Street; Royal College Street; Crinan Street; Prince of Wales Road; and Arlington Road with respect to NO₂ levels.
- 3.1.32 New or different residual significant effects are also likely at receptors assessed in the main ES along: Camden High Street; Chalk Farm Road; Greenland Road; Bayham Street; Pratt Street; and Kentish Town Road.

Effects arising during Stage B1 construction and operation (2026 - 2033)

Avoidance and mitigation measures

- 3.1.33 The use of HGV powered by Euro VI (or lower emission) engines during construction for the purposes of transporting excavated material, will reduce emissions of NO_x and PM₁₀ relative to that assumed in the main ES.
- 3.1.34 No other avoidance or mitigation measures, additional to those reported in the main ES, are required.

Assessment of impacts and effects

- 3.1.35 Impacts from the combination of construction and operation of the SES2 scheme in Stage B1 could arise from construction activities and emissions from traffic. Therefore, the assessment of construction impacts on air quality has been undertaken for human receptors sensitive to exposure to NO₂ and PM₁₀.
- 3.1.36 Construction activity could affect local air quality through the additional traffic generated on local roads as a result of construction traffic routes and through changes to traffic patterns arising from temporary road diversions.
- 3.1.37 The assessment of traffic emissions has been undertaken for the peak year in the combined construction and operation period as discussed in paragraph 3.1.8 for 'without the SES2 scheme' and 'with the SES2 scheme' scenarios. The traffic data include the additional traffic from future committed developments (see SES2 and AP3 ES Volume 5: Appendix CT-004-004).
- 3.1.38 The proposed SES2 changes 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.

Other mitigation measures

- 3.1.39 No other mitigation measures are proposed.

Cumulative effects

- 3.1.40 There are no new or different likely significant cumulative effects for air quality as a result of any SES2 changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

- 3.1.41 No residual significant effects are anticipated on air quality during Stage B1 construction and operation.

Effects arising during operation (2033 onwards)

- 3.1.42 For the purposes of this assessment, operation means the operation of Phase One of HS2 after the end of Stage B1 construction (i.e. 2033 onwards).
- 3.1.43 There are no residual significant effects anticipated on air quality during the combined Stage B1 construction and Phase One operation. Consequently, it is not considered that there will be residual significant effects on air quality during operation of Phase One HS2 services alone.

3.2 Community

Introduction

- 3.2.1 This section of the report describes the environmental baseline in relation to community that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the original scheme.

Scope, assumptions and limitations

- 3.2.2 The assessment scope, key assumptions and limitations for community are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 3.2.3 In some cases where significant amenity effects have been identified as a combination of HGV traffic and air quality effects, it is not possible to be precise about the geographical extent of the combined effect. As a result, these effects are not shown on the Volume 5 Maps (CM-01-0012 and CM-01-004a).

SES2 changes of relevance to this assessment

- 3.2.4 The following SES2 changes are relevant to this assessment:
- removal of the HS1-HS2 Link (SES2-002-001);
 - amended use of the construction compound at Juniper Crescent (SES2-002-002);
 - the revised design of Euston station within CFA1 (SES2-001-001); and
 - the consequential use of the revised CLoHAM traffic model.

Environmental baseline

Existing baseline

- 3.2.5 The baseline community information for the Camden Town area is as described in the main ES, Volume 2, CFA2: Section 5.

Future baseline

Construction (2017)

- 3.2.6 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES.
- 3.2.7 None of the identified developments affect the assessment of the SES2 scheme's likely construction impacts on community.

Construction and operation (2026 - 2033)

- 3.2.8 The future baseline for construction and operation post 2026 remains unchanged from that reported in the main ES.

Operation

- 3.2.9 The future baseline for operation from 2033 remains unchanged from that reported in the main ES.

Effects arising during Stage A construction (2017–2026)

Avoidance and mitigation measures

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

Assessment of impacts and effects

Temporary effects

- 3.2.11 The main ES identified the following significant effects on the community resources which will not now occur as a result of the removal of the HS1-HS2 Link:
- works to replace bridges, which would have resulted in adverse effects on the amenity of some residents in properties close to those works. These are A5202 St Pancras Way, Wrotham Road, Baynes Street, Randolph Street, Kentish Town Road, the A503 Camden Road, Royal College Street and the A502 Chalk Farm Road;
 - the construction works on the Kentish Town Viaduct (North London Line) was predicted to affect the new development at Hawley Wharf; the construction of the original scheme would have required the demolition of residential properties and this would have resulted in short-term temporary adverse effects on the amenity of the staff and pupils at Hawley Primary School from significant construction noise and visual effects. The amenity of residents in the remaining parts of the residential development (i.e. part of the wider Hawley Wharf scheme) and Hawley Road would also have been temporarily

adversely affected over a short period; and

- a small amount of land would have been required during construction of the original scheme at Camden Gardens. This loss of open space, plus amenity impacts from the construction activity, would have generated adverse effects on the users of Camden Gardens. Nearby, the demolition of the dental practice on Kentish Town Road would also have resulted in an adverse effect on the community.

3.2.12 In addition, the construction activity at the HS1-HS2 Link portal main compound was predicted to have an adverse effect on the amenity of residents at Juniper Crescent as a result of significant noise and visual effects. As a result of the SES2 changes, this adverse effect will no longer occur.

3.2.13 The changes to traffic flows will result in a significant increase in traffic and significant air quality effects combining to affect the amenity of residents along Jamestown Road, Pratt Street, Oval Road, Arlington Street and Royal College Street. The combination of these effects will result in a major adverse effect on the amenity of residents along these sections of road, which will be significant.

3.2.14 There are also predicted to be in-combination effects occurring on A503 Delancey Street. This road is the boundary between CFA1 and CFA2. The significant effect on the amenity of the residents along this road (from a significant increase in HGV movements and air quality effects) are reported in CFA1.

Other mitigation measures

3.2.15 No other mitigation measures in addition to those identified in the main ES are proposed.

Cumulative effects

3.2.16 There are no new or different likely significant cumulative effects for community as a result of any SES2 changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

3.2.17 The following significant residual effects on the community will no longer occur as a result of the removal of the HS1-HS2 Link:

- significant adverse community amenity effects on residents at locations near bridge replacement works;
- temporary and permanent significant adverse effects associated with the Hawley Wharf development;
- significant adverse effects associated with land requirements and amenity effects at Camden Gardens;
- the significant adverse effect associated with the demolition of a dental practice on Kentish Town Road; and
- the significant adverse effect on the amenity of residents at Juniper Crescent.

- 3.2.18 New significant effects are predicted on the amenity of residents along Jamestown Road, Pratt Street, Oval Road, Arlington Road and Royal College Street due to significant effects from traffic and transport and air quality.

Effects arising during Stage B1 construction and operation (2026 - 2033)

- 3.2.19 The proposed SES2 changes 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.

Effects arising during operation (2033 onwards)

- 3.2.20 For the purposes of this assessment, operation means the operation of Phase One of HS2 after the end of Stage B1 construction.

- 3.2.21 The proposed SES2 changes 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.

3.3 Cultural heritage

Introduction

- 3.3.1 This section of the report describes the environmental baseline in relation to cultural heritage that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the original scheme.

Scope, assumptions and limitations

- 3.3.2 The assessment scope, key assumptions and limitations for the cultural heritage assessment are as set out Volume 1, the SMR (Appendix CT-001 -000/1) and the SMR Addendum (Appendix CT-001-000/2) of the main ES.

SES2 changes of relevance to this assessment

- 3.3.3 The only SES2 change that is relevant to this assessment is the removal of the HS1-HS2 Link (SES2-002-001).

Environmental Baseline

Existing baseline

- 3.3.4 The cultural heritage baseline is as set out in Volume 2 and Volume 5 (Appendix CH-001-002) of the main ES.

Future baseline

Construction (2017)

- 3.3.5 The SES2 and AP3 ES, Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES.

- 3.3.6 None of the identified developments affect the assessment of the SES2 scheme's likely construction impacts on cultural heritage.

Operation (2026)

3.3.7 The SES2 and AP3 ES, Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES.

3.3.8 None of the identified developments affect the assessment of the SES2 scheme's likely operational impacts on cultural heritage.

Effects arising during construction

Avoidance and mitigation measures

3.3.9 No avoidance and mitigation measures additional to those reported in the main ES are required.

Assessment of impacts and effects

3.3.10 The removal of the HS1-HS2 Link also removes all of the significant cultural heritage effects within CFA2 as set out in the main ES. The main ES identified permanent significant moderate adverse effects for the following heritage assets (refer to main ES, Volume 2, CFA2: Section 6):

- the Grade II listed Camden Road station (CAM015)⁶;
- numbers 51, 53 and 53a Kentish Town Road (CAM036);
- 110 Camden Road (CAM076);
- Primrose Hill station and platform (CAM048); and
- the Up Empty Carriage Tunnel (CAM060).

3.3.11 Details of these assets are provided in the Volume 5 Appendix, Gazetteer of heritage assets (CH-002-001) of the main ES. Impacts reported in the main ES are detailed in the Volume 5 Impact assessment table (CH-003-001).

3.3.12 Removal of the HS1-HS2 Link means that the physical impacts to these assets and the resulting significant adverse effects will no longer occur.

Other mitigation measures

3.3.13 No other mitigation measures in addition to those identified in the main ES are required.

Cumulative effects

3.3.14 There are no new or different likely significant cumulative effects for cultural heritage as a result of any SES2 changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

⁶ Cultural heritage assets are identified with a unique reference code, CAMXXX; further detail on these assets can be found in the gazetteer in Volume 5 of the main ES; Appendix CH-002-002.

Summary of likely residual significant effects

- 3.3.15 The removal of the HS1-HS2 Link removes all significant residual effects on cultural heritage within CFA2.

Effects arising during operation

- 3.3.16 No significant operational effects on cultural heritage were reported in the main ES. The proposed SES2 changes 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.

3.4 Ecology

Introduction

- 3.4.1 This section of the report describes the environmental baseline in relation to ecology that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the original scheme.

Scope, assumptions and limitations

- 3.4.2 The assessment scope for ecology is as set out in Volume 1 of main ES and Volume 1 of the SES2 and AP3 ES. The key assumptions and limitations, and the methodology for determining significance of effects is as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 3.4.3 The ecological baseline of the land relevant to the removal of the HS1-HS2 Link has been based on field data, an examination of aerial photography and from information gathered from national organisations and from regional and local sources including Greenspace Information for Greater London and London Bat Group.
- 3.4.4 To address any limitations in data, a precautionary baseline has been considered, according to the guidance reported in the main ES, Volume 5: Appendix CT-001-000/2 and the SES2 and AP3 ES, Volume 5: Appendix EC-001-001. This constitutes a 'reasonable worst-case' basis for the subsequent assessment.
- 3.4.5 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the SES2 changes.

SES2 changes of relevance to this assessment

- 3.4.6 The following SES2 changes are relevant to this assessment:
- removal of the HS1-HS2 Link (SES2-002-001); and
 - additional baseline information relating to bats at the tunnel beneath the former Primrose Hill Station.

Environmental baseline

Existing baseline

- 3.4.7 The ecological baseline for the assessment takes into account baseline information collected in support of the main ES, 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 main ES is provided within the main ES, Volume 2, CFA2: Section 7.

- 3.4.8 The assessment also takes into account additional survey information collected between September 2013 and December 2014, which is reported in the SES2 and AP3 ES, Volume 5: Appendix EC-001-001.
- 3.4.9 A summary of the baseline information relevant to the assessment is provided below. Further details of the baseline information are provided in the main ES, Volume 5: Appendix EC-001-001, EC-002-001, EC-003,001, EC-004-001 and the SES2 and AP3 ES, Volume 5: Appendix EC-001-001.

Designated sites

- 3.4.10 There is one Local Wildlife Site relevant to the assessment of the removal of the HS1-HS2 Link. This is the North London Line Site of Borough Importance Grade 2 (SBI.II). This area supports buddleia scrub and bramble with scattered silver birch and sycamore trees. This site is not accessible to the public and the habitats on railway land provide a corridor resource for wildlife undisturbed by recreational use. The site lies partly within the land required for the original scheme and is of district/borough value. The site is located approximately 1km north-east of the SES2 scheme.

Habitats

- 3.4.11 Mosaic and transition habitat occurs in this area and is relevant to the assessment.
- 3.4.12 Scrub, grassland, tall-herb ruderal vegetation and ephemeral/perennial vegetation, occurs in complexes of mosaic and transition particularly on the North London Line SBI.II. Vegetation includes buddleia and bramble scrub with rough grassland and scattered trees. This habitat is of district/borough value.

Protected and/or notable species

- 3.4.13 The mosaic and transition habitat in the North London Line SBI.II provides suitable roosting and foraging habitat for bats. It is likely that common bat species would forage in this area and tree roosts are assumed to be present. These habitat features are likely to be utilised by the local bat assemblage, which is identified in the main ES as being of up to county/metropolitan value.
- 3.4.14 Tunnels beneath the former Primrose Hill station to the south of Regent's Park Road within Network Rail land were surveyed in June 2014 and have moderate potential for roosting bats. A single dusk-emergence survey was undertaken in September 2014; no emerging bats were observed. As the survey was incomplete and the presence of rarer bats cannot be discounted, it is assumed that a population of bats utilising tunnels beneath the former Primrose Hill station would be of up to county/metropolitan value.

Future baseline

Construction (2017)

- 3.4.15 The SES2 and AP3 ES, Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES.

- 3.4.16 None of the identified developments affect the assessment of the SES2 scheme's likely construction impacts on ecology.

Operation (2026)

- 3.4.17 The SES2 and AP3 ES, Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES.
- 3.4.18 None of the identified developments affect the assessment of the SES2 scheme's likely operational impacts on ecology.

Effects arising during construction

Avoidance and mitigation measures

- 3.4.19 The assessment assumes implementation of the draft CoCP in the main ES, Volume 5: Appendix CT-003-000, which includes translocation of protected species where appropriate. No avoidance and mitigation measures additional to those reported in the main ES are required.

Assessment of impacts and effects

Designated sites

- 3.4.20 The original scheme would have resulted in the loss of approximately 0.3ha of the North London Line SBI.II, representing 36% of the site. As reported in the main ES, this would have resulted in a permanent adverse effect on the integrity of the SBI.II that would be significant at the district/borough level. The removal of the HS1-HS2 Link from the SES2 scheme means that no habitat loss or any other impacts on the SBI.II will occur. The significant effect reported in the main ES will therefore not occur.

Habitats

- 3.4.21 The original scheme would have resulted in the loss of approximately 0.3ha of mosaic and transition habitat at the North London Line SBI.II. As reported in the main ES, this would have resulted in an adverse effect on the conservation status of this habitat. This was assessed as being a permanent adverse effect significant at the district/borough level. As a result of the HS1-HS2 Link being removed from the scheme there will be no habitat loss from this SBI.II and the significant effect on the conservation status of mosaic habitat reported in the main ES will not occur.

Protected and/or notable species

- 3.4.22 The original scheme would have resulted in the removal or disturbance of a small number of buildings, structures and trees with the potential to support roosting bats. In the main ES it was predicted that this would potentially have a permanent adverse effect on the local bat assemblage populations significant at up to the county/metropolitan level. As a result of the HS1-HS2 Link removal from the scheme, the tunnels beneath the former Primrose Hill station, assessed as having moderate potential to support roosting bats, will no longer be affected. However, the effects reported on the wider local bat assemblage will remain unchanged from those reported in the main ES.

Other mitigation measures

- 3.4.23 The following mitigation measures detailed in the main ES will not be implemented as the effects which they were designed to address will not occur with the removal of the HS1-HS2 Link:
- restoration of 0.3ha of the northern part of the North London Line SBI.II to compensate for the loss of 36% of this SBI and 0.3ha of mosaic and transition habitat; and
 - replacement bat roosting to be installed on trees at the North London Line SBI.II.

Cumulative effects

- 3.4.24 There are no new or different likely significant cumulative effects for ecology as a result of any SES2 changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

- 3.4.25 The main ES concluded that the mitigation, compensation and enhancement measures proposed would reduce the effects to a level that was not significant at the construction stage. Therefore no significant residual effects on ecology were identified in the main ES. The removal of the HS1-HS2 Link will not give rise to any new residual effects.

Effects arising from operation

- 3.4.26 No significant operational effects on ecological receptors were reported in the main ES. The SES2 scheme will not give rise to any new or different significant operational effects.

3.5 Land quality

Introduction

- 3.5.1 This section of the report describes the environmental baseline in relation to land quality that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the original scheme.

Scope, assumptions and limitations

- 3.5.2 The assessment scope, key assumptions and limitations for land quality are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

SES2 changes of relevance to this assessment

- 3.5.3 The only SES2 change that is relevant to this assessment is the removal of the HS1-HS2 Link (SES2-002-001).

Environmental baseline

Existing baseline

3.5.4 The following sites, which were considered to pose a potential contamination risk to the original scheme, are no longer part of the baseline for the assessment of the SES2 scheme owing to the removal of the HS1-HS2 Link:

- concrete works adjacent to Freight Lane (D7 in Map LQ-01-002, Volume 5 of the main ES);
- warehousing and motor vehicle repair garages adjacent to Camley Street (C6 in Map LQ-01-002, Volume 5 of the main ES);
- former steel works and cap factory adjacent to the proposed route, located near Camden Road station (B6 in Map LQ-01-002, Volume 5 of the main ES);
- former wharf and engineering works adjacent to the Regent's Canal (A6 in Map LQ-01-002, Volume 5 of the main ES); and
- railway land along the HS1-HS2 Link tunnel route (H5 to J5 in Map LQ-01-003, Volume 5 of the main ES).

Future baseline

Construction (2017)

3.5.5 The SES2 and AP3 ES, Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES.

3.5.6 None of the identified developments affect the assessment of the SES2 scheme's likely construction impacts on land quality.

Operation (2026)

3.5.7 The SES2 and AP3 ES, Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES.

3.5.8 None of the identified developments affect the assessment of the SES2 scheme's likely operational impacts on land quality.

Effects arising during construction

Avoidance and mitigation measures

3.5.9 The proposed mitigation in the original scheme is no longer required for the SES2 scheme.

Assessment of impacts and effects

3.5.10 The removal of the HS1-HS2 Link will mean that no intrusive groundworks or surface works will be required at any locations within CFA2.

- 3.5.11 Further investigation to confirm the full extent of areas of contamination prior to and during construction (as defined in the draft CoCP within Volume 5: Appendix CT-003-000 of the main ES) will not be required.
- 3.5.12 In addition, no assessment of remediation options, appraisals or subsequent remediation of contaminated land will take place. The beneficial effects arising from the remediation of contaminated land during construction of the HS1-HS2 Link will no longer occur for the SES2 scheme and all areas identified as potentially contaminated land will remain. A negligible to moderate significant beneficial effect was reported in the main ES associated with the potential remediation of the Camley Street vehicle repair garages. This significant beneficial effect will now not occur. The main ES reported negligible (non-significant) effects at the other sites within CFA2. These effects will also now not occur.

Other mitigation measures

- 3.5.13 No other mitigation measures in addition to those identified in the main ES are required.

Cumulative effects

- 3.5.14 There are no new or different likely significant cumulative effects for land quality as a result of any SES2 changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

- 3.5.15 The significant beneficial residual effects associated with the remediation of potentially contaminated land during construction of the HS1-HS2 Link will not occur.

Effects arising during operation

- 3.5.16 No significant operational effects were reported in the main ES with regard to land quality. The SES2 scheme will not give rise to any new operational effects.

3.6 Landscape and visual assessment

Introduction

- 3.6.1 This section of the report describes the environmental baseline in relation to landscape and visual effects that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the original scheme.

Scope, assumptions and limitations

- 3.6.2 The assessment scope, key assumptions and limitations for the landscape and visual assessment are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES. An update to the methodology for the landscape and visual assessment is also described in Volume 1 of the AP1 ES.

SES2 changes of relevance to this assessment

3.6.3 The following SES2 changes are relevant to this assessment:

- removal of the HS1-HS2 Link (SES2-002-001); and
- amended use of the construction compound at Juniper Crescent (SES2-002-002).

Environmental baseline

Existing baseline

3.6.4 A summary of the baseline information in the main ES relevant to the assessment of the SES2 changes is provided below.

3.6.5 The construction works within CFA2 associated with the original scheme were partially located in the following Landscape Character Areas (LCAs):

- Camden Road Station, the Viaduct and 19th Century Residential LCA;
- Camden Markets LCA; and
- Roundhouse and Chalk Farm Road LCA.

3.6.6 Descriptions of all LCAs are provided in Volume 5: Appendix LV-001-002 Part 2 of the main ES and shown on Maps LV-02-002b to LV-02-004a of the main ES (Volume 5, Landscape and Visual Assessment Map Book).

3.6.7 There are numerous viewpoints of relevance to the assessment of the SES2 scheme as they overlook the proposed route of the HS1-HS2 Link on viaduct through Camden, the HS1-HS2 Link tunnel portal at Primrose Hill, and the construction compound at Juniper Crescent.

3.6.8 The viewpoints are described in Volume 5: Appendix LV-001-002 Part 2 of the main ES and shown on Maps LV-07-002b to LV-07-004a and LV-08-002b to LV-08-004a of the main ES (Volume 5, Landscape and Visual Assessment Map Book).

Future baseline

Construction (2017)

3.6.9 The SES2 and AP3 ES, Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES.

3.6.10 No committed developments have been identified in this local area that will materially alter the baseline conditions in 2017.

Operation (2026)

3.6.11 The SES2 and AP3 ES, Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES.

3.6.12 No committed developments have been identified in this local area that will materially alter the baseline conditions in 2026.

Temporary effects arising during construction

Avoidance and mitigation measures

- 3.6.13 The measures that have been incorporated into the draft CoCP to avoid or reduce landscape and visual effects during construction remain as stated in the main ES, (Volume 2, CFA2 Report: Section 9).

Assessment of impacts and effects

- 3.6.14 As defined in the main ES, this assessment of landscape and visual effects in construction has been based on the activities occurring during the peak construction phase, which is defined as the period during which the main construction works will take place.
- 3.6.15 As is commonplace with major infrastructure works, the scale of the construction activities means that works will be visible in many locations and will have the potential to give rise to significant temporary effects which cannot be mitigated practicably.

Landscape assessment

- 3.6.16 The main ES reported a significant moderate adverse effect on the Camden Road Station, the Viaduct and 19th Century Residential LCA and the Camden Markets LCA due to the demolition of buildings and bridges, the construction of the HS1-HS2 Link portal, portal ramp and replacement bridges, the widening of viaducts, the installation of OLE and external walkways, the presence of construction compounds/worksites and the increase in traffic. The removal of the HS1-HS2 Link from the scheme means that the construction activity connected with this element will not take place in these LCAs and the significant effects reported in the main ES will not occur.
- 3.6.17 The main ES also reported a significant moderate adverse effect on the Roundhouse and Chalk Farm Road LCA due to the construction of the HS1-HS2 Link tunnel portal and headhouse on the site of the former Primrose Hill station, the demolition of the railway tunnel, 200 Regent's Park Road and part of the former station and the loss of tranquillity due to construction activity and traffic.
- 3.6.18 Due to the HS1-HS2 Link removal, the level of construction activity taking place within the LCA will be reduced. The demolition of the former railway tunnel, 200 Regent's Park Road and part of the former station will no longer occur. The SES2 scheme will use the Juniper Crescent satellite compound for the works associated with the WCML, providing office accommodation, storage for plant and materials, car parking for staff and welfare facilities. The works at this compound associated with the SES2 scheme will be on a smaller scale than the original scheme, and will be located within the existing rail corridor and on a site which has a long history of use for railway maintenance activity.
- 3.6.19 The reduction in construction activity associated with the SES2 scheme within the Roundhouse and Chalk Farm Road LCA will result in a change to the level of significance of the effects reported in the main ES from moderate adverse (significant) to minor adverse (non-significant).

Visual assessment

3.6.20 The main ES reported significant adverse effects on receptors in CFA2 due to the construction of the HS1-HS2 Link. The following viewpoints were assessed as being significantly affected by the original scheme but as a result of the removal of the construction activity associated with the HS1-HS2 Link, the significant effects reported in the main ES (shown in brackets below) will no longer occur:

- Viewpoint 004.4.016: view north from St Pancras Way (moderate adverse);
- Viewpoint 004.2.017: view north from St Pancras Way, Baynes Street, Randolph Street and Royal College Street (major adverse);
- Viewpoint 004.2.018: view south from St Pancras Way (major adverse);
- Viewpoint 004.4.019: view north-east from Baynes Street (moderate adverse)
- Viewpoint 004.2.020: View south from Randolph Street (major adverse);
- Viewpoint 004.2.021: view south from Rousden Street (major adverse);
- Viewpoint 004.1.022: view east from Rousden Street (major adverse);
- Viewpoint 004.4.023: view north-east from Randolph Street (moderate adverse);
- Viewpoint 004.2.024: view north-west from residences at the junction of Camden Road and Royal College Street (major adverse);
- Viewpoint 004.4.025: view north from Camden Road; (moderate adverse);
- Viewpoint 004.4.026: view south from Camden Road; (moderate adverse);
- Viewpoint 004.4.027: view south-east from Royal College Street (moderate adverse);
- Viewpoint 004.2.028: view south from dwellings on Ivor Street and Royal College Street (major adverse);
- Viewpoint 004.1.029: view north-west from dwellings in Bonny Street and Prowse Place (moderate adverse);
- Viewpoint 004.1.030: view south-east from Prowse Place (major adverse);
- Viewpoint 004.4.031: view north-west from Camden Street (moderate adverse);
- Viewpoint 004.2.032: view north from dwellings at Camden Gardens (moderate adverse);
- Viewpoint 004.4.033: view north from Kentish Town Road (moderate adverse);
- Viewpoint 004.1.034: view south-east from Kentish Town Road/Jeffrey's Street Junction (major adverse);
- Viewpoint 004.4.035: view west from Water Lane (moderate adverse);

- Viewpoint 004.3.036: view west from Hawley Wharf on Regent’s Canal (moderate adverse);
- Viewpoint 006.6.001: view south from Hawley Primary School (moderate adverse);
- Viewpoint 006.3.004: view west from Camden High Street (major adverse);
- Viewpoint 006.3.005: view south-east from Chalk Farm Road (major adverse);
- Viewpoint 004.2.039: view north from Hawley Wharf development – south of Water Lane (moderate adverse);
- Viewpoint 004.2.040: view west and south-west from Kentish Town Road (moderate adverse); and
- Viewpoint 006.2.008: view south and east from Hawley Road and the Hawley Wharf development (moderate adverse).

3.6.21 The main ES reported significant adverse effects on receptors in CFA2 due to the construction of the HS1-HS2 Link tunnel portal, the tunnel approach ramp works, the relocation of tracks and the presence of the construction worksite. The following viewpoints were assessed as being significantly affected by the original scheme :

- Viewpoint 005.2.003: view south from Regent’s Park Road (major adverse); and
- Viewpoint 006.2.007: view west and north from Juniper Crescent (major adverse).

3.6.22 Receptors at the above two viewpoints will have uninterrupted views of the Juniper Crescent satellite compound. The change in use of the compound will give rise to a different significant effect as the works at this compound associated with the SES2 scheme will be on a smaller scale and will be seen in the context of the railway corridor where similar structures are or have recently been present and where similar activities take place. The magnitude of change will be low. This will change the level of significance of the effects reported in the main ES from major adverse to moderate adverse.

Other mitigation measures

3.6.23 No other mitigation measures in addition to those identified in the main ES are required.

Cumulative effects

3.6.24 There are no new or different likely significant cumulative effects for landscape and visual as a result any SES changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

3.6.25 The residual significant effect on the Roundhouse and Chalk Farm Road LCA will be reduced from moderate adverse to minor adverse, which is not considered significant.

- 3.6.26 Residual significant effects on the Camden Road Station, the Viaduct and 19th Century Residential LCA and the Camden Markets LCA resulting from the construction of the HS1-HS2 Link and the presence of HS1-HS2 Link portal main compound reported in the main ES will no longer occur.
- 3.6.27 The removal of the HS1-HS2 Link and the change in use of the Juniper Crescent satellite compound will give rise to different residual significant effects for Viewpoint 005.2.003: view south from Regent's Park Road and Viewpoint 006.2.007: view west and north from Juniper Crescent. This will change the level of significance of the effects reported in the main ES at these viewpoints from major adverse to moderate adverse. Residual effects on all other viewpoints reported in the main ES will no longer occur.

Permanent effects arising during operation

Avoidance and mitigation measures

- 3.6.28 There are no permanent works within CFA2 as part of the SES2 scheme and consequently no additional avoidance and mitigation measures are required.

Assessment of impacts and effects

Landscape assessment

- 3.6.29 No significant operational effects on landscape character were reported in the main ES. The SES2 scheme will not give rise to any new operational effects.

Visual assessment

- 3.6.30 The main ES reported significant adverse effects on a number of visual receptors in CFA2 due to the operation of the HS1-HS2 Link. The following viewpoints were assessed as being significantly affected by the original scheme:

- Viewpoint 004.2.020: view south from Randolph Street (major adverse);
- Viewpoint 004.4.023: view north-east from Randolph Street (moderate adverse); and
- Viewpoint 004.1.034: view south-east from Kentish Town Road/Jeffrey's Street Junction (major adverse).

- 3.6.31 The removal of the HS1-HS2 Link means that the significant effects reported in the main ES on these visual receptors will not occur.

Other mitigation measures

- 3.6.32 No other mitigation measures in addition to those identified in the main ES are required.

Cumulative effects

- 3.6.33 There are no new or different likely significant cumulative effects for the landscape and visual assessment as a result any SES changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

- 3.6.34 The removal of the HS1-HS2 Link means that the significant operational residual effects on Viewpoint 004.2.020: View south from Randolph Street, Viewpoint 004.4.023: View north-east from Randolph Street and Viewpoint 004.1.034: View south-east from Kentish Town Road/Jeffrey's Street Junction reported in the main ES will not occur.

3.7 Socio-economics

Introduction

- 3.7.1 This section of the report describes the environmental baseline in relation to socio-economics that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the original scheme.

Scope, assumptions and limitations

- 3.7.2 The assessment scope, key assumptions and limitations for socio-economics are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

SES2 changes of relevance to this assessment

- 3.7.3 The following SES2 changes are relevant to this assessment:
- removal of the HS1-HS2 Link (SES2-002-001);
 - the revised design of Euston station within CFA1 (SES2-001-001); and
 - the consequential use of the revised CLoHAM traffic model.

Environmental baseline

Existing baseline

- 3.7.4 The baseline socio-economics information for the Camden Town area is described in the main ES, Volume 2, CFA2 Report: Section 10.

Future baseline

Construction (2017)

- 3.7.5 The SES2 and AP3 ES, Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES.
- 3.7.6 None of the identified developments affect the assessment of the SES2 scheme's likely construction impacts on socio-economics.

Construction and operation (2026 - 2033)

- 3.7.7 The SES2 and AP3 ES, Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2033 additional to those identified in the main ES.

- 3.7.8 None of the identified developments affect the assessment of the SES2 scheme's likely operational impacts on socio-economics.

Operation (2033)

- 3.7.9 The SES2 and AP3 ES, Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented from 2033 onwards.
- 3.7.10 None of the identified developments affect the assessment of the SES2 scheme's likely operational impacts on socio-economics.

Effects arising during Stage A construction (2017 - 2026)

Avoidance and mitigation measures

- 3.7.11 There are no additional avoidance or mitigation measures relevant to these changes, in addition to those described in the main ES.

Assessment of impacts and effects

Temporary effects

- 3.7.12 The main ES reported that the construction of the HS1-HS2 Link would result in significant amenity effects on three businesses (two restaurants and a coffee shop) on the A502 Chalk Farm Road due to the establishment of construction compounds and structure works relating to the proposed Chalk Farm Road Bridge and viaduct works.
- 3.7.13 The removal of the HS1-HS2 Link means that the significant effects on the amenity of these businesses will no longer occur.

Permanent effects

- 3.7.14 The main ES reported that the construction of the HS1-HS2 Link would require the demolition of light industrial/car servicing accommodation at 120-136 Camley Street and demolition of warehousing/small business unit accommodation at 110 Camden Road. The effect on these socio-economic resources was reported as moderate adverse and was considered significant.
- 3.7.15 The removal of the HS1-HS2 Link means that the significant effect on these resources will no longer occur.
- 3.7.16 The main ES reported that the construction of the HS1-HS2 Link would impact on businesses located in viaduct arches or close to bridges undergoing structural works. The construction works would prevent access to and/or use of areas used to operate these businesses rendering them inoperable. This was expected to occur at the following locations:
- a car servicing business at 90-94 Baynes Street;
 - industrial/warehousing and car servicing businesses operating from arches on the northern side of the North London Line Viaduct at 77-79 Randolph Street, 78 and 88 Randolph Street; and
 - industrial/warehousing and storage businesses at 49 Kentish Town Road (arches 1-7).

3.7.17 The effect on these socio-economic resources was reported as moderate adverse and was considered significant. The removal of the HS1-HS2 Link means that the significant effect on these resources will no longer occur.

3.7.18 It is estimated that the SES2 scheme will result in the retention of 130 jobs within CFA2 which were estimated to be either displaced or lost due to land required for the construction of the original scheme.

Other mitigation measures

3.7.19 No other mitigation measures in addition to those identified in the main ES are required.

Cumulative effects

3.7.20 There are no new or different likely significant cumulative effects for community as a result of any SES changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

3.7.21 The significant residual effects reported in the main ES relating to businesses on Baynes Street, Camley Street, Camden Road, Randolph Street, Kentish Town Road and Chalk Farm Road will not occur. Therefore there are no residual significant socio-economic effects identified to occur during construction Stage A as a result of the SES2 changes in this area.

Effects arising during Stage B1 construction and operation (2026 - 2033)

3.7.22 There were no construction activities associated with the HS1-HS2 Link beyond 2026 in the main ES and consequently, no significant effects were reported.

3.7.23 There are no significant effects identified during Stage B1 as a result of the design changes.

Effects arising during operation (2033 onwards)

3.7.24 For the purposes of this assessment, operation means the operation of Phase One of HS2 after the end of Stage B1 construction.

3.7.25 No significant socio-economic effects during operation were reported in the main ES. The SES2 scheme does not change this conclusion.

3.8 Sound, noise and vibration

Introduction

3.8.1 This section of the report describes the environmental baseline in relation to sound, noise and vibration that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the original scheme.

Scope, assumptions and limitations

- 3.8.2 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 3.8.3 Local assumptions and limitations for sound, noise and vibration are set out in the main ES, Volume 2, CFA2 report: Section 11.

SES2 changes of relevance to this assessment

- 3.8.4 The following SES2 changes are relevant to this assessment:
- removal of the HS1-HS2 Link (SES2-002-001);
 - amended use of the construction compound at Juniper Crescent (SES2-002-002);
 - the revised design of Euston station within CFA1 (SES2-001-001); and
 - the consequential use of the revised CLoHAM traffic model.
- 3.8.5 The SES2 scheme alters the baseline road traffic flow and composition, which in turn has the potential to alter the indirect construction and operational airborne noise assessment presented in the main ES.

Environmental baseline

Existing baseline

- 3.8.6 The baseline traffic information has been updated since the main ES; further information can be found in Section 3.9 Traffic and transport.
- 3.8.7 In other respects, the baseline sound, noise and vibration information for CFA 2 Camden Town will not change as a result of the SES2 changes. The baseline is described in the main ES, Volume 2, CFA2 Report: Section 11 and Volume 5: Appendix SV-002-002. Baseline sound levels representative of the assessment locations affected by the SES2 changes have been used in the assessment.

Future baseline

Construction (2017)

- 3.8.8 The baseline traffic information for 2021 has been updated since the main ES to reflect changes in the CLoHAM traffic model. In all other respects, the future baseline for construction in 2017 remains unchanged from that reported in the main ES, Volume 2, CFA2, Section 11.
- 3.8.9 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES.
- 3.8.10 None of the identified developments affect the assessment of the SES2 scheme's likely construction impacts on sound, noise and vibration.

Operation (2026)

- 3.8.11 The future baseline for operation post-2026 remains unchanged from that reported in the main ES (Volume 2, CFA2 Report: Section 11).
- 3.8.12 SES2 and AP3 ES Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES.
- 3.8.13 None of the identified developments affect the assessment of the SES2 scheme's likely construction impacts on sound, noise and vibration.

Effects arising during Stage A construction (2017 - 2026)

Avoidance and mitigation measures

- 3.8.14 The avoidance and mitigation measures are presented in the main ES, Volume 2, CFA2 Report: Section 11. The CFA2 specific mitigation associated with taller screening at specified locations along the HS1-HS2 Link will, however, no longer be required.
- 3.8.15 The Juniper Crescent satellite compound will be operational intermittently over a longer period than that reported in the main ES between 2016 and 2033. This compound will serve various functions on site, the majority of which will not be major noise sources. Unlike construction areas, where the locations of noisy activities are largely dictated by the scheme design, in the compounds there is some flexibility as to how the different facilities are laid out. Therefore, the layout of the compounds will be designed to minimise noise impacts.

Assessment of impacts and effects

Residential receptors: direct effects – individual dwellings

- 3.8.16 In the main ES, Volume 2, CFA2, Section 11, the following buildings were identified as experiencing noise levels forecast to be above the noise insulation trigger levels (defined in the draft CoCP) as the result of construction of the HS1-HS2 Link:
- one building (two dwellings) on Castlehaven Road;
 - 16 buildings (32 dwellings) on the A503 Camden Road;
 - two buildings (12 dwellings) Baynes Street;
 - six buildings (six dwellings) on Randolph Street;
 - one building (11 dwellings) on Wrotham Road;
 - five buildings (10 dwellings) on A502 Chalk Farm Road;
 - one building (two dwellings) on Agar Grove;
 - one building (62 dwellings) on Juniper Crescent; and
 - one building (10 dwellings) on Regents Park Road.
- 3.8.17 The removal of the HS1-HS2 Link means that either these receptors are outside the spatial scope for assessment or noise from the construction of the scheme is no longer

likely to be above the noise insulation trigger levels so the above properties are not likely to qualify for noise insulation.

Residential receptors: direct effects – communities

3.8.18 In the main ES, significant construction noise effects (on a community basis) from works associated with the HS1-HS2 Link were identified as outlined in Table 3. Due to the removal of the HS1-HS2 Link, these significant effects are no longer likely.

Table 3: Significant construction noise effects arising from HS1-HS2 Link works that are no longer likely

Significant effect number	Type of significant effect	Time of Day	Location	Cause (construction activities)	Assumed duration of impact and details
CSV02-Co1	Construction noise	Daytime	Approximately 60 dwellings on the A503 Camden Road.	Camden Road North Bridge: site preparation, works. Typical and highest monthly noise levels of 70dB and 80dB ⁷ .	One month
CSV02-Co2	Construction noise	Daytime	Approximately 75 dwellings on Baynes Street, A5202 St Pancras Way and Wrotham Road.	North London Line Viaduct: site preparation, substructure and finishes works. Typical and highest monthly noise levels of 67 to 68dB and 77 to 79dB.	One to seven months
CSV02-Co3	Construction noise	Daytime	Approximately nine dwellings on Randolph Street.	North London Line Viaduct: site preparation, substructure and finishes works. Typical and highest monthly noise levels of 66dB and 78dB.	Three months to one year
CSV02-Co4	Construction noise	Daytime	Approximately 20 dwellings on A502 Chalk Farm Road.	Chalk Farm Road Bridge: site preparation, substructure and finishes. Typical and highest monthly noise levels of 81dB and 83dB.	Nine months
CSV02-Co5	Construction noise	Daytime	Approximately 15 dwellings on Agar Grove.	Camley Street main site: building demolition. Typical and highest monthly noise levels of 70 to 76dB and 73 to 79dB.	Four months
CSV02-Co6	Construction noise	Daytime	Approximately eight dwellings on the A400 Kentish Town Road.	Camden Street Bridge: site preparation and substructure.	Four months

⁷ Daytime: equivalent continuous sound level at the facade, L_{pAeq, 0700-1900}

Significant effect number	Type of significant effect	Time of Day	Location	Cause (construction activities)	Assumed duration of impact and details
CSV02-Co7	Construction noise	Daytime	Approximately 120 dwellings on Juniper Crescent.	HS1 to HS2 Link tunnel portal: piling and diaphragm wall construction. Typical and highest monthly noise levels of 88dB and 89dB.	Seven months
CSV02-Co8	Construction noise	Daytime	Approximately 20 dwellings on Regent's Park Road.	HS1 to HS2 Link tunnel portal: piling and diaphragm wall construction. Typical and highest monthly noise levels of 73dB and 77dB.	Six months
CSV02-Co9	Construction noise	Daytime	Approximately 20 dwellings on Hawley Road.	Demolition of adjacent residential block at Hawley Wharf.	Six months

3.8.19 The avoidance and mitigation measures envisaged at the amended compound at Juniper Crescent will avoid airborne construction noise significant effects in this area. Rail systems works (such as track laying, power system and signalling installation) serviced by the compound are also unlikely to lead to significant noise effects (for further information see the main ES Appendix SV-001-000).

Non-residential receptors: direct effects

3.8.20 In the main ES, significant construction noise effects were identified on the following non-residential receptors from works associated with the HS1-HS2 Link. Due to the removal of the HS1-HS2 Link these significant effects are no longer likely:

- offices in Bruges Place located on Baynes Street (CSV02-No1);
- shops located along the A502 Chalk Farm Road (CSV02-No2);
- offices located on Castlehaven Road (CSV02-No3);
- the Roundhouse located on the A502 Chalk Farm Road (CSV02-No4); and
- Hawley Primary School, (CSV02-No5).

Residential and non-residential receptors: indirect effects

3.8.21 No significant noise effects on residential or non-residential receptors arising from construction traffic were reported in the main ES. The SES2 scheme gives rise to significant adverse indirect noise effects from construction traffic on Albert Street which is the boundary of CFA1 and CFA2, therefore affecting receptors in CFA2 as well as receptors in CFA1 (refer to the SES2 and AP3 ES, Volume 2, CFA1 report and for more detail the SES2 and AP3 ES, Volume 5, Appendix SV-003-001). The SES2 scheme will not give rise to any further new or different significant indirect effects.

Other mitigation measures

- 3.8.22 No mitigation measures are proposed for construction noise and vibration in addition to those set out in the draft CoCP.

Cumulative effects

- 3.8.23 This assessment has considered the potential cumulative construction noise effects of the SES2 scheme and other committed developments as reported in the SES2 and AP3 ES, Volume 5: Appendix CT-004-000. In this area, there is no development that would be built at the same time as the SES2 scheme and accordingly, construction noise or vibration from the SES2 scheme is unlikely to result in any new or different significant cumulative noise effects.

Summary of likely residual significant effects

- 3.8.24 The residual significant construction noise effects identified in the main ES in CFA2 at the residential communities and non-residential receptors are no longer likely in the SES2 scheme.
- 3.8.25 The SES2 scheme gives rise to significant adverse indirect noise effects from construction traffic on Albert Street which is the boundary of CFA1 and CFA2, therefore affecting receptors in CFA2 as well as receptors in CFA1 (refer to the SES2 and AP3 ES, Volume 2, CFA1 Report). No further new or different significant noise effects have been identified.

Effects arising during Stage B1 construction and operation (2026 - 2033)

Avoidance and mitigation measures

- 3.8.26 The avoidance and mitigation measures are presented in the main ES, Volume 2, CFA2 report: Section 11.

Assessment of impacts and effects

Construction

- 3.8.27 There are no new or different construction sound, noise and vibration effects arising from Stage B1 Euston station construction in CFA2.

Operation

- 3.8.28 The main ES reported a likely significant operational airborne noise effect around approximately 100 dwellings in the vicinity of Rousden Street, Randolph Street, St Pancras Way, Wrotham Road, Agar Place and Agar Grove. The forecast increases in sound from the railway were likely to cause a minor adverse effect on the acoustic character of the area around the closest properties, which was identified as significant effect number OSVo2-Co1 in the main ES. The removal of the HS1-HS2 Link means that this significant operational airborne noise effect is no longer likely.
- 3.8.29 There are no new significant effects arising for sound, noise and vibration.

Other mitigation measures

- 3.8.30 No other mitigation measures in addition to those identified in the main ES are required.

Cumulative effects

- 3.8.31 There are no new or different likely significant cumulative effects for sound, noise and vibration as a result of any SES2 changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

- 3.8.32 There are no new construction sound, noise and vibration effects arising from Stage B1 Euston station construction in CFA2.
- 3.8.33 The residual operational noise significant effect at approximately 100 dwellings in the vicinity of Rousden Street, Randolph Street, St Pancras Way, Wrotham Road, Agar Place and Agar Grove, which was identified as significant effect number OSV02-Co1 in the main ES, is not likely to occur in the SES2 scheme.

Effects arising during operation (2033 onwards)

Avoidance and mitigation measures

- 3.8.34 No additional avoidance or mitigation measures are required in addition to those identified in the main ES.

Assessment of impacts and effects

- 3.8.35 Operational sound, noise and vibration will be unchanged from the period 2026 to 2033 reported in the previous section. Specifically, the residual operational noise significant effect at approximately 100 dwellings in the vicinity of Rousden Street, Randolph Street, St Pancras Way, Wrotham Road, Agar Place and Agar Grove, which was identified as significant effect number OSV02-Co1 in the main ES, is not likely to occur in the SES2 scheme.

Other mitigation measures

- 3.8.36 No other mitigation measures in addition to those identified in the main ES are required.

Cumulative effects

- 3.8.37 As in Stage B1, the residual operational noise significant effect at approximately 100 dwellings in the vicinity of Rousden Street, Randolph Street, St Pancras Way, Wrotham Road, Agar Place and Agar Grove, which was identified as significant effect number OSV02-Co1 in the main ES, is not likely to occur in the SES2 scheme. Summary of likely residual significant effects.

Summary of likely significant residual effects

- 3.8.38 There are no new or different significant effects arising from full operation for sound, noise and vibration.

3.9 Traffic and transport

Introduction

- 3.9.1 This section of the report describes the environmental baseline in relation to traffic and transport that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the original scheme.

Scope, assumptions and limitations

- 3.9.2 The assessment scope, key assumptions and limitations for the traffic and transport assessment are as set out Volume 1, the SMR (Appendix CT-001-000/1), the SMR Addendum (Appendix CT-001-000/2) of the main ES, and the SMR Addendum 3 (Appendix CT-001-000/4) of the SES2 and AP3 ES.

SES2 changes of relevance to this assessment

- 3.9.3 The following SES2 changes are relevant to this assessment:
- removal of the HS1-HS2 Link (SES2-002-001);
 - amended use of the construction compound at Juniper Crescent (SES2-002-001);
 - the revised design of Euston station within CFA1 (SES2-001-001); and
 - the consequential use of the revised CLoHAM traffic model and Railplan public transport model.

Environmental baseline

Existing baseline

- 3.9.4 The existing baseline for traffic and transport is as set out in Volume 2, CFA2, Section 12 of the main ES, updated by the revised CLoHAM traffic model.

Future baseline

Construction (2017 - 2026)

- 3.9.5 The future baseline for traffic and transport is as set out in Volume 2, CFA2, Section 12 of the main ES, updated by the revised CLoHAM traffic model.
- 3.9.6 Future baseline traffic volumes in the peak hours are forecast to grow by typically 4% by 2021 compared to 2012.

Stage B1 Construction and Operation (2026 - 2033)

- 3.9.7 The future baseline for traffic and transport in 2026 is as set out in Volume 2, CFA2, Section 12 of the main ES, updated by the revised CLoHAM traffic model.
- 3.9.8 Future baseline traffic volumes in the 2026 peak hours are forecast to remain at similar levels to 2021.

Operation (2026 and 2041)

- 3.9.9 The future baseline for traffic and transport in 2026 and 2041 is as set out in Volume 2, CFA2, Section 12 of the main ES, updated by the revised CLoHAM traffic model.
- 3.9.10 Local future baseline traffic volumes in the peak hours are forecast to grow by around 9% by 2041 compared to 2012.

Effects arising during Stage A construction (2017–2026)

Avoidance and mitigation measures

- 3.9.11 No additional avoidance or mitigation measures are proposed within this CFA in addition to those identified in the main ES or SES2 and AP3 ES, Volume 2: CFA1 Report (SES2-001-001).
- 3.9.12 The removal of the HS1-HS2 Link removes most of the direct construction activities in this CFA and the associated mitigation requirements.

Assessment of impacts and effects

Temporary effects

- 3.9.13 Construction activity due to the revised design of Euston station in CFA1 together with changes to use of the Juniper Crescent construction compound will affect local roads as a result of construction traffic. In addition there will be changes to general traffic patterns arising from temporary road diversions in the CFA1 area.
- 3.9.14 As a result of the removal of the HS1-HS2 Link, none of the construction traffic routes in CFA2 as reported in the main ES will be required apart from those used by traffic associated with construction works at Euston station and the Juniper Crescent satellite compound. It will also remove the need for all of the temporary road closures in CFA2.
- 3.9.15 All compounds in CFA2 that were reported in the main ES have been removed under this assessment due to the removal of HS1-HS2 Link, with the exception of the Juniper Crescent satellite compound. This will now be used to support construction activities at Euston for both Stage A and Stage B1 works, but with peak HGV two-way trips reducing from the 40-60 per day as reported in the main ES to 10 per day.
- 3.9.16 CFA2 has an interaction with CFA1 and CFA3 in terms of lorry routing and effects of road closures. Construction vehicle movements at Euston (CFA1) to construct the SES2 scheme will include the delivery of plant and materials and movement of excavated materials. In the busiest month there are estimated to be, in total, approximately 800 combined two-way vehicle movements per day with some of these using roads in CFA2. The split of construction vehicles is expected to be 90% HGV and 10% light goods vehicles and cars.

- 3.9.17 For the purpose of this assessment, the effects of construction have been considered for four distinct temporal phases or scenarios, three of which occur during construction Stage A (2016-2026) and one during construction Stage B1. These are detailed in SES2 and AP3 ES Volume 2, CFA1 Report. In summary they represent:
- Stage A construction:
 - Scenario 1, 2017. This corresponds with a combination of advance works and utilities on the highway network together with around 24% of the peak (scenario 3) construction traffic and restrictions on Hampstead Road Bridge (CFA1);
 - Scenario 2, 2018. This corresponds with a different combination of advance works and utilities on the highway network together with around 49% of the peak (scenario 3) construction traffic and restrictions on Hampstead Road Bridge (CFA1); and
 - Scenario 3, 2023. This corresponds with the main station works together with one of the busiest periods for construction traffic, related to the removal of excavated material. It also includes the short-term highway works on Euston Road (CFA1) and Adelaide Road (CFA3) and restrictions on Hampstead Road Bridge (CFA1); and
 - Stage B1 construction:
 - Scenario 4, 2031⁸. This corresponds with the period of peak construction traffic associated with construction Stage B1 (2026-2033)
- 3.9.18 The assessment has considered each of these scenarios separately, which can result in different effects on the same roads in different scenarios.
- 3.9.19 None of the temporary partial and full road closures in CFA2 related to the HS1-HS2 Link that were required for the original scheme are needed in the SES2 scheme. Consequently the restrictions on the following roads reported in the main ES are no longer required:
- A5202 St Pancras Way/Baynes Street;
 - Randolph Street;
 - A503 Camden Road;
 - A5202 Royal College Street;
 - A400 Camden Street;
 - A400 Kentish Town Road;
 - Torbay Street/Leybourne Street;
 - A502 Castlehaven Road; and
 - A502 Chalk Farm Road.

⁸ Scenario 4, 2031, is described here although the effects during this scenario are assessed in Stage B1 construction and operation of HS2 Phase One (2026 & 2031).

- 3.9.20 Due to the changes in construction traffic routes and the removal of partial/full road closures compared to those reported in the main ES, the following new and different significant effects in relation to congestion and delays at junctions have been identified in the SES2 scheme:
- A4201 Parkway/Arlington Road – significant effect removed;
 - Chalk Farm Road/Castlehaven Road – significant effect removed;
 - A400 Kentish Town Road/Hawley Crescent – significant effect removed;
 - Pentonville Road/Claremont Square – significant effect removed;
 - A502 Haverstock Hill/England's Lane – new major adverse significant effect, not significant in the main ES; and
 - A501 Marylebone Road/Knox Street – new major adverse significant effect not significant in the main ES.
- 3.9.21 As a result of removal of road closures and associated traffic diversions due to the SES2 scheme, the following significant increases in traffic-related severance for non-motorised users reported in the main ES will be removed:
- Camden Gardens – moderate adverse significant effect in the main ES (all vehicles and HGVs);
 - Castlehaven Road south of Castle Road – major adverse significant effect in main ES (all vehicles and HGVs);
 - Chalk Farm Road – moderate adverse significant effect in the main ES (all vehicles and HGVs);
 - Farrier Street – major adverse significant effect in the main ES (all vehicles);
 - Greenland Road – major adverse significant effect in the main ES (all vehicles and HGVs);
 - A400 Kentish Town Road – moderate adverse significant effect in the main ES (HGVs);
 - A4201 Parkway – moderate adverse significant effect in the main ES (HGVs);
 - Rousden Street – minor adverse significant effect in the main ES (all vehicles);
 - Royal College Street – moderate adverse significant effect in the main ES (all vehicles); and
 - A5202, St Pancras Way – moderate adverse significant effect in the main ES (HGVs).
- 3.9.22 There are locations where a significant effect in traffic-related severance was reported in the main ES that will also occur due to the SES2 scheme, but with a different level of significance. These are:
- Arlington Road – moderate adverse effect (all vehicles) – moderate adverse effect all vehicles and HGVs in the main ES;

- Oval Road – moderate adverse effect (all vehicles and HGVs) – minor adverse in the main ES;
- Regent’s Park Road – major adverse effect (all vehicles) and major adverse effect (HGVs) – minor adverse and moderate adverse effect respectively in the main ES; and
- Prince of Wales Road – moderate adverse effect (all vehicles) – unchanged from main ES except main ES also reported major adverse effect for HGVs.

3.9.23 There are also new locations arising from the SES2 scheme, which were previously not reported in the main ES with significant increases in traffic flow resulting in traffic related severance for non-motorised users. The new significant effects are shown in Table 4.

Table 4: New significant increases in daily traffic flows resulting in traffic related severance

Location	Increase in daily traffic flow more than 30% for all vehicles		Increase in daily traffic flow more than 30% for HGV	
	Significant effect	Construction Scenario	Significant effect	Construction Scenario
A503 Delancey Street	moderate adverse	3	major adverse	2
A5202 Royal College Street	n/a	n/a	moderate adverse	2
Great Percy Street	minor adverse	3	n/a	n/a
Greenland Road	moderate adverse	1 and 2	n/a	n/a
Jamestown Road	moderate adverse	1, 2 and 3	moderate adverse	1
Pratt Street	minor adverse	1 and 2	moderate adverse	3
Westbourne Road	minor adverse	1 and 2	n/a	n/a

3.9.24 Some of the effects listed above will extend across CFA boundaries, and where this is the case they are also identified and reported within those areas.

3.9.25 Locations reported in the main ES that were expected to experience reduced traffic-related severance effects for non-motorised users due to lower traffic flows will no longer be affected due to the SES2 scheme. The locations are:

- Camden High Street – moderate beneficial significant effect (all vehicles and HGVs);
- A400 Kentish Town Road – major beneficial significant effect (all vehicles);
- Jamestown Road – moderate beneficial significant effect (all vehicles and HGVs);
- Pratt Street – moderate beneficial significant effect (all vehicles and HGVs); and

- Prince of Wales Road between Grafton Road and Talacre Road – major beneficial significant effect (all vehicles).

3.9.26 Where construction of Stage A is forecast to result in reductions in daily traffic flow of more than 30% (for HGV or all vehicles) this will cause a significant reduction in traffic related severance for non-motorised users. These are new significant effects compared to the main ES. The locations of these roads in CFA2 are shown in Table 5 below.

Table 5: Significant decreases in daily traffic flows resulting in reduced traffic related severance for non-motorised users

Location	Decrease in daily traffic flow more than 30% for all vehicles		Decrease in daily traffic flow more than 30% for HGVs	
	Significant effect	Construction Scenario	Significant effect	Construction Scenario
A502 Chalk Farm Rd	moderate beneficial	3	moderate beneficial	3
A503 Camden Road	n/a	n/a	moderate beneficial	2
Albert St	n/a	n/a	minor beneficial	3
Castlehaven Rd	minor beneficial	3	minor beneficial	3

3.9.27 The significant effects on bus routes 24, 27, 168 and 748 reported in the main ES are removed with the removal of the closure of Chalk Farm Road that was required for construction of the HS1-HS2 Link. The effects of parking suspensions as reported in the main ES at Randolph Street north and south and Castlehaven Road will also be removed due to the SES2 scheme.

3.9.28 The severance effect for non-motorised users reported at Chalk Farm Road, Camley Street and Randolph Street in the main ES due to road closures will be removed due to the SES2 scheme.

3.9.29 The increased accident risks due to increased traffic levels at Royal College Street and Chalk Farm Road reported in the main ES are removed.

Permanent effects

3.9.30 Any permanent effects of construction are considered in operations.

Other mitigation measures

3.9.31 No changes to the mitigation measures reported in Volume 2, CFA2 of the main ES are required.

Cumulative effects

3.9.32 The assessment includes the cumulative effects of planned development during construction by taking this into account within the background traffic growth. The assessment also includes in-combination effects by taking into account traffic and transport impacts of works being undertaken in neighbouring areas. Specifically, the assessment includes the general diversion effects of road closures and construction

traffic associated with the Euston station and approach area (CFA1) and the closure of the B509 Adelaide Road (in CFA3).

Summary of likely residual significant effects

- 3.9.33 The traffic changes resulting from diversions and the works at Euston station (CFA1) are expected to result in changes in traffic flows affecting congestion and traffic severance for non-motorised users.
- 3.9.34 Significant congestion effects at: A4201 Parkway/Arlington Road; Chalk Farm Road/Castlehaven Road; A400 Kentish Town Road/Hawley Crescent; and Pentonville Road/Claremont Square are removed with the SES2 scheme. There are, however, new adverse congestion effects at A502 Haverstock Hill/England's Lane and A501 Marylebone Road/Knox Street.
- 3.9.35 Adverse traffic severance effects reported in the main ES will be removed at: Camden Gardens; Castlehaven Road; Chalk Farm Road; Farrier Street, Greenland Road; A400 Kentish Town Road; A4201 Parkway; Rousden Street, Royal College Street; and A5202 St Pancras Way.
- 3.9.36 New adverse significant effects of traffic severance for non-motorised users arise in A503 Delancey Street, A5202 Royal College Street, Great Percy Street, Greenland Road, Jamestown Road, Pratt Street and Westbourne Road. At Arlington Road; Regent's Park Road; Prince of Wales Road Traffic adverse traffic severance effects reported in the main ES will reduce while it will increase at Oval Road.
- 3.9.37 Reductions in traffic result in beneficial effects on traffic related severance at A502 Chalk Farm Road, A503 Camden Road, Albert Street and Castlehaven Road. However beneficial effects on traffic severance reported in the main ES at Camden High Street, A400 Kentish Town Road, Jamestown Road, Pratt Street and Prince of Wales Road are removed.
- 3.9.38 Bus route diversions related to the closure of Chalk Farm Road proposed in the main ES will no longer be required and all associated significant effects removed under the SES2 scheme.
- 3.9.39 Temporary footpath diversions at Chalk Farm Road, Camley Street and Randolph Street are removed.
- 3.9.40 The increased accident risk due to increased traffic levels at Royal College Street and Chalk Farm Road reported in the main ES are removed.
- 3.9.41 The parking suspension at Randolph Street and Castlehaven Road will no longer be required and all associated effects will be removed under the SES2 scheme.
- 3.9.42 The significant effects that result from Stage A construction of the SES2 scheme in 2017-2026 are shown on CFA 2 TR-03-003a-L1, TR-03-003a-R1, TR-03-003a-R2, TR-03-002-L1, TR-03-002-R1 Maps (Volume 5, Traffic and Transport, CFA1 Map Book).

Effects arising from Stage B1 construction and operation (2026–2033)

Avoidance and mitigation measures

3.9.44 No specific avoidance and mitigation measures for CFA2 will be provided, other than those introduced for Euston station and approach, CFA1 works that are set out in the main ES Volume 2, CFA1, Section 12.

Assessment of impacts and effects

Temporary effects

3.9.45 The following section considers the impacts on traffic and transport and the consequential effects resulting from Stage B1 construction and operation of HS2 Phase One between 2026 and 2033.

3.9.46 For the purpose of assessment, the effects have been considered for two distinct phases:

- 2026: this corresponds to the opening in late 2026 of the Stage A part of Euston station including six high speed platforms and operation of HS2 Phase One services with no concurrent construction activity; and
- 2031: this corresponds to the peak construction traffic associated with Stage B1 construction, with around 50% of the peak level of construction traffic assessed for Stage A, together with operation of Phase One HS2 services.

3.9.47 Diversion of traffic associated with the changes due to Stage A permanent road closures, combined with increases to taxi flows and, in the second scenario, construction traffic lead to flow changes on the highway network which will result in changes to traffic related severance for non-motorised users. The locations in CFA2 with new significant increases in traffic related severance with both Stage A Phase One HS2 operation in 2026 and with the combination of Stage B1 construction and Stage A Phase One HS2 operation compared to both the construction and operations (2026) assessments in the main ES are shown in Table 6 below.

Table 6: Roads with increased traffic flows resulting in increased traffic related severance for non-motorised users, 2026 and 2031

Road name	2026 operation of Phase 1 HS2 services		Combined construction of Stage B1 and operation of Phase 1 HS2 services	
	AM	PM	AM	PM
A503 Bayham Street	moderate adverse	n/a	moderate adverse	n/a
A503 Camden Road	moderate adverse	n/a	moderate adverse	n/a
A503 Delancey St	moderate adverse	n/a	moderate adverse	n/a
A503 Pratt Street	moderate adverse	n/a	moderate adverse	n/a

3.9.48 In addition there is a different significant traffic-related severance effect in both 2026 operation and combined Stage B1 construction and Phase One operation. This relates to A5200, York Way, with a moderate adverse significant effect in the AM peak in place of the minor adverse significant effect reported in the main ES.

3.9.49 Stage B1 construction is forecast to result in increases in daily HGV traffic flow (more than 30%). This will in turn cause new significant increases in traffic related severance for non-motorised users as follows:

- Gloucester Avenue (moderate adverse significant effect);
- Carlton Hill (major adverse significant effect); and
- Regent's Park Rd (major adverse significant effect).

Permanent effects

3.9.50 Any permanent effects of construction have been considered in operations.

Other mitigation measures

3.9.51 No further traffic and transport mitigation measures during operation and construction of the SES2 scheme are required.

Cumulative effects

3.9.52 The assessment includes the cumulative effects of planned development during operation by taking this into account within the background traffic growth. The assessment also includes for in-combination effects by taking into account transport impacts as a result of the SES2 scheme in neighbouring CFA areas.

Summary of likely residual significant effects

3.9.53 Both with operation of Phase One services and combined Stage B1 construction and operation, diversion of traffic due to permanent road closures combined with increases to taxi flows leads to additional traffic severance for non-motorised users compared to the main ES at: A503 Bayham Street; A503 Camden Road; A503 Delancey St; A503 Pratt Street; and increased traffic severance at A5200 York Way.

3.9.54 Compared to the main ES, new traffic related severance for non-motorised users will arise as a result of the combined construction and operation at Gloucester Avenue, Carlton Hill and Regent's Park Rd.

3.9.55 The significant effects that result from Phase One HS2 operations and Stage B1 construction of the SES2 scheme in 2026-2033 are shown on TR-05-002-R1 and TR-05-002-L1 Maps (SES2 and AP3 ES Volume 5, Traffic and Transport, CFA1 Map Book).

Effects arising from operation (2041)

3.9.56 This assessment is of operation of Phase Two services from the completed Stage B1 station in 2041.

Avoidance and mitigation measures

3.9.57 No additional avoidance or mitigation measures are required within this CFA in addition to those identified in the main ES Volume 2, CFA2, Section 12.

Assessment of impacts and effects

3.9.58 Traffic and transport related changes during operation of the SES2 scheme are limited as there will be no stations or depots that generate any additional traffic in this area. Consequently any impacts result from the operation of Euston station and permanent road closures associated with Euston station.

3.9.59 The following section considers the impacts on traffic and transport and the consequential effects resulting from the operational phase of the SES2 scheme with Phase Two HS2 services in operation in 2041.

3.9.60 Locations that were expected to experience increases in peak hour traffic flows causing a significant increase in traffic-related severance for non-motorised users reported in the main ES are removed with the SES2 scheme. The locations removed are:

- Caledonian Road – moderate adverse significant effect (PM peak);
- Albert Street north of Delancey Street – moderate adverse significant effect (AM peak);
- Arlington Road – moderate adverse significant effect (AM and PM peak);
- Camden Park Road – moderate adverse significant effect (PM peak);
- Oval Road – moderate adverse significant effect (AM Peak); and
- A4201 Parkway – moderate adverse significant effect (AM peak).

3.9.61 The SES2 scheme is expected to result in increases in peak hour traffic causing an increase in traffic-related severance for non-motorised users in 2041 on the A5200, York Way with a major adverse significant effect in both the AM and PM peaks. The main ES reported a minor adverse significant effect in the AM peak and a moderate adverse significant effect in the PM peak.

3.9.62 In 2041, the SES2 scheme is expected to result in significant increases in peak hour traffic flows causing an increase in traffic-severance at the new locations set out in Table 7 below:

Table 7: Roads with increased traffic flow resulting in increased traffic-related severance for non-motorised users

Road name	2041	
	AM	PM
A201 King's Cross Rd/Farringdon Rd	moderate adverse	moderate adverse
A503 Bayham Street	major adverse	moderate adverse
A503 Camden Road	major adverse	moderate adverse

Road name	2041	
	AM	PM
A503 Delancey St	major adverse	major adverse
A503 Pratt Street	major adverse	moderate adverse
Pratt Street (east of A503)	n/a	moderate adverse

3.9.63 Some locations that were expected to experience reductions in peak hour traffic flow reducing traffic severance for non-motorised users in the main ES will no longer be affected with the SES2 scheme. The significant effects removed are:

- Agar Grove – moderate beneficial significant effect (PM peak);
- Bayham Street – major beneficial significant effect (AM peak) and moderate beneficial significant effect (PM peak);
- Camden High Street – moderate beneficial significant effect (AM peak) and major beneficial significant effect (PM peak);
- A503 Camden Road – moderate beneficial significant effect (PM peak);
- A400 Camden Street – moderate beneficial significant effect (AM peak);
- Copenhagen Street – moderate beneficial significant effect (PM peak); and
- Greenland Road – moderate beneficial significant effect (PM peak).

3.9.64 The SES2 scheme is expected to result in reductions in peak hour traffic flows in 2041 causing a reduction in traffic-related severance with a moderate beneficial significant effect on the A5202 St Pancras Way, in the AM and PM peaks. The main ES reported a moderate beneficial significant effect in the AM peak only.

3.9.65 The proposed realignment of the Camley Street permissive footpath will no longer occur and the adverse significant effect reported in the main ES is removed.

Other mitigation measures

3.9.66 No changes to the mitigation measures reported in Volume 2, CFA2 of the main ES are proposed.

Cumulative effects

3.9.67 The assessment includes the cumulative effects of planned development during operation by taking this into account within the background traffic growth. The assessment also includes in-combination effects by taking into account transport impacts as a result of the SES2 scheme in neighbouring CFA areas.

Summary of likely residual significant effects

3.9.68 Only limited operational effects are expected, although there will be some localised effects as a result of the operation of Euston station.

- 3.9.69 Traffic-related severance for non-motorised users reported in the main ES are removed at the following locations: Caledonian Road; Albert Street north of Delancey Street; Arlington Road; Camden Park Road; Oval Road and A4201 Parkway under the SES2 scheme.
- 3.9.70 The traffic changes resulting from permanent road closures and the operation of Euston station (CFA1) are expected to result in new adverse significant effects compared to the main ES in relation to traffic-related severance for non-motorised users due to an increase in traffic flows at: A201 King's Cross Rd/Farringdon Rd; A503 Bayham Street; A503 Camden Road; A503 Delancey St; and A503 Pratt Street.
- 3.9.71 Compared to the main ES, changes in traffic flows will increase delays for road users at the A5200 York Way.
- 3.9.72 Beneficial significant effects in relation to traffic severance reported in the main ES are removed at: Agar Grove; Bayham Street; Camden High Street; A503 Camden Road; A400 Camden Street; Copenhagen Street; and Greenland Road.
- 3.9.73 However, reduced traffic flows will reduce traffic severance at A5202 St Pancras Way.
- 3.9.74 The adverse significant effect on the permanent diversion of Camley Street footpath reported in the main ES is removed.
- 3.9.75 The significant effects that result in this area from the SES2 scheme in 2026 and 2041 are shown in SES2 and AP3 ES CFA2 TR-04-002-L1, TR-04-002-R1 and TR-04-003a-L1 Maps (Volume 5, Traffic and Transport Map Book).

Part 2: Additional Provision 3

Environmental Statement

4 Summary of amendments

4.1.1 Table 8 provides a summary of the amendment that will have effects in the Camden Town CFA2 and Figure 2 shows the location.

Table 8: Summary of amendments in CFA2

Name of amendment	Description of the original scheme	Description of the AP3 revised scheme
Additional rights of access at Juniper Crescent to permit vehicular access to Chalk Farm Road. AP3-002-001	The original scheme provided for access during construction to HS1-HS2 Link portal main compound via Juniper Crescent and the supermarket access road, from A502 Chalk Farm Road.	Juniper Crescent was assumed to be a public highway. Since submission of the Bill, it has been identified that Juniper Crescent is a private road. Consequently, additional powers will be required to use this road temporarily during construction to access Juniper Crescent satellite compound. This amendment to Bill powers relates to the acquisition of access rights only and Juniper Crescent will otherwise be used as described in the main ES.

5 Assessment of amendments

5.1 Additional rights of access at Juniper Crescent to permit vehicular access to Chalk Farm Road (AP3-002-001)

- 5.1.1 The Bill provides for an access during construction to the HS1-HS2 Link portal main compound via Juniper Crescent and the supermarket access road, from A502 Chalk Farm Road satellite compound (refer to map CT-05-004a in the main ES Volume 2, CFA2 Map Book). The use of this road as a construction traffic route was assessed in the main ES.
- 5.1.2 Since submission of the Bill, it has been identified that a section of Juniper Crescent, to the west of the supermarket petrol station, which is required for access to the Juniper Crescent satellite compound (previously known as the HS1-HS2 Link portal main compound in the main ES), is a private road. Additional powers will therefore be required in order to use this road as a construction traffic route to allow vehicles leaving the Juniper Crescent satellite compound to access the A502 Chalk Farm Road (refer to map CT-05-004a in the SES2 and AP3 ES Volume 2, CFA2 Map Book). This amendment to Bill powers relates to the acquisition of access rights only and Juniper Crescent will otherwise be utilised as described in the main ES.
- 5.1.3 The additional rights of access at Juniper Crescent to permit vehicular access to Chalk Farm Road is not considered to make changes that require reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics.

6 Combined effects of amendments in this CFA due to changes in traffic flows

All of the effects of the changes proposed in this CFA have been described in Section 3 and there are no further combined effects to report.

HIGH SPEED RAIL (LONDON - WEST MIDLANDS)

Supplementary Environmental Statement 2 and
Additional Provision 3 Environmental Statement

Volume 2 | Community forum area reports
CFA3 | Primrose Hill to Kilburn

Contents

Structure of the HS2 Supplementary Environmental Statement 2 and Additional Provision 3 Environmental Statement	1
Structure of this report	3
1 Introduction	5
Part 1: Supplementary Environmental Statement 2	7
2 Summary of changes	7
2.1 New environmental baseline information	7
2.2 Changes to the design or to construction assumptions not requiring a change to the Bill	7
2.3 Update to transport models	11
2.4 Topics included in the SES2 assessment	12
3 Assessment of changes	13
3.1 Air quality	13
3.2 Community	18
3.3 Cultural heritage	20
3.4 Ecology	22
3.5 Landscape and visual assessment	26
3.6 Socio-economics	29
3.7 Sound, noise and vibration	31
3.8 Traffic and transport	35
Part 2: Additional Provision 3 Environmental Statement	43
4 Summary of amendments	43
5 Assessment of amendments	47
5.1 Additional land to enable vehicle turning at Dinerman Court (AP3-003-001)	47
5.2 Addition of Alexandra Road Estate concrete ramp and planter to Schedule 17 of the Bill (AP-003-002)	47
5.3 Additional land required for extension of lorry holding area and replacement parking, Regent's Park (AP3-001-006)	49
6 Combined effects of amendments in this CFA due to changes in traffic flows	53

List of figures

Figure 1: Locations of design changes in CFA3	9
Figure 2: Locations of amendments in CFA3	46

List of tables

Table 1: Scheme definitions	5
Table 2: Summary of changes to the design or construction assumptions not requiring a change to the Bill in CFA3	8
Table 3: New significant increase in daily traffic flow resulting in traffic related severance for non-motorised users	39
Table 4: New significant reductions in traffic related severance for non-motorised users	39
Table 5: Roads with increased traffic flow resulting in significant increases in traffic related severance for non-motorised users, 2041	42
Table 6: Summary of amendments in CFA3	44

Structure of the HS2 Supplementary Environmental Statement 2 and Additional Provision 3 Environmental Statement

The Supplementary Environmental Statement 2 (SES2) and Additional Provision 3 Environmental Statement (AP3 ES) comprises:

- non-technical summary (NTS). This provides a summary in non-technical language of the SES2 (Part 1) and AP3 ES (Part 2) and of the likely significant environmental effects, both beneficial and adverse, including those which are new or different to those reported in the High Speed Two (HS2) Phase One Environmental Statement (ES) submitted to Parliament in November 2013 in support of the hybrid Bill ('the Bill') for Phase One of HS2 (hereafter referred to as 'the main ES'). In the case of community forum areas (CFAs) 4 and 5 and relevant route-wide effects, account is also taken of the Supplementary Environmental Statement (SES) and Additional Provision 2 Environmental Statement (AP2 ES) submitted in July 2015.
- Volume 1: introduction to the SES2 and AP3 ES. This introduces the supplementary environmental information and design changes included within 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.
- Volume 2: CFA reports and map books. It should be noted that the structure of the CFA reports within Volume 2 vary as follows:
 - CFA1 is split into two parts. Part 1 comprises the SES2 for the Euston station and approach area. Part 2 describes the amendments requiring additional provisions in 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 for Euston including a comparison with the original scheme described in the main ES, and 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 Euston station and approach area, whether or not these are different likely significant environmental effects from those reported in the main ES. This assessment includes the effects of the amendments to the Bill. It should be noted that the SES2 and AP3 ES Volume 2 CFA1 report therefore 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; and

- 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; and
- Volume 3: route-wide effects. This reports new or different likely significant route-wide effects arising from the supplementary environmental information 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 environmental information and associated maps in support of the CFA sections of Volume 2; 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.

In the main ES, Volume 4 presented an assessment of the likely significant environmental effects that will occur in locations away from the route (i.e. outside the CFAs). As none of the SES2 design changes or AP3 amendments relate to off-route areas, off-route effects have been scoped out of the assessment. Consequently, the SES2 and AP3 ES does not contain a Volume 4.

Structure of this report

This volume of the SES2 and AP3 ES is divided into CFA reports, which are in turn divided into two parts.

Part 1 provides supplementary environmental information relating to:

- new baseline information with respect to European protected species surveys undertaken since the submission of the Bill;
- changes to the design or to construction assumptions which do not require changes to the Bill; and
- updates to transport models.

Part 1 of each CFA report includes, where relevant:

- a description of the changes or updates within the CFA that have triggered the need for reassessment;
- an assessment of the environmental effects of the changes for relevant environmental topics considering the:
 - scope, assumptions and limitations of the SES2 assessment;
 - changes of relevance to the assessment;
 - environmental baseline;
 - effects arising during construction;
 - effects arising from operation; and
 - mitigation and residual effects; and
- a summary of any new or different likely residual significant effects as a result of the changes.

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. The following is included where relevant:

- a summary of the proposed amendments within each CFA that have triggered the need for reassessment;
- a description of each amendment;
- an assessment of the environmental effects of each amendment for relevant environmental topics considering the:
 - scope, assumptions and limitations of the AP3 ES assessment;
 - environmental baseline;
 - effects arising during construction;

SES2 and AP3 ES Volume 2 – CFA3, Primrose Hill to Kilburn (Camden)

- effects arising from operation; and
- mitigation and residual effects; and
- a summary of any new or different likely residual significant effects as a result of each proposed amendment.

1 Introduction

1.1.1 The Bill for High Speed Rail between London and the West Midlands was submitted to Parliament together with the main ES in November 2013. The SES and AP2 ES (submitted in July 2015), updated the main ES and contained a number of further changes and amendments to the design of the original scheme in CFAs 4 – 26. The SES2 and AP3 ES contains further updates to the main ES and SES and assesses a number of changes and amendments to the design of the original scheme in CFAs 1 – 5.

1.1.2 The Bill and associated Additional Provisions (APs) to the Bill, if enacted by Parliament, will provide the powers to construct, operate and maintain Phase One of HS2.

1.1.3 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 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

1.1.4 SES2 (Part 1 of this report) contains updated environmental baseline information and scheme information relating to changes that have occurred within the current limits and powers sought by the Bill, and therefore do not require an AP to the Bill. This includes:

- additional environmental baseline information;
- changes to the design or to construction assumptions which do not require changes to the Bill; and
- an update to the Central London Highway Assignment Model (CLOHAM) and Railplan transport models which relate to construction and operation.

1.1.5 Design changes assessed within SES2 for this CFA include removal of the HS1-HS2 Link. The effects arising in CFA3 as a result of the revised design of Euston station within CFA1 are also assessed.

- 1.1.6 The changes are described in Part 1 under a series of sub-headings and assessed on a topic by topic basis using the same approach adopted in the main ES.
- 1.1.7 The purpose of the SES2 for this CFA is to provide an assessment of any new or different likely significant environmental effects arising from the changes described compared to the main ES.
- 1.1.8 The AP3 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, or other extensions to the powers conferred by the Bill, making it necessary to submit an AP to the Bill.
- 1.1.9 The amendments assessed within the AP3 ES for this CFA include:
- additional land to enable vehicle turning at Dinerman Court;
 - addition of Alexandra Road Estate concrete ramp and planter to Schedule 17 of the Bill; and
 - additional land required in CFA1 for the extension of a lorry holding area and replacement parking in Regent's Park.
- 1.1.10 The AP3 ES assesses each amendment separately for all relevant topics. The purpose of the AP3 ES is to provide an assessment of any new or different likely significant environmental effects arising from the amendments compared to the SES2 scheme.
- 1.1.11 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 (CoCP) submitted in support of the Bill. Implementation of these measures has been assumed in this SES2 and AP3 ES.

Part 1: Supplementary Environmental Statement 2

2 Summary of changes

2.1 New environmental baseline information

Ecology

- 2.1.1 Further bat surveys have been undertaken in this area since production of the main ES (September 2013).
- 2.1.2 Details of all survey work gathered between September 2013 and December 2014 which is relevant to this area is provided in the SES2 and AP3 ES, Volume 5: Appendix EC-001-001 and Volume 5 map sheets EC-05-003b and EC-06-007b.
- 2.1.3 A summary of supplementary ecological information that is relevant to the SES2 assessment is included within Section 3.4 under 'Ecology'.
- 2.1.4 The additional local/parish level effects which occur as a consequence of SES2 changes but are not significant are identified in the SES2 and AP3 ES, Volume 5: Appendix EC-003-001.

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

- 2.2.1 Table 2 provides a summary of the changes to the design or construction assumptions not requiring a change to the Bill which will result in new or different significant effects in the Primrose Hill to Kilburn (Camden) CFA3. Figure 1 shows the locations.

Table 2: Summary of changes to the design or construction assumptions not requiring a change to the Bill in CFA3

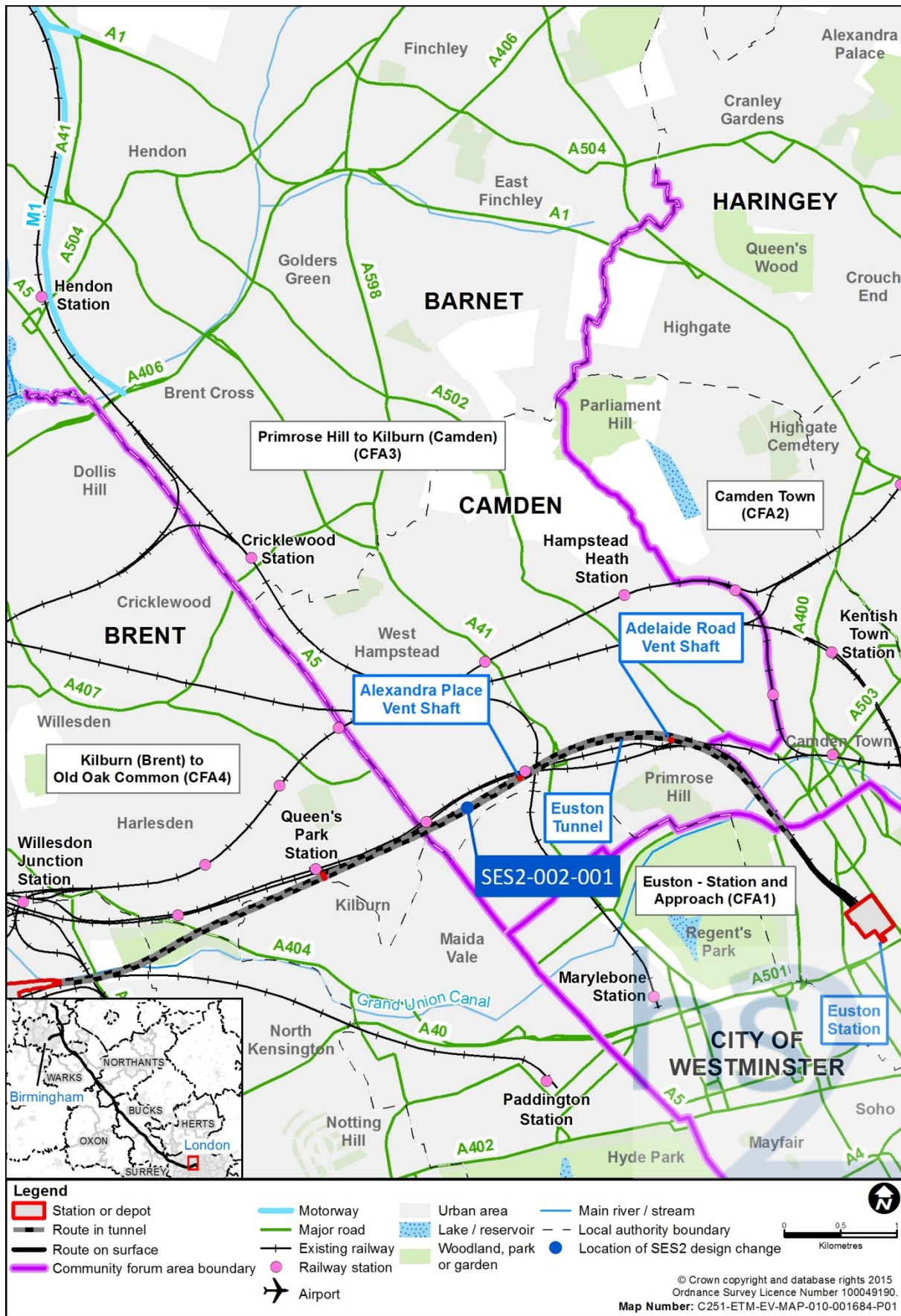
Name of design change or construction assumption	Description of the original scheme	Description of the SES2 scheme
Removal of the HS1-HS2 Link SES2-002-001	The Bill provides for a 2.7km section of the HS1-HS2 Link tunnel (a single-bore tunnel) linking Old Oak Common station (CFA4) to the HS1-HS2 Link portal located north-west of Primrose Hill (CFA2). The HS1-HS2 Link will be entirely in tunnel in this CFA.	Since the submission of the Bill, the Secretary of State has decided not to pursue the HS1-HS2 Link, and has given this commitment to Parliament. The Link will not be provided.
Use of Euro VI Heavy Goods Vehicles (HGV) ^{1,2} SES2-003-001	The original scheme allowed for any Euro standard engines to be used in HGVs transporting excavated material.	In order to mitigate impacts on local air quality in areas where there is action in place to meet 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.

¹ Euro VI engines are required to have substantially lower emissions of NO_x and particulate matter than older engines.

² Heavy Goods Vehicles are defined as those with a weight greater than 3.5 tonnes.

SES2 and AP3 ES Volume 2 – CFA3, Primrose Hill to Kilburn (Camden)

Figure 1: Locations of design changes in CFA3



Description of changes to the design or construction assumptions

Removal of the HS1-HS2 Link (SES2-002-001)

- 2.2.2 The Bill provides for a single-bore tunnel linking Old Oak Common station (in the Kilburn (Brent) to Old Oak Common area, CFA4) to the HS1- HS2 Link portal located north-west of Primrose Hill (in the Camden Town area, CFA2) (refer to the main ES, Volume 2, CFA3 Map Book: Maps CT-06-004b, CT-06-005 and CT-06-006a).
- 2.2.3 The section of the HS1-HS2 Link in CFA3 would have been entirely in tunnel, comprising approximately 2.7km of single-bore tunnel.
- 2.2.4 The HS1-HS2 Link tunnel would have commenced at the boundary with the Camden Town area (CFA2), beneath Regent’s Park Road Bridge. The tunnel would have continued west for approximately 330m before aligning with the Euston tunnels at the Adelaide Road ventilation shaft. The HS1-HS2 Link tunnel then would have run parallel to, and between, the twin-bore Euston tunnel before leaving CFA3 at the A5 Kilburn High Road.
- 2.2.5 Since submission of the Bill, the Secretary of State has decided not to pursue the HS1- HS2 Link, and has given this commitment to Parliament.
- 2.2.6 As a result, the construction of the 2.7km section of the HS1-HS2 Link and associated connections to the Adelaide Road vent shaft, Alexandra Place vent shaft and the Euston tunnel within CFA3 will be removed from the scheme (refer to the SES2 and AP3 ES Volume 2, CFA 3 Map Book: Maps CT-05-004b, CT-05-005 and CT-05-006a).
- 2.2.7 CFA3 will also be indirectly affected by the removal of the HS1-HS2 Link construction works, occurring mainly within neighbouring CFA2. These construction works included temporary road diversions, temporary road closures and a network of designated construction traffic routes with associated traffic movements. The removal of the HS1-HS2 Link, together with revisions to the design of the Euston station and approach area (CFA1), will alter the predicted traffic flows and associated impacts in CFA3.
- 2.2.8 In addition, the following roads will no longer be used as construction traffic routes within the SES2 scheme:
- Prince of Wales Road;
 - Haverstock Hill;
 - England's Lane; and
 - Primrose Hill Road.
- 2.2.9 The removal of the HS1-HS2 Link results in new or different significant effects for; air quality; community; cultural heritage; ecology; landscape and visual assessment; socio-economics; sound, noise and vibration; and traffic and transport. These are reported in Section 3.

Use of Euro VI Heavy Goods Vehicles (SES2-003-001)

- 2.2.10 The original scheme allowed for any Euro standard engine powered HGVs to be used for the transport of excavated material.

- 2.2.11 In order to mitigate impacts on local air quality, in areas where action has been taken to meet 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.
- 2.2.12 The SES2 scheme in this CFA is assessed on the basis of the HS2 Ltd policy regarding use of relevant HGVs powered by Euro VI (or lower emission) engines.
- 2.2.13 This change in construction assumptions results in new or different significant effects for air quality and this is reported in Section 3.1.

Changes to the design or to construction assumptions in other CFAs affecting this CFA

- 2.2.14 The revised design of Euston station within CFA1 affects CFA3.
- 2.2.15 The high speed station at Euston will be constructed in two stages, the first to allow operation of HS2 Phase One services to commence in 2026 (following the completion of construction Stage A (2017–2026)) and the second to provide additional platforms to allow for growth in services and to allow HS2 Phase Two services to commence in 2033 (following the completion of construction Stage B1 (2026–2033)).
- 2.2.16 For a full description of the revised design of Euston station, refer to Part 1B in the SES2 and AP3 ES Volume 2, CFA1 report.
- 2.2.17 As a consequence of these changes, the network of designated construction traffic routes within CFA3 will change and traffic flows will differ in comparison to the original scheme (refer to the SES2 and AP3 ES Volume 2, CFA3 Map Book: Maps CT-05-003b, CT-05-004b, CT-05-005, CT-05-006a). The revised design of Euston station also affects traffic movements in CFA3 during operation.
- 2.2.18 The assessment in relation to the changes in traffic flows is presented in Section 3: 'Assessment of changes' under air quality; community; socio-economics; sound, noise and vibration; and traffic and transport.

2.3 Update to transport models

- 2.3.1 The assessment of the traffic and transport effects of the SES2 changes within CFAs 1–3 requires updated traffic and public transport modelling. The highway traffic model base used for the CFA3 assessment in the main ES was the 2012 CLoHAM and the 2012 Railplan model for public transport, both developed by Transport for London (TfL). However, since 2013 there have been major revisions to the CLoHAM and Railplan models by TfL and HS2 Ltd to provide improved forecasting capabilities. These revised models have been used to provide updated baselines and in the assessment of the SES2 scheme in CFA3.
- 2.3.2 The results of the assessment of the SES2 scheme for this CFA are reported where they result in new or different significant effects.
- 2.3.3 The results from the revised models have also been used in the assessment of any consequential effects on the traffic related topics including, air quality, community, socio-economics, and sound, noise and vibration.

2.4 Topics included in the SES2 assessment

- 2.4.1 The changes described above in Sections 2.1 to 2.3 result in new or different significant effects in respect of: air quality; community; cultural heritage; ecology; landscape and visual assessment; socio-economics; sound, noise and vibration; and traffic and transport.
- 2.4.2 The assessment of air quality; community; socio-economics; sound, noise and vibration and traffic and transport have taken account of the construction stages for Euston station described in Section 2.2.

3 Assessment of changes

3.1 Air quality

Introduction

- 3.1.1 This section of the report describes the environmental baseline in relation to air quality that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the original scheme.

Scope, assumptions and limitations

- 3.1.2 The assessment scope, key assumptions and limitations for the air quality assessment are as set out in the SMR Addendum 3 (Appendix CT-001-000/4) of the SES2 and AP3 ES.
- 3.1.3 Environmental Protection UK (EPUK)³ and the Institute of Air Quality Management (IAQM) have issued new guidance (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.
- 3.1.4 Use of the approach to assess significance from revised IAQM/EPUK guidance in the air quality assessments for SES2 and AP3 ES rather than the previous HS2 air quality methodology is likely to 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 previous version of the guidance. For example, where the baseline 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.
- 3.1.5 This outcome is more likely for receptors where the baseline NO₂ concentration is in excess of the air quality standard value, which is 40µg/m³.
- 3.1.6 A comparison of the difference in impact descriptors arising from following the new guidance is shown in the tables of results for construction stage impacts in Volume 5 Appendix, for annual NO₂, annual mean PM₁₀ and 24-hour PM₁₀.
- 3.1.7 The assessment of traffic emissions has used traffic data that are based on an estimate of the average daily flows in peak months during the Stage A construction period (2017-2026) and the Stage B1 combined construction and operation period

³ Environmental Protection UK is a national charity that provides expert policy analysis and advice on air quality, land quality, waste and noise and their effects on people and communities in terms of a wide range of issues including public health, planning, transport, energy and climate.

(2026-2033). The construction scenarios assessed therefore represent peak vehicle movements during each assessment period, following a conservative approach.

- 3.1.8 There are three construction traffic scenarios that have been assessed during the Stage A period. Some receptors have both positive and negative effects, dependent on the scenario assessed. In these cases, only the adverse effects are reported here, on a conservative basis. The full results are presented in the SES2 and AP3 ES, Volume 5: Appendix AQ-001-003. One peak traffic scenario has been assessed during the Stage B1 combined construction and operational period. These scenarios are summarised in Section 3.8.

SES2 changes of relevance to this assessment

- 3.1.9 The following SES2 changes are considered in this:
- removal of the HS1-HS2 Link (SES2-003-001);
 - the revised design of Euston station within CFA1 (SES2-001-001);
 - the consequential use of the revised CLoHAM traffic model; and
 - the use of Euro VI HGVs for the movement of excavated materials in the London Low Emission Zone (SES2-003-001).

Environmental baseline

Existing baseline

- 3.1.10 The baseline air quality information for the Primrose Hill to Kilburn (Camden) area is described in the main ES, Volume 2, CFA3 report: Section 4 and Volume 5: Appendix AQ-001-003. Details of the assessed receptors are provided within the SES2 and AP3 ES Volume 5: Appendix AQ-001-003 and SES2 and AP3 ES Volume 5 map series AQ-01-003.

Future baseline

Construction (2017–2026)

- 3.1.11 The future baseline for construction in 2017 has been updated to reflect updates in the Department for Environment, Food and Rural Affairs (Defra) maps and changes in vehicle emission factors.

Construction and operation (2026–2033)

- 3.1.12 The future baseline for construction and operation in 2026 has been updated to reflect updates in the Defra maps and changes in vehicle emission factors.

Effects arising during Stage A construction (2017–2026)

Avoidance and mitigation measures

- 3.1.13 The assessment of construction impacts has incorporated HS2 Ltd's policy on the type of HGVs to be used, which states: "In order to help mitigate impacts on local air quality, in areas where there is action in place to meet EU limit values through the introduction of Low Emission Zones (such as the London Low Emission Zone), the nominated undertaker 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". Euro VI engines are required to have substantially lower emissions of NO_x and particulate matter than older engines.

Assessment of impacts and effects

Temporary effects

- 3.1.14 Impacts from the construction of the SES2 scheme in Stage A could arise from construction activities and emissions from traffic. Therefore, the assessment of construction impacts on air quality has been undertaken for human receptors for exposure to NO₂ and PM₁₀.
- 3.1.15 The assessment takes account of several factors, which, relative to the main ES, have positive and negative influences on the outcome of the assessment of air quality. Air quality is affected by vehicle emissions; their location; the impact of emissions on the baseline situation, particularly relative to the air quality standard for NO₂; and the consequent assessment of significance of the air quality effects. The main factors are:
- the change to the CLOHAM model – this changes the future baseline traffic prediction, and thus the future baseline air quality forecast;
 - the change to the construction traffic routes - removing construction traffic routes as a result of the removal of the HS1-HS2 Link has a positive influence, relative to the main ES;
 - the change to diverted traffic in each scenario as it is treated in the revised CLOHAM model, resulting from changes in this CFA and others; this can have either a positive or negative influence relative to the main ES;
 - the use of Euro VI HGVs to transport excavated material (which have lower NO_x and PM₁₀ emissions than the fleet mix assessed in the main ES) – this has a positive influence relative to the main ES; and
 - the application of the revised air quality methodology – this leads to the identification of more locations with significant effects, relative to the main ES, as more importance is attached to smaller air quality changes.
- 3.1.16 The changes to air quality effects in this CFA relative to the main ES come about through the combination of these factors. The traffic changes are described in the Traffic and transport section (Section 3.8), for each scenario assessed.
- 3.1.17 The assessment of construction traffic emissions has been undertaken for each peak construction year as described in paragraph 3.1.8 for 'without the SES2 scheme' and 'with the SES2 scheme' scenarios. The traffic data include the additional traffic from future committed developments.
- 3.1.18 Examination of the changes in traffic flows along the affected roads has identified some areas that meet the criteria for a more detailed assessment, as set out in the SMR Addendum 3 (Appendix CT-001-000/4) of the SES2 and AP3 ES.
- 3.1.19 The assessment identified a number of receptors where there may be moderate or substantial air quality impacts, resulting in either beneficial or adverse effects. Some receptors have both positive and negative effects, as three different scenarios are

assessed. In these cases, only the adverse effects are reported here, on a conservative basis. The locations and changes described here are intended to summarise the significant effects or changes of effect, and are presented by road. Some roads may have receptors which experience contrasting effects, and may therefore be listed more than once. The full details of all the predicted effects are presented in Volume 5: AQ-001-003.

- 3.1.20 The assessment results in new significant beneficial effects for NO₂ at assessed receptors⁴ at Elliott Square, Primrose Hill Road, Quickswood and Adelaide Road.
- 3.1.21 As a result of the SES2 changes, a number of new receptor locations are assessed for the air quality impact of new traffic changes. The assessment identifies new significant adverse effects for NO₂ at assessed receptors on: Regent's Park Road, St Mark's Square, Malden Road, Malden Place, Mansfield Road, Meadowbank, Gloucester Avenue, The Vale, Haverstock Hill, King Henry's Road, Primrose Hill Road and Boundary Road.
- 3.1.22 The assessment results in different (reduced) significant adverse effects at receptors on: Haverstock Hill, The Marlowes, England's Lane, Primrose Gardens and Queen's Grove.
- 3.1.23 The assessment also results in new significant adverse effects at receptors considered for traffic change impacts in the main ES on these roads:
- along and bordering the A41, including: A41 Finchley Road, Cricklewood Lane, Canfield Gardens, Arkwright Road, Queen's Terrace, Queen's Grove, The Marlowes, Alexandra Road, St John's Wood Park, Sumpter Close, Frogmal Lane, Heath Drive, A41 Hendon Way, Hocroft Avenue and Wayside; and
 - on Adelaide Road, Chalk Farm Road, Prince Albert Road, Fleet Road, Albert Terrace and Gloucester Avenue.
- 3.1.24 It should be noted that with the exception of one receptor location on Regent's Park Road, new significant effects are reported due to the change in methodology for describing impacts, as described in Volume 1 and paragraph 3.1.4, and are reported within SES2 and AP3 ES, Volume 5: Appendix AQ-001-003. If the main ES methodology were applied, these effects would not be determined as significant.
- 3.1.25 The assessment does not result in new or different significant effects for PM₁₀.

Permanent effects

- 3.1.26 The changes 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.

Other mitigation measures

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

⁴ An 'assessed receptor' is normally a residential property chosen to be representative of the worst effects of air pollution along a road. The fact that an 'assessed receptor' is predicted to experience an adverse effect does not mean that all properties in the same road will be similarly affected.

Cumulative effects

- 3.1.28 There are no new or different likely significant cumulative effects for air quality as a result of any SES2 changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

- 3.1.29 New and different residual significant effects are likely for some receptors on roads affected by the SES2 scheme during some peak periods of construction activity.
- 3.1.30 The assessment results in new significant beneficial effects for NO₂ at assessed receptors at Elliott Square, Primrose Hill Road, Quickswood and Adelaide Road.
- 3.1.31 The assessment results in new significant adverse effects for NO₂ at assessed receptors along: Regent's Park Road, St Mark's Square, Malden Road, Malden Place, Mansfield Road, Meadowbank, Gloucester Avenue, The Vale, Haverstock Hill, King Henry's Road, Primrose Hill Road and Boundary Road. These are new receptor locations assessed for the air quality impact of new traffic changes.
- 3.1.32 The assessment results in different (reduced) significant adverse effects at receptors along: Haverstock Hill, The Marlowes, Englands Lane, Primrose Gardens and Queen's Grove.
- 3.1.33 The assessment also results in new significant adverse effects at receptors considered for traffic change in the main ES:
- along and bordering the A41, including: A41 Finchley Road, Cricklewood Lane, Canfield Gardens, Arkwright Road, Queen's Terrace, Queen's Grove, The Marlowes, Alexandra Road, St John's Wood Park, Sumpter Close, Frogmal Lane, Heath Drive, A41 Hendon Way, Hocroft Avenue and Wayside; and
 - on Adelaide Road, Chalk Farm Road, Prince Albert Road, Fleet Road, Albert Terrace and Gloucester Avenue.

Effects arising during Stage B1 construction and operation (2026–2033)

Avoidance and mitigation measures

- 3.1.34 The use of HGV powered by Euro VI (or lower emission) engines during construction for the purposes of transporting excavated material, will reduce emissions of NO_x and PM₁₀ relative to that assumed in the main ES.

Assessment of impacts and effects

- 3.1.35 Impacts from the combination of construction and operation of the SES2 scheme in Stage B1 could arise from dust-generating activities and emissions from traffic. Therefore, the assessment of construction impacts on air quality has been undertaken for human receptors for dust and exposure to NO₂ and PM₁₀.
- 3.1.36 Construction activity could affect local air quality through the additional traffic generated on local roads as a result of construction traffic routes and through changes to traffic patterns arising from temporary road diversions.

3.1.37 The assessment of traffic emissions has been undertaken for the peak year in the combined construction and operation period as discussed in paragraph 3.1.8 for 'without the SES2 scheme' and 'with the SES2 scheme' scenarios. The traffic data include the additional traffic from future committed developments.

3.1.38 No new or different significant effects have been identified as a result of the SES2 scheme compared to the operation of the scheme as reported in the main ES.

Other mitigation measures

3.1.39 No other mitigation measures additional to those reported in the main ES are required.

Cumulative effects

3.1.40 There are no new or different significant cumulative effects for air quality as a result of any SES2 changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

3.1.41 No residual significant effects are anticipated on air quality during Stage B1 construction and operation.

Effects arising during operation (2033 onwards)

3.1.42 For the purposes of this assessment, operation means the operation of Phase One of HS2 after the end of Stage B1 construction.

3.1.43 There are no residual significant effects anticipated on air quality during the combined Stage B1 construction and Phase One operation. Consequently it is not considered that there will be residual significant effects on air quality during operation of Phase One HS2 services alone.

3.2 Community

Introduction

3.2.1 This section of the report describes the environmental baseline in relation to community that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the original scheme.

Scope, assumptions and limitations

3.2.2 The assessment scope, key assumptions and limitations for community are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

SES2 changes of relevance to this assessment

3.2.3 The following SES2 changes are considered in this assessment:

- removal of the HS1-HS2 Link (SES2-002-001);
- the use of Euro VI HGVs for the movement of excavated materials in the

London Low Emission Zone (SES2-003-001);

- the revised design of Euston station within CFA1 (SES2-001-001); and
- the consequential use of the revised CLoHAM traffic model.

Environmental baseline

Existing baseline

- 3.2.4 The baseline community information for CFA 3 Primrose Hill to Kilburn (Camden) is as described in the main ES, Volume 2, CFA3 Report: Section 5.

Future baseline

Stage A construction (2017)

- 3.2.5 The future baseline for construction in 2017 remains unchanged from that reported in the main ES.

Stage B1 construction and operation (2026)

- 3.2.6 The future baseline for construction and operation in 2026 remains unchanged from that reported in the main ES.

Operation (2033 onwards)

- 3.2.7 The future baseline for operation from 2033 onwards remains unchanged from that reported in the main ES.

Effects arising during Stage A construction (2017–2026)

Avoidance and mitigation measures

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

Assessment of impacts and effects

- 3.2.9 The main ES identified the following temporary significant effects on the community resources which will not now occur as a result of the removal of the HS1-HS2 Link:

- the construction works on the HS1-HS2 Link tunnel portal in the adjacent Camden Town area (CFA2) would have resulted in an adverse effect on the amenity (significant noise and visual effects) of (approximately 20) residential properties at the eastern end of Adelaide Road and on Regent's Park Road; and
- there was also a predicted increase in traffic navigating the A502 Haverstock Hill at the junction of Rosslyn Hill and Hampstead High Street/Heath Street which would have resulted in an adverse effect on the amenity of residential properties near the junction as a result of in-combination effects from HGV movement, noise and air quality.

- 3.2.10 As a result of the SES2 changes, the significant effects set out above will no longer occur.

- 3.2.11 The changes to traffic flows will result in a temporary significant increase in traffic (HGV movements) and significant air quality effects combining to affect the amenity of residents along, Regent's Park Road, B509 Adelaide Road (east of Primrose Hill Road), Albert Terrace, Chalk Farm Road, Primrose Hill Road, and Gloucester Avenue. The combination of these effects will result in a major adverse effect on the amenity of residents along these sections of road, which will be significant.

Other mitigation measures

- 3.2.12 No other mitigation measures in addition to those identified in the main ES are required.

Cumulative effects

- 3.2.13 There are no new or different likely significant cumulative effects for community as a result of any SES changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

- 3.2.14 As a result of the SES2 changes, a number of significant effects reported in the main ES will no longer occur. These are the predicted amenity effects on residents of properties on Adelaide Road and on Regent's Park Road, A502 Haverstock Hill and Rosslyn Hill and Hampstead High Street/Heath Street.
- 3.2.15 The SES2 changes give rise to new significant effects on the amenity of residents along Regent's Park Road and Adelaide Road (east of Primrose Hill Road) and new significant effects on the amenity of residents along Albert Terrace, Chalk Farm Road, Primrose Hill Road and Gloucester Avenue.

Effects arising during Stage B1 construction and operation (2026–2033)

- 3.2.16 The SES2 scheme will not result in any new or different significant effects to those reported in the main ES.

Effects arising during operation (2033 onwards)

- 3.2.17 For the purposes of this assessment, operation means the operation of Phase One of HS2 after the end of Stage B1 construction.
- 3.2.18 No significant operational effects on community were reported in the main ES. The SES2 scheme will not give rise to any new significant operational effects.

3.3 Cultural heritage

Introduction

- 3.3.1 This section of the report describes the environmental baseline in relation to cultural heritage that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the original scheme.

Scope, assumptions and limitations

- 3.3.2 The assessment scope, key assumptions and limitations for the cultural heritage assessment are as set out Volume 1, the SMR (Appendix CT-001 -000/1) and the SMR Addendum (Appendix CT-001-000/2) of the main ES.

SES2 changes of relevance to this assessment

- 3.3.3 The only change that is relevant to this assessment is the removal of the HS1-HS2 Link (SES2-002-001).

Environmental baseline

Existing baseline

- 3.3.4 The cultural heritage baseline is as set out in the main ES, Volume 2, CFA3 Report: Section 6 and Volume 5: Appendix CH-001-002.

Future baseline

Construction (2017)

- 3.3.5 The future baseline for construction in 2017 remains unchanged from that reported in the main ES.

Operation (2026)

- 3.3.6 The future baseline for operation in 2026 remains unchanged from that reported in the main ES.

Effects arising during construction

Avoidance and mitigation measures

- 3.3.7 No avoidance or mitigation measures are proposed in addition to those identified in the main ES.

Assessment of impacts and effects

- 3.3.8 The original scheme involved the partial demolition of a tunnelled section of the non-designated Up Empty Carriage Line⁵ (asset reference: PRM056)⁶, an asset of low value, during construction of the HS1-HS2 Link tunnel portal. This constituted a high adverse impact and moderate adverse effect.

- 3.3.9 The removal of the HS1-HS2 Link will mean this asset will not be demolished, and the significant effect will not occur.

Other mitigation measures

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

⁵ The Up Empty Carriage Line enters the Up Empty Carriage Tunnel approximately 175m east of the Adelaide Road vent shaft site. To the south of the Up Empty Carriage Line lie the North London Line and West Coast Main Line. The Up Empty Carriage Line is in a tunnel where it would have been affected by the original scheme and some of these works extended into CFA3.

⁶ Cultural heritage assets are identified with a unique reference code, PRMXXX; further detail on these assets can be found in the gazetteer in Volume 5 of the main ES: Appendix CH-002-003.

Cumulative effects

- 3.3.11 There are no new or different likely significant cumulative effects for cultural heritage as a result of any SES2 changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

- 3.3.12 The significant residual effect on the non-designated Up Empty Carriage Line reported in the main ES will not occur.
- 3.3.13 All other residual effects on cultural heritage will remain as reported in the main ES.

Effects arising from operation

- 3.3.14 No significant operational effects on cultural heritage were reported in the main ES. The SES2 scheme will not give rise to any new or different significant operational effects.

3.4 Ecology

Introduction

- 3.4.1 This section of the report describes the environmental baseline in relation to ecology that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the original scheme.

Scope, assumptions and limitations

- 3.4.2 The assessment scope for ecology is as set out in Volume 1 of the main ES and Volume 1 of the SES2 and AP3 ES. The key assumptions and limitations, and the methodology for determining significance of effects is as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 3.4.3 The ecological baseline of the land relevant to the removal of the HS1-HS2 Link has been based on field data, an examination of aerial photography and from information gathered from national organisations and from regional and local sources including Greenspace Information for Greater London and London Bat Group.
- 3.4.4 To address any limitations in data, a precautionary baseline has been considered, according to the guidance reported in the main ES Volume 5: Appendix CT-001-000/2. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 3.4.5 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the SES2 scheme.

SES2 changes of relevance to this assessment

- 3.4.6 The following SES2 changes are considered in this assessment:
- the removal of the HS1-HS2 Link (SES2-002-001); and
 - additional baseline information relating to bats at the Up Empty Carriage

Tunnel and the Western Horse Tunnel⁷.

Environmental baseline

Existing baseline

- 3.4.7 The ecological baseline for the assessment takes into account baseline information collected in support of the main ES, 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 main ES assessment in this area is provided in Volume 2, CFA3 Report: Section 7 of the main ES. The ecological baseline also takes into account new field survey data collected since that reported in the main ES.
- 3.4.8 The assessment also takes into account additional survey information collected between September 2013 and December 2014 which is reported in the SES2 and AP3 ES, Volume 5: Appendix EC-001-001.
- 3.4.9 A summary of the baseline information relevant to the SES2 assessment is provided below. Further details of the baseline information are provided in the main ES, Volume 5: Appendix EC-001-001, EC-002-001, EC-003-001, EC-004-001 and Volume 5: Appendix EC-001-001 of the SES2 and AP3 ES.

Designated sites

- 3.4.10 There are no designated sites reported in the main ES baseline, Volume 2, CFA3 Report: Section 7, that are relevant to the assessment of the SES2 scheme, and no additional information relevant to the assessment.

Habitats

- 3.4.11 There are no semi-natural habitats associated with the section of the HS1-HS2 Link within CFA3 reported in the main ES as this section was proposed to be entirely within tunnel. The baseline for the SES2 assessment is unchanged.

Protected and/or notable species

- 3.4.12 The main ES reported a bat assemblage associated with Up Empty Carriage Tunnel/Western Horse Tunnel. A hibernation roost of one single unidentified species was confirmed inside the southern entrance of the Up Empty Carriage Tunnel, a summer roost for a small number of pipistrelles bats was also reported at the southern entrance and it was reported that the Up Empty Carriage Tunnel provides a foraging resource for common pipistrelle, soprano pipistrelle and *Myotis* bats. No evidence of roosting bats was found at the Western Horse Tunnel.
- 3.4.13 The main ES reported that the tunnel complex could potentially be used as a maternity roost for common bats such as pipistrelles, or roosts of rarer bats and may be used for swarming. The value of the bat assemblage using the tunnel was reported in the main ES to be up to regional value.

⁷ The Western Horse Tunnel is a disused underground tunnel originally used for moving horses, located partly in CFA2 and partly in CFA3.

- 3.4.14 Following further baseline surveys in 2014, a summer roost of a small number of soprano pipistrelles was confirmed inside the southern entrance of the Up Empty Carriage Tunnel, and a summer roost of one common pipistrelle was confirmed inside the northwest entrance of the Up Empty Carriage Tunnel. The Up Empty Carriage tunnel was confirmed to be used by foraging common pipistrelles, soprano pipistrelles, small numbers of brown long-eared bats and one or more *Myotis* species. Autumn swarming surveys at each portal of the Up Empty Carriage Tunnel have identified social calling from common and soprano pipistrelle bats, which may be male bats defending breeding territories.
- 3.4.15 The Western Horse Tunnel is unlikely to support summer roosting, hibernating or foraging bats. There have been no records of bats emerging or reentering or swarming at either of the entrances in 2013 or 2014.
- 3.4.16 Taking into account the further survey information obtained since the completion of the main ES, the value of the bat assemblage at the Up Empty Carriage Tunnel is now considered to be of only up to county/metropolitan value (a reduction from the regional value assumed in the main ES).

Future baseline

Construction (2017)

- 3.4.17 The SES2 and AP3 ES Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES.
- 3.4.18 None of the identified developments affect the assessment of the SES2 scheme's likely construction impacts on ecology.

Operation (2026)

- 3.4.19 The SES2 and AP3 ES Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES.
- 3.4.20 None of the identified developments affect the assessment of the SES2 scheme's likely operational impacts on ecology.

Effects arising during construction

Avoidance and mitigation measures

- 3.4.21 The assessment assumes implementation of the draft CoCP in the main ES, Volume 5, Appendix CT-003-000, which includes translocation of protected species where appropriate. No avoidance and mitigation measures additional to those reported in the main ES are required.

Assessment of impacts and effects

Designated sites

- 3.4.22 No significant effects on designated sites were reported in the main ES.

- 3.4.23 The SES2 scheme will not give rise to any new or different significant construction effects on designated sites and will not change the level of significance of the effects reported in the main ES.

Habitats

- 3.4.24 No significant effects on habitats were reported in the main ES.
- 3.4.25 The SES2 scheme will not give rise to any new or different significant construction effects on habitats and will not change the level of significance of the effects reported in the main ES.

Protected and/or notable species

- 3.4.26 The original scheme involved the infilling of an approximately 100m section of the Up Empty Carriage Tunnel which was assessed as being likely to change the humidity and air flow in the Up Empty Carriage Tunnel and potentially the Western Horse Tunnel, as the two tunnels are connected by a vertical shaft. In the main ES, the loss of potential bat hibernation and summer roost habitat, and use as a swarming site, was expected to result in a permanent adverse effect on the assemblage of bats using the tunnel, which following a precautionary assessment would be significant at up to a regional level.
- 3.4.27 The removal of the HS1-HS2 Link from the scheme means that the Up Empty Carriage Tunnel will no longer be subject to any works. Therefore, the bat assemblage using both tunnels will no longer be impacted, and the significant adverse effect on the bat assemblage at up to the regional level reported in the main ES, will not occur.

Other mitigation measures

- 3.4.28 Mitigation measures detailed in the main ES to address the predicted effects on bats using the Up Empty Carriage Tunnel and the Western Horse Tunnel will no longer be required. These comprise the following measures:
- exclusion of bats from the Up Empty Carriage Tunnel prior to construction works;
 - measures to allow the continued safe passage of bats through the Up Empty Carriage Tunnel and reinstate the required roost conditions in the tunnel; and
 - the provision of additional appropriate roost features in the Up Empty Carriage Tunnel.

Cumulative effects

- 3.4.29 There are no new or different likely significant cumulative effects for ecology as a result of the any SES changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

- 3.4.30 The main ES reported no significant residual effects on ecology. The removal of the HS1-HS2 Link will not change the level of significance of the residual effects reported in the main ES.

Effects arising from operation

- 3.4.31 No significant operational effects on ecological receptors were reported in the main ES. The removal of the HS1-HS2 Link will not change the level of significance of the residual effects reported in the main ES.

3.5 Landscape and visual assessment

Introduction

- 3.5.1 This section of the report describes the environmental baseline in relation to landscape and visual amenity that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the original scheme.

Scope, assumptions and limitations

- 3.5.2 The assessment scope, key assumptions and limitations for landscape and visual assessment are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES. An update to the methodology for the landscape and visual assessment is also described in Volume 1 of the AP1 ES and Volume 1 of the SES and AP2 ES.

SES2 changes of relevance to this assessment

- 3.5.3 The change that is relevant to this assessment is the removal of the HS1-HS2 Link (SES-002-001).

Environmental baseline

Existing baseline

- 3.5.4 A summary of the baseline information in the main ES relevant to the assessment of the SES2 changes is provided below.
- 3.5.5 The works with CFA3 are located partially within the Eton and Primrose Hill Residential Landscape Character Area (LCA) which is described in the main ES (Volume 2, CFA3 Report, Section 9 and Volume 5: Appendix LV-001-003, Part 2). The LCA includes parts of the Eton and Primrose Hill Conservation Areas and is of borough value due to the high quality of the architecture and its conservation area status. It is considered to have a high sensitivity to change.
- 3.5.6 The following viewpoints are relevant to the assessment of the SES2 scheme:
- Viewpoint 005-2-004: view north-east from Regent's Park Road/Gloucester Avenue Junction; and
 - Viewpoint 005-2-005: view south-east from Bridge Approach.
- 3.5.7 Descriptions of these viewpoints are provided in Volume 5: Appendix LV-001-003 Part 2 of the main ES and are shown in Map Series LV-03-002c to LV-03-006a and LV-04-002c to LV-04-006a (Volume 2, Map Book CFA3) of the main ES.

Future baseline

Construction (2017)

- 3.5.8 The SES2 and AP3 ES, Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES.
- 3.5.9 None of the identified developments affect the assessment of the SES2 schemes likely operational impacts on landscape and visual assessment.

Operation (2026)

- 3.5.10 The SES2 and AP3 ES, Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES.
- 3.5.11 None of the identified developments affect the assessment of the SES2 schemes likely operational impacts on landscape and visual assessment.

Temporary effects arising during construction

Avoidance and mitigation measures

- 3.5.12 The measures that have been incorporated into the draft CoCP to avoid or reduce landscape and visual effects during construction remain as stated in the main ES (Volume 2, CFA3 Report: Section 9).

Assessment of impacts and effects

- 3.5.13 As defined in the main ES, this assessment of landscape and visual effects in construction has been based on the activities occurring during the peak construction phase, which is defined as the period during which the main construction works will take place.
- 3.5.14 As is commonplace with major infrastructure works, the scale of the construction activities means that works will be visible in many locations and will have the potential to give rise to significant temporary effects which cannot be mitigated practicably. For further details refer to main ES (Volume 2, CFA3 Report: Section 9).

Landscape assessment

- 3.5.15 The main ES reported a moderate adverse significant effect on the Eton and Primrose Hill Residential LCA due to the construction of the Adelaide Road vent shaft and headhouse within the LCA and the construction of the HS1-HS2 Link tunnel portal and headhouse on the site of the former Primrose Hill Station adjacent to the LCA in CFA2.
- 3.5.16 The removal of the HS1-HS2 Link from the scheme means that the construction activity connected with this element of the scheme will not take place adjacent to the LCA. However, the Adelaide Road ventilation shaft and headhouse will remain part of the SES2 scheme and will be constructed within the LCA. The SES2 scheme is therefore not considered likely to give rise to a new or different significant effect on the LCA and will not change the level of significance of the effect reported in the main ES.

Visual assessment

3.5.17 The main ES reported significant effects on a number of visual receptors due to the construction of the HS1-HS2 Link and the presence of cranes and construction activity. The following viewpoints were assessed as being significantly affected by the original scheme:

- Viewpoint 005-2-004: view north-east from Regent's Park Road/Gloucester Avenue Junction (moderate adverse); and
- Viewpoint 005-2-005: view south-east from Bridge Approach (moderate adverse).

3.5.18 The removal of the HS1-HS2 Link means that its associated construction activity will not take place and therefore the previously reported effects on visual receptors will not occur.

Other mitigation measures

3.5.19 No other mitigation measures in addition to those identified in the main ES are required.

Cumulative effects

3.5.20 There are no new or different likely significant cumulative effects for landscape and visual assessment as a result of any SES changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

3.5.21 The SES2 scheme will not give rise to new or different residual significant effects during construction on landscape character and will not change the level of significance of the effects reported in the main ES.

3.5.22 Residual significant effects on Viewpoint 005-2-004: view north-east from Regent's Park Road/Gloucester and Viewpoint 005-2-005: view south-east from Bridge Approach will not occur in the SES2 scheme as a result of the removal of the HS1-HS2 Link.

Permanent effects arising during operation

3.5.23 No significant operational effects on landscape character relating to the HS1-HS2 Link were reported in the main ES. The SES2 scheme will not give rise to any new operational effects.

3.5.24 No visual receptors were reported in the main ES as being significantly affected by the presence of the HS1-HS2 Link during operation. The SES2 scheme will not give rise to any new operational effects.

3.6 Socio-economics

Introduction

- 3.6.1 This section of the report describes the environmental baseline in relation to socio-economics that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the original scheme.

Scope, assumptions and limitations

- 3.6.2 The assessment scope, key assumptions and limitations for socio-economics are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

SES2 changes of relevance to this assessment

- 3.6.3 The following SES2 changes are considered in this assessment:
- the revised design of Euston station within CFA1 (SES2-001-001); and
 - the consequential use of the revised CLoHAM traffic model.

Environmental baseline

Existing baseline

- 3.6.4 The baseline socio-economics information for CFA 3 Primrose Hill to Kilburn (Camden) is as described in the main ES, Volume 2, CFA3 Report: Section 10.

Future baseline

Construction (2017–2026)

- 3.6.5 The SES2 and AP3 ES, Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES.
- 3.6.6 None of the identified developments affect the assessment of the SES2 scheme's likely construction impacts on socio-economics.

Construction and Operation (2026–2033)

- 3.6.7 The SES2 and AP3 ES, Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2033, additional to those identified in the main ES.
- 3.6.8 None of the identified developments affect the assessment of the SES2 scheme's likely operational impacts on socio-economics.

Operation (2033 onwards)

- 3.6.9 The SES2 and AP3 ES, Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented from 2033 onwards, additional to those identified in the main ES.

- 3.6.10 None of the identified developments affect the assessment of the SES2 scheme's likely operational impacts on socio-economics.

Effects arising during Stage A construction (2017–2026)

Avoidance and mitigation measures

- 3.6.11 There are no additional avoidance or mitigation measures relevant to these changes, in addition to those described in the main ES.

Assessment of impacts and effects

- 3.6.12 The main ES reported no significant socio-economic amenity effects that were influenced by an increase in HGV movements associated with construction works at Euston station. The revised design of Euston station results in revised traffic and transport impacts (refer to Section 3.8), however this will not give rise to a new or different significant effect on socio-economics and will not change the level of significance of the effects reported in the main ES.

Other mitigation measures

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

Cumulative effects

- 3.6.14 There are no new or different likely significant cumulative effects for socio-economics as a result of any SES changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

- 3.6.15 No significant residual effects relating to Euston station were reported in the main ES.
- 3.6.16 No new residual socio-economic effects occur as a consequence of the SES2 changes. The significant residual effects of the SES2 scheme in this area are therefore unchanged from those reported in the main ES.

Effects arising during Stage B1 construction and operation (2026–2033)

Avoidance and mitigation measures

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

Assessment of impacts and effects

- 3.6.18 There are no new construction effects identified to arise during Stage B1 as a result of the SES2 scheme.
- 3.6.19 No significant operational effects were reported in the main ES with regards to socio-economics. The SES2 scheme will not give rise to any new operational effects.

Other mitigation measures

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

Cumulative effects

- 3.6.21 There are no new or different likely significant cumulative effects for socio-economics as a result of any SES changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

- 3.6.22 There are no significant residual construction effects identified to arise during Stage B1 as a result of the SES2 scheme.
- 3.6.23 No significant operational socio-economic effects were reported in the main ES. The SES2 scheme will not give rise to any new operational effects.

Effects arising during operation (2033 onwards)

- 3.6.24 For the purposes of this assessment, operation means the operation of Phase One of HS2 after the end of Stage B1 construction.
- 3.6.25 No significant socio-economic effects during operation were reported in the main ES. The SES2 scheme does not change this conclusion.

3.7 Sound, noise and vibration

Introduction

- 3.7.1 This section of the report describes the environmental baseline in relation to sound, noise and vibration that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the original scheme.

Scope, assumptions and limitations

- 3.7.2 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 3.7.3 Local assumptions and limitations for sound, noise and vibration are set out in main ES, Volume 2, CFA3 Report: Section 11.

SES2 changes of relevance to this assessment

- 3.7.4 The following SES2 changes are considered in this assessment:
- removal of the HS1-HS2 Link (SES2-002-001);
 - the revised design of Euston station within CFA1 (SES2-001-001); and
 - the consequential use of the revised CLoHAM traffic model.

- 3.7.5 The SES2 scheme alters the baseline road traffic flow and composition, which in turn has the potential to alter the indirect operational airborne noise assessment presented in the main ES.

Environmental baseline

Existing baseline

- 3.7.6 The baseline traffic information has been updated since the main ES; further information can be found in the Traffic and transport section (Section 3.8).
- 3.7.7 In other respects, the baseline sound, noise and vibration information for CFA 3 Primrose Hill to Kilburn (Camden) will not change as a result of the SES2 changes. The baseline is described in the main ES, Volume 2, CFA3 Report: Section 11 and Volume 5: Appendix SV-002-003. Baseline sound levels representative of the assessment locations affected by the SES2 changes have been used in the assessment.

Future baseline

Construction (2017)

- 3.7.8 The baseline traffic information for 2021 has been updated since the main ES to reflect changes in the CLoHAM traffic model. In all other respects, the future baseline for construction in 2017 remains unchanged from that reported in the main ES, Volume 2, CFA3, Section 11.
- 3.7.9 The SES2 and AP3 ES, Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES.
- 3.7.10 None of the identified developments affect the assessment of the SES2 scheme's likely construction impacts on sound, noise and vibration.

Operation (2026)

- 3.7.11 The future baseline for operation post-2026 has been updated since the main ES to reflect changes in the CLoHAM traffic model. In all other respects, the future baseline for operation remains unchanged from that reported in the main ES, Volume 2, CFA3 Report: Section 11.
- 3.7.12 The SES2 and AP3 ES, Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES.
- 3.7.13 None of the identified developments affect the assessment of the SES2 scheme's likely construction impacts on sound, noise and vibration.

Effects arising during Stage A construction (2017–2026)

Avoidance and mitigation measures

- 3.7.14 The avoidance and mitigation measures are presented in the main ES, Volume 2, CFA3 Report: Section 11.

Assessment of impacts and effects

Residential receptors: direct effects – individual dwellings

- 3.7.15 In the main ES, construction works associated with the HS1-HS2 Link tunnel portal were not forecast to lead to noise levels at residential buildings within CFA3 higher than the noise insulation trigger levels as defined in the draft CoCP.
- 3.7.16 The number of buildings within CFA3 that are forecast to experience noise levels above the noise insulation trigger levels, as defined in the draft CoCP, will remain as reported in the main ES, Volume 2, CFA3 report: Section 11.

Residential receptors: direct effects – communities

- 3.7.17 In the main ES, a significant community noise effect identified on Adelaide Road (CSV03-01), at assessment location 700064 (refer to the main ES, Volume 5, CFA3 Map Book: Map SV-03-002a), was caused by construction works associated with the HS1-HS2 Link tunnel portal, diaphragm wall construction. The removal of the HS1-HS2 Link therefore means this significant effect will not occur.

Non-residential receptors: direct effects

- 3.7.18 In the main ES, a significant non-residential construction noise effect on a health clinic (CSV03-No1) was identified, caused by construction works associated with the HS1-HS2 Link tunnel portal, diaphragm wall construction. The removal of the HS1-HS2 Link means this significant effect will not occur.

Residential and non-residential receptors: Indirect effects

- 3.7.19 The revised design of Euston station within CFA1 (SES2-001-001), removal of the HS1-HS2 Link (SES2-002-001) and the consequential use of the revised CLoHAM traffic model will result in changes to the construction traffic in CFA3.
- 3.7.20 As a result of these changes, the significant indirect noise effects on residential and non-residential receptors reported in the main ES as a result of construction traffic on the A502 Haverstock Hill between England's Lane and the B509 Adelaide Road (CSV03-Co5, CSV03-No6) and England's Lane between the B509 Adelaide Road and the A502 Haverstock Hill (CSV03-Co6, CSV03-No7) are no longer likely.
- 3.7.21 No impacts have been identified as the result of construction traffic in CFA3. Significant noise effects on residential and non-residential receptors arising from construction traffic are therefore unlikely to occur in this area.

Other mitigation measures

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

Cumulative effects

- 3.7.23 There are no new or different likely significant cumulative effects for sound, noise and vibration as a result of any SES2 changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

- 3.7.24 The residual significant construction noise effects identified in the main ES in CFA3 at the residential communities and non-residential receptors will not occur in the SES2 scheme. No other new or different significant noise effects have been identified.

Effects arising during Stage B1 construction and operation (2026 – 2033)

Avoidance and mitigation measures

- 3.7.25 No additional avoidance or mitigation measures are required in addition to those identified in the main ES.

Assessment of impacts and effects

Temporary effects

- 3.7.26 There are no new construction sound, noise and vibration effects arising from Stage B1 Euston station construction in CFA3.

Permanent effects

- 3.7.27 The main ES did not identify any significant operational sound, noise or vibration effects in CFA3.
- 3.7.28 The SES2 scheme alters the baseline road traffic flow and composition, which in turn has the potential to alter the indirect operational airborne noise assessment presented in the main ES.
- 3.7.29 An assessment has been undertaken to determine whether operational noise levels from the SES2 scheme would result in a likely significant effect, using the significance criteria detailed in the main ES, Volume 5: Appendix SV-001-000.
- 3.7.30 The assessment of operational noise and vibration indicates that indirect noise effects on residential receptors are unlikely to occur in this area.
- 3.7.31 The SES2 scheme does not alter the predicted operational ground-borne noise or vibration levels presented in the main ES. Therefore no new or different significant effects are considered likely to arise during operation of the SES2 scheme.

Other mitigation measures

- 3.7.32 No other mitigation measures in addition to those identified in the main ES are required.

Cumulative effects

- 3.7.33 There are no new or different likely significant cumulative effects for sound, noise and vibration as a result of any SES2 changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

- 3.7.34 There are no new construction sound, noise and vibration effects arising from Stage B1 Euston station construction in CFA3.

- 3.7.35 No residual significant effects during operation were reported in the main ES relating to sound, noise and vibration. The SES2 scheme will not give rise to any new residual significant effects during operation.

Effects arising during operation (2033 onwards)

Avoidance and mitigation measures

- 3.7.36 No additional avoidance or mitigation measures are required in addition to those identified in the main ES.

Assessment of impacts and effects

- 3.7.37 There are no new or different significant effects arising from operation for sound, noise and vibration.

Other mitigation measures

- 3.7.38 No other mitigation measures in addition to those identified in the main ES are required.

Cumulative effects

- 3.7.39 There are no new or different likely significant cumulative effects for sound, noise and vibration as a result of any SES2 changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

- 3.7.40 No residual significant effects during operation were reported in the main ES relating to sound, noise and vibration. The SES2 scheme will not give rise to any new residual significant effects during operation.

3.8 Traffic and transport

Introduction

- 3.8.1 This section of the report describes the environmental baseline in relation to traffic and transport that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the original scheme.

Scope, assumptions and limitations

- 3.8.2 The assessment scope, key assumptions and limitations for the traffic and transport assessment are as set out Volume 1, the SMR (Appendix CT-001-000/1), the SMR Addendum (Appendix CT-001-000/2) of the main ES, and the SMR Addendum 3 (Appendix CT-001-000/4) of the SES2 and AP3 ES.

SES2 changes of relevance to this assessment

- 3.8.3 The following SES2 changes are considered in this assessment:
- removal of the HS1-HS2 Link (SES2-002-001);
 - revised design of Euston station within CFA1 (SES2-001-001); and

- consequential use of the revised CLoHAM traffic model and Railplan public transport model.

Environmental baseline

Existing baseline

- 3.8.4 The existing baseline for traffic and transport is as set out in Volume 2, CFA3 Report: Section 12 of the main ES, updated by the revised CLoHAM traffic model.

Future baseline

Construction (2017 - 2026)

- 3.8.5 The future baseline for traffic and transport is as set out in Volume 2, CFA3, Section 12 of the main ES, updated by the revised CLoHAM traffic model.
- 3.8.6 Future baseline traffic volumes in the peak hours are forecast to grow by typically 4% by 2021 compared to 2012.

Stage B1 Construction and Operation (2026–2033)

- 3.8.7 The future baseline for traffic and transport in 2026 is as set out in Volume 2, CFA3, Section 12 of the main ES, updated by the revised CLoHAM traffic model.
- 3.8.8 Future peak hour baseline traffic volumes in 2026 are forecast to remain at similar levels to 2021 with little growth between these years.

Operation (2041)

- 3.8.9 The future baseline for traffic and transport in 2026 is as set out in Volume 2, CFA3, Section 12 of the main ES, updated by the revised CLoHAM traffic model.
- 3.8.10 The future baseline for traffic and transport in 2041 is as set out in Volume 2, CFA3, Section 12 of the main ES, updated by the revised CLoHAM traffic model.
- 3.8.11 Local future baseline traffic volumes in the peak hour are forecast to grow by around 9% by 2041 compared to 2012.

Effects arising during Stage A construction (2017–2026)

Avoidance and mitigation measures

- 3.8.12 No additional avoidance or mitigation measures are required within this CFA in addition to those identified in the main ES.

Assessment of impacts and effects

Temporary effects

- 3.8.13 Changes to the temporary traffic and transport impacts within CFA3 are principally due to construction vehicle movements to and from Euston station, removal of HS1-HS2 Link combined with the more limited and localised movements reported in the main ES serving the Adelaide Road and Alexandra Road vent shaft worksites.
- 3.8.14 There are no changes to construction compound operation within CFA3. However, most of the construction compounds in the neighbouring CFA2 have been removed.

CFA3 has an interaction with CFA1 and CFA2 in terms of lorry routing and effects of road closures.

- 3.8.15 Construction vehicle movements at Euston (CFA1) to construct the SES2 scheme will include the delivery of plant and materials and movement of excavated materials. In the busiest month there are estimated to be approximately 800 combined two-way vehicle movements per day with some impacts on roads in this CFA. The split of construction vehicles is expected to be 90% HGV and 10% LGV and cars.
- 3.8.16 For the purpose of this assessment, the effects of construction have been considered for four distinct temporal phases or scenarios, three of which occur during construction Stage A (2016–2026) and one during construction Stage B1. These are detailed in SES2 and AP3 ES Volume 2, CFA1. In summary they represent:
- Stage A construction:
 - Scenario 1, 2017. This corresponds with a combination of advance works and utilities on the highway network together with around 24% of the peak (scenario 3) construction traffic and restrictions on Hampstead Road bridge (CFA1);
 - Scenario 2, 2018. This corresponds with a different combination of advance works and utilities on the highway network together with around 49% of the peak (scenario 3) construction traffic and restrictions on Hampstead Road bridge (CFA1); and
 - Scenario 3, 2023. This corresponds with the main station works together with one of the busiest periods for construction traffic related to the removal of excavated material. It also includes the short-term highway works on Euston Road (CFA1) and Adelaide Road (CFA3) and restrictions on Hampstead Road bridge (CFA1); and
 - Stage B1 construction:
 - Scenario 4, 2031⁸. This corresponds with the period of peak construction traffic associated with construction Stage B1 (2026–2033).
- 3.8.17 The assessment has considered each of these scenarios separately, which can result in different effects on the same roads in different scenarios.
- 3.8.18 For the SES2 scheme, the changes in traffic flows are expected to lead to new major adverse significant effects in relation to congestion and delays at:
- A502 Haverstock Hill/England's Lane; and
 - A501 Marylebone Road/Knox Street.
- 3.8.19 Changes to traffic patterns result in the removal of the major adverse significant effect in relation to congestion and delays at the junction of A502 Haverstock Hill/Park Hill Road reported in the main ES.

⁸ Scenario 4, 2031, is described here although the effects during this scenario are assessed in "Effects arising during Stage B1 construction and operation (2026 – 2033)".

3.8.20 As a result of the removal of road closures and associated traffic diversions in CFA2 due to the SES2 scheme, a number of significant increases in traffic-related severance for non-motorised users reported in the main ES will be removed:

- St John's Wood Park – moderate adverse significant effect in the main ES (all vehicles);
- A502 Rosslyn Hill – moderate adverse significant effect in the main ES (HGV);
- Parkway – moderate adverse significant effect in the main ES (HGV); and
- Primrose Hill Road/England's Lane north of A509 Adelaide Road – major adverse significant effect (HGV) and minor adverse significant effect (all vehicles) in the main ES.

3.8.21 There are locations where a significant effect in relation to traffic-related severance was reported in the main ES that will also occur in the SES2 scheme, but with a different level of significance. These are:

- Albert Terrace – moderate adverse significant effect (HGV) in the SES2 scheme, moderate adverse for all vehicles in the main ES;
- Chalk Farm Road – moderate adverse significant effect (HGV) in the SES2 scheme, moderate adverse for all vehicles in the main ES;
- Regent's Park Road – major adverse significant effect (HGV) and major adverse significant effect (all vehicles) in the SES2 scheme, moderate and minor adverse respectively in the main ES;
- Prince of Wales Road – moderate adverse significant effect (all vehicles) in the SES2 scheme, moderate adverse for both HGV and all vehicles in the main ES;
- Primrose Hill Road – moderate adverse significant effect (all vehicles) in the SES2 scheme, moderate adverse for HGV in the main ES;
- B517 Ferdinand Street – moderate adverse significant effect (all vehicles) in the SES2 scheme, minor adverse in the main ES;
- Gloucester Avenue – major adverse significant effect (HGV) and moderate adverse significant effect (all vehicles) in the SES2 scheme, major adverse for both in the main ES;
- A502 Haverstock Hill – moderate adverse significant effect (all vehicles) in the SES2 scheme, major adverse in the main ES; and
- A41 Finchley Road – major adverse significant effect (HGV) in the SES2 scheme, moderate adverse in the main ES.

3.8.22 There are additional locations compared to those reported in the main ES with significant increases in traffic related severance for non-motorised users as listed in Table 3.

SES2 and AP3 ES Volume 2 – CFA3, Primrose Hill to Kilburn (Camden)

Table 3: New significant increase in daily traffic flow resulting in traffic related severance for non-motorised users

Location	Increase in daily traffic flow more than 30% for all vehicles		Increase in daily traffic flow more than 30% for HGV	
	Significant effect	Construction Scenario	Significant effect	Construction Scenario
Alexandra Road	minor adverse	3	n/a	n/a
B509 Adelaide Road (East of Primrose Hill Road)	n/a	n/a	major adverse	1 and 2
B510 Fortune Green Road	minor adverse	3	n/a	n/a
Carlton Hill	n/a	n/a	major adverse	3
Crogsland Road	major adverse	3	n/a	n/a
Elsworthy Road	minor adverse	2	n/a	n/a
Fairfax Road	n/a	n/a	major adverse	3
Loudoun Road	n/a	n/a	major adverse	3
Parkhill Road	moderate adverse	3	n/a	n/a
Platt's Lane	moderate adverse	3	n/a	n/a
Princess Road	n/a	n/a	moderate adverse	1

3.8.23 Some of the effects listed above will extend across CFA boundaries, and where this is the case they are also identified and reported within those areas.

3.8.24 With construction of Stage A, reductions in daily traffic flow will cause a significant reduction in traffic related severance for non-motorised users as shown in Table 4.

Table 4: New significant reductions in traffic related severance for non-motorised users

Location	CFA	Decrease in daily traffic flow more than 30% for all vehicles		Decrease in daily traffic flow more than 30% for HGV	
		Significant effect	Construction Scenario	Significant effect	Construction Scenario
A41 Finchley Road	CFA3	n/a	n/a	moderate beneficial	3
A41 Wellington Road	CFA1 and 3	n/a	n/a	moderate beneficial	3
A502 Chalk Farm Road	CFA2 and 3	moderate beneficial	3	moderate beneficial	3

Location	CFA	Decrease in daily traffic flow more than 30% for all vehicles		Decrease in daily traffic flow more than 30% for HGV	
		Significant effect	Construction Scenario	Significant effect	Construction Scenario
Abercorn Place	CFA3	n/a	n/a	moderate beneficial	1 and 2
B509 Adelaide Road (West of Primrose Hill Road)	CFA3	n/a	n/a	moderate beneficial	1, 2 and 3
B509 Adelaide Road (East of Primrose Hill Road)	CFA3	moderate beneficial	3	moderate beneficial	3
B517 Ferdinand Street	CFA3	minor beneficial	1 and 2	n/a	n/a
B525 Avenue Road	CFA1 and 3	moderate beneficial	3	moderate beneficial	1
Grove End Road	CFA3	n/a	n/a	minor beneficial	1 and 2
Primrose Hill Road	CFA3	n/a	n/a	moderate beneficial	1 and 2
Princess Road	CFA3	n/a	n/a	major beneficial	2
Regent's Park Road	CFA3	minor beneficial	1 and 2	n/a	n/a

3.8.25 The changes in traffic flow result in the removal of the significant potential safety and accident risks identified in the main ES at A41 Finchley Road and St John's Wood Park.

Permanent effects

3.8.26 Any permanent effects of construction have been considered in the operations section.

Other mitigation measures

3.8.27 No changes to the mitigation measures reported in Volume 2, CFA3 of the main ES are required.

Cumulative effects

3.8.28 The assessment includes the cumulative effects of planned development during construction by taking this into account within the background traffic growth. The assessment also includes in-combination effects by taking into account traffic and transport impacts of works being undertaken in neighbouring areas. Specifically, the

assessment includes the general diversion effects of road closures and construction traffic associated with the Euston Station and Approach area (CFA1).

Summary of likely residual significant effects

- 3.8.29 The main construction impacts in CFA3 are expected during the period of peak construction traffic together with a road closure of the B509 Adelaide Road (scenario 3). This is not affected by the SES2 scheme.
- 3.8.30 Compared to the main ES, changes in traffic flows will lead to additional significant effects in relation to congestion and delays at Haverstock Hill/ England's Lane and Marylebone Road/Knox Street. The adverse significant effect reported in the main ES at the junction of Haverstock Hill/Park Hill Road is removed.
- 3.8.31 Adverse significant effects reported in the main ES in relation to traffic related severance are removed on: St John's Wood Park; A502 Rosslyn Hill; Parkway; and Primrose Hill Road/England's Lane north of A509 Adelaide Road.
- 3.8.32 New or different adverse significant effects related to traffic severance have been identified for Albert Terrace, A502 Chalk Farm Road, Prince of Wales Road, Gloucester Avenue and A502 Haverstock Hill where the adverse effect is reduced. For Regent's Park Road, Primrose Hill Road, B517 Ferdinand Street and A41 Finchley Road the adverse effect increases. On Alexandra Road, B509 Adelaide Road (east), B510 Fortune Green Road, Carlton Hill, Crogsland Road, Elsworthy Road, Fairfax Road, Loudoun Road, Parkhill Road, Platt's Lane and Princess Road new adverse significant effects arise.
- 3.8.33 There are expected to be significant beneficial effects in terms of reduced traffic flows on traffic related severance on A41 Finchley Road, A41 Wellington Road, A502 Chalk Farm Road, Abercorn Place, B509 Adelaide Road (west), B517 Ferdinand St, B525 Avenue Road, Grove End Road, Primrose Hill Road, Princess Road and Regent's Park Road.
- 3.8.34 The potential safety and accident risks at A41 Finchley Road and St John's Wood Park reported in the main ES are removed.
- 3.8.35 The significant effects that result from construction of the SES2 Scheme are shown in CFA3 TR 03-003b-L1, TR 03-003b-R1, TR 03-003b-R2 and TR 03-004a Maps (SES2 and AP3 ES Volume 5, Traffic and Transport Map Book).

Effects arising during Stage B1 construction and operation (2026 – 2033)

- 3.8.36 There will be no new or different significant effects during Stage B1 Euston station construction and operation of HS2 Phase One services in CFA3 from either operation of Phase One HS2 services or the combination of their operation and the construction of Stage B1 of Euston station.

Effects arising during operation (2033 onwards)

Avoidance and mitigation measures

- 3.8.37 No additional avoidance or mitigation measures are required in addition to those identified in the main ES Volume 2, CFA1, Section 12.

Assessment of impacts and effects

- 3.8.38 The following section considers the impacts on traffic and transport and the consequential effects resulting from the operational phase of the SES2 scheme with Phase Two HS2 services in operation in 2041.
- 3.8.39 Traffic and transport related changes during operation of the SES2 scheme are limited as there will be no stations or depots that generate any additional traffic in this area and the route is entirely within tunnel. Consequently any impacts result from the operation of Euston station and permanent road closures associated with Euston station.
- 3.8.40 In 2041, the SES2 scheme is expected to result in increases in peak hour traffic flows causing new significant effects compared to the main ES on traffic-severance for non-motorised users at the new locations identified in Table 5.

Table 5: Roads with increased traffic flow resulting in significant increases in traffic related severance for non-motorised users, 2041

Road name	2041	
	AM	PM
Abercorn Place	n/a	moderate adverse
Albert Terrace	n/a	moderate adverse

- 3.8.41 The reduction in traffic related severance reported on Prince Albert Road in the main ES for the original scheme is removed in the SES2 scheme.

Other mitigation measures

- 3.8.42 No changes to the mitigation measures reported in the main ES, Volume 2, CFA3 Report are required.

Cumulative effects

- 3.8.43 The assessment includes the cumulative effects of planned development during operation by taking this into account within the background traffic growth. The assessment includes in-combination effects by taking into account transport effects as a result of the SES2 scheme in neighbouring CFA areas.

Summary of likely residual significant effects

- 3.8.44 New adverse traffic severance related effects due to increased traffic on Abercorn Place and Albert Terrace result from the operation of Euston station in 2041. The beneficial traffic severance effect reported in the main ES for Prince Albert Road is removed.
- 3.8.45 The significant effects that result in this area from the SES2 scheme in 2026 and 2041 are shown in CFA3 TR-04-003b-L1 and TR-04-004a maps (SES2 and AP3 ES Volume 5, Traffic and Transport Map Book).

Part 2: Additional Provision 3 Environmental Statement

4 Summary of amendments

- 4.1.1 Table 6 provides a summary of the amendments that will have an effect in the Primrose Hill to Kilburn (Camden) (CFA3) and Figure 2 shows the locations.

Table 6: Summary of amendments in CFA₃

Name of amendment	Description of the original scheme	Description of the AP ₃ revised scheme
<p>Additional land to enable vehicle turning at Dinerman Court</p> <p>AP₃-003-001</p>	<p>During the temporary closure of the northern entrance to Alexandra Place the existing southern one-way section of Alexandra Place would be converted to a two-way operation and a temporary vehicle turning area would be provided in the Dinerman Court car park.</p> <p>The original scheme involved the partial demolition of the Dinerman Court car park wall and temporary suspension of approximately six private off-street car parking spaces to provide temporary facilities for servicing vehicles.</p> <p>The original scheme also involved the temporary suspension of 17 on-street car parking space on Alexandra Place.</p>	<p>Since submission of the Bill, it has been identified that the land required within Dinerman Court car park and on the southern section of Alexandra Place was not included in the Parliamentary Plans. Additional powers will therefore be required temporarily. The loss of parking was assessed in the main ES.</p>
<p>Addition of Alexandra Road Estate concrete ramp and planter to Schedule 17 of the Bill</p> <p>AP₃-003-002</p>	<p>The Alexandra Road Estate was identified in the main ES as being Grade II* listed and located partially or wholly within the land required, temporarily or permanently, for the construction of the original scheme (asset number PRMo21⁹).</p> <p>A concrete ramp and planter was confirmed to provide the pedestrian link between the Alexandra Road Estate and Loudoun Road. The construction of the Alexandra Place ventilation shaft will require the removal of the concrete ramp and planter, which form the pedestrian walkway between the Alexandra Estate and Loudoun Road.</p>	<p>Since submission of the Bill, it has been confirmed that the concrete ramp and planter that link pedestrians between the Alexandra Road Estate and Loudoun Road constitutes part of the Alexandra Road Estate Grade II* listing.</p> <p>The removal of these listed items will be added to Table 1 of Schedule 17 of the Bill¹⁰.</p>
<p>Additional land required in CFA₁ for extension of lorry holding area and replacement parking, Regent's Park</p> <p>AP₃-001-006</p>	<p>The Zoological Society of London (ZSL) London Zoo coach park in Regent's Park, located within CFA₁, immediately north of Gloucester Gate Bridge was included in the original scheme to be used as a lorry holding area, during construction at Euston.</p>	<p>An extension to the car parking area will be provided, by agreement with the Crown Estate, to provide mitigation for the lost spaces while the lorry holding area is being used and will be reinstated following the return of the lorry holding area to its former use. The extension in limits also allows HS₂ to extend the area of existing car park to be used by the lorry holding area by approximately 25m to the north-west of the land included in the original scheme. This amendment will temporarily require land outside</p>

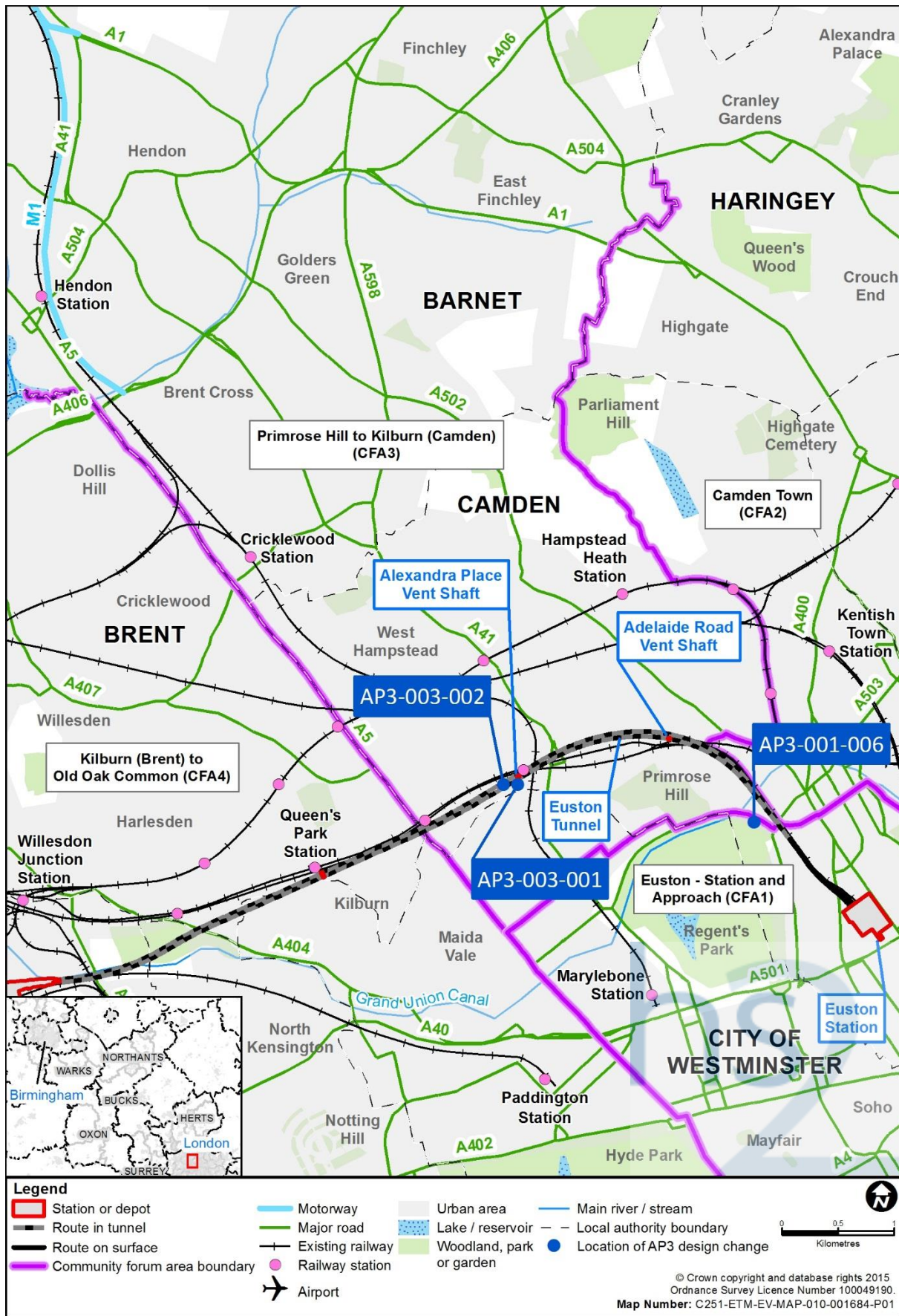
⁹ Cultural heritage assets are identified with a unique reference code, PRMXXX; further detail on these assets can be found in the gazetteer in Volume 5 of the main ES: Appendix CH-002-003.

¹⁰ Schedule 17 is the schedule to the Bill relating to works to listed buildings.

Name of amendment	Description of the original scheme	Description of the AP3 revised scheme
		Bill limits, by agreement with the Crown Estate.

SES2 and AP3 ES Volume 2 – CFA3, Primrose Hill to Kilburn (Camden)

Figure 2: Locations of amendments in CFA3



5 Assessment of amendments

5.1 Additional land to enable vehicle turning at Dinerman Court (AP3-003-001)

- 5.1.1 The Bill provides for the Alexandra Place ventilation shaft main compound to be used to manage the construction of the Alexandra Place vent shaft and support railway installation works. As part of the key works associated with the compound, the temporary closure of the northern entrance to Alexandra Place was required for approximately 2.5 years. During this period, the existing southern one-way section of Alexandra Place was expected to be converted to a two-way operation and a temporary vehicle turning area provided in the Dinerman Court car park. The original scheme required the partial demolition of the Dinerman Court car park wall and temporary suspension of approximately six private off-street car parking spaces to provide temporary facilities for servicing vehicles (refer to the main ES Volume 2, CFA3 Map Book: Map CT-05-005) and the temporary suspension of 17 on-street car parking spaces on Alexandra Place.
- 5.1.2 The loss of parking was assessed in the main ES (see Volume 2, CFA3 Report: Section 12 and Volume 5: Appendix TR-001-000, Part 3).
- 5.1.3 Since submission of the Bill, it has been identified that the land required within Dinerman Court car park and on the southern section of Alexandra Place was not included in the Parliamentary Plans. Additional powers will therefore be required for the temporary use of these areas.
- 5.1.4 The additional land to enable vehicle turning at Dinerman Court and at Alexandra Place is not considered to make changes that require reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics.

5.2 Addition of Alexandra Road Estate concrete ramp and planter to Schedule 17 of the Bill (AP-003-002)

- 5.2.1 The Alexandra Road Estate was identified in the main ES as being Grade II* listed and located partially or wholly within the land required, temporarily or permanently, for the construction of the original scheme (asset number PRM021). Significant effects were reported to occur as a result of temporary impact on the setting of this designated heritage asset (refer to map CT-05-005 in the main ES Volume 2, CFA3 Map Book). A concrete ramp and planter provides the pedestrian link between the Alexandra Road Estate and Loudoun Road. The construction of the Alexandra Place vent shaft will require the removal of the concrete ramp and planter.
- 5.2.2 Since submission of the Bill, it has been confirmed that the concrete ramp and planter that link pedestrians between the Alexandra Road Estate and Loudoun Road constitute part of the Alexandra Road Estate Grade II* listing. The removal of these listed items will be added to Table 1 of Schedule 17 of the Bill.
- 5.2.3 The addition of the Alexandra Road Estate concrete ramp and planter to Schedule 17 of the Bill is not considered to make changes that require a reassessment of the environmental effects in CFA3 or proposed mitigation as set out in the main ES for:

agriculture, forestry and soils; air quality; community; ecology; land quality; landscape and visual assessment, socio-economics; sound, noise and vibration; traffic and transport; and water resources and flood risk assessment. However there were changes where reassessment was considered to be required for cultural heritage.

Cultural heritage

Scope, assumptions and limitations

- 5.2.4 The assessment scope, key assumptions and limitations for the cultural heritage assessment are as set out Volume 1, the SMR (Appendix CT-001 -000/1) and the SMR Addendum (Appendix CT-001-000/2) of the main ES.

Existing baseline

- 5.2.5 The cultural heritage baseline information for Primrose Hill to Kilburn (Camden) is as described in the main ES (Volume 2, CFA3, Section 6 and Volume 5, Appendix CH-001-002).

Future baseline

Construction (2017)

- 5.2.6 The SES2 and AP3 ES Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES.
- 5.2.7 None of the identified developments affect the assessment of the amendment's likely construction impacts on cultural heritage.

Operation (2026)

- 5.2.8 The SES2 and AP3 ES Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES.
- 5.2.9 None of the identified developments affect the assessment of the amendment's likely operational impacts on cultural heritage.

Effects arising during construction

- 5.2.10 The main ES reported a significant temporary moderate adverse effect and significant permanent moderate adverse effect on the setting of the Alexandra Road Estate as a result of construction of the Alexandra Place ventilation shaft.
- 5.2.11 The construction of the Alexandra Place vent shaft will require the removal of the concrete ramp and planter, which form the pedestrian walkway between the Alexandra Road Estate and Loudoun Road. The concrete ramp and planter is considered part of the curtilage of the Grade II* Alexandra Road Estate (asset reference: PRM021), an asset of high value, and its removal will constitute a partial demolition. The loss of the ramp and planter, which constitutes a low impact, will result in a different permanent moderate adverse effect on the Alexandra Road Estate as a result of physical impacts to the asset.

Effects arising during operation

- 5.2.12 No operational effects on cultural heritage were reported in the main ES.
- 5.2.13 The removal of the concrete ramp and planter 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

- 5.2.14 The assessment of the amendment has assumed that the general measures detailed in Section 8 of the draft CoCP (Volume 5: Appendix CT-003-000) in the main ES will be implemented. This includes a programme of built heritage works which will be prepared to investigate, analyse, report and archive the asset.
- 5.2.15 The concrete ramp and planter has been established as being part of the Grade II* Alexandra Road Estate (asset reference: PRM021), and as such, its loss will constitute a different residual significant effect on this asset.

Cumulative effects

- 5.2.16 There are no new or different likely significant cumulative effects for cultural heritage as a result of the proposed amendment acting in combination with another amendment in AP3, or as a result of any relevant committed development interacting with the AP3 revised scheme.

5.3 Additional land required for extension of lorry holding area and replacement parking, Regent's Park (AP3-001-006)

- 5.3.1 The original scheme identified an off-site lorry holding area at the ZSL London Zoo coach park in Regent's Park, located within CFA1, immediately north of Gloucester Gate Bridge. It will be used for approximately 10 years (refer to the main ES, Volume 2, CFA3 Map Book: Map CT-05-003b). The effects in CFA1 are reported in the SES2 and AP3 ES, Volume 2, CFA1 report. Only the effects that occur in CFA3 are reported here.
- 5.3.2 Since submission of the Bill, there has become a requirement to replace the parking available to ZSL London Zoo coach park during the period when the lorry holding area is being used, which will be throughout the construction of the AP3 revised scheme at Euston, between 2017 and 2033. This replacement parking is to be located by agreement with the Crown Estate, within CFA1 in a currently vegetated area to the south of the existing car park (refer to the SES2 and AP3 ES Volume 2, CFA3 Map Book: Maps CT-05-003b, CT-05-005, CT-05-006a and CT-05-006a). The area will be used between 2017 and 2033, after which it will be replanted and returned to its previous use. This additional land required is outside the existing limits of the Bill, hence the need for this amendment.
- 5.3.3 The additional land required for extension of lorry holding area and replacement parking, is not considered to make changes that require a reassessment of the environmental effects in CFA3 or proposed mitigation as set out in the main ES for: agriculture, forestry and soils; air quality; community; cultural heritage; ecology; land quality; socio-economics; sound, noise and vibration; traffic and transport; and water

resources and flood risk assessment. However there were changes where reassessment was considered to be required for landscape and visual assessment.

Landscape and visual assessment

Scope, assumptions and limitations

- 5.3.4 The assessment scope, key assumptions and limitations for the landscape and visual assessment are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES. An update to the methodology for the landscape and visual assessment is also described in Volume 1 of the AP1 ES.

Existing baseline

- 5.3.5 A summary of the baseline information in the main ES relevant to the assessment of the amendment is provided below. Further details are provided in the main ES Volume 2, CFA3 Report: Section 9 and Volume 5: Appendix LV-001-002.
- 5.3.6 The area of land required is located in CFA1 but will affect the Eton and Primrose Hill Residential LCA in CFA3 which is described in the main ES, Volume 2, CFA3 Report: Section 9.
- 5.3.7 A new viewpoint has been identified for this assessment: Viewpoint 003 .2.012: View south from Prince Albert Road. This represents the view from dwellings on Prince Albert Road. The foreground of this view comprises the road with the London Zoo car park visible in the middle ground beyond, over a tree-lined grass margin. In the background are trees growing on a wide grass strip on the south-western side of the car park and in Regent's Park.

Future baseline

Construction (2017)

- 5.3.8 The future baseline for construction in 2017 remains unchanged from that reported in the main ES.

Operation (2026)

- 5.3.9 The future baseline for operation in 2026 remains unchanged from that reported in the main ES.

Effects arising during construction

Landscape assessment

- 5.3.10 The main ES reported a moderate adverse significant effect on the Eton and Primrose Hill Residential LCA due to the construction of the Adelaide Road vent shaft and headhouse within the LCA and the construction of the HS1-HS2 Link tunnel portal and headhouse on the site of the former Primrose Hill Station adjacent to the LCA in CFA2. The HS1- HS2 Link will be removed from the scheme but the Adelaide Road vent shaft and headhouse will remain part of the scheme, hence the LCA will be remain significantly affected.
- 5.3.11 The construction of car parking for London Zoo will result in the removal of trees and the introduction of construction activity in the neighbouring LCA but near to the

south-western boundary of the Eton and Primrose Hill Residential LCA. There will be a small increase in activity due to the construction of parking for London Zoo; however the change resulting from the amendment is small scale in comparison with the other elements of the scheme taking place at Adelaide Road. Consequently, the amendment will not give rise to new or different significant effects or change the level of significance of the effects reported in the main ES.

Visual assessment

- 5.3.12 The construction of car parking for London Zoo will result in the removal of trees and the introduction of construction activity near to the new Viewpoint 003.2.012: View south from Prince Albert Road. Views of the works will be filtered by intervening vegetation along Prince Albert Road. There will be no effect on Viewpoint 003.4.009: View south from Parkway because the construction works on the car park will be screened from Parkway by intervening buildings and vegetation.
- 5.3.13 The construction of the car parking for London Zoo will result in a low magnitude of change to the view from Viewpoint 003.2.012: view south from Prince Albert Road. The low magnitude of change assessed alongside the high sensitivity of the receptor will result in a minor adverse effect, which is not significant.

Effects arising from operation

Landscape assessment

- 5.3.14 The main ES reported a moderate adverse, significant effect on the Eton and Primrose Hill Residential LCA due to the presence of the Adelaide Road vent shaft and head house in the LCA. This will remain significant in year 15 of operation, reducing to non-significant by year 60. The additional parking area will be used between 2017 and 2033, after which it will be replanted and returned to its previous use. The removal of trees from the adjoining LCA will result in the loss of features which contribute to the setting of the Eton and Primrose Hill Residential LCA, but this change will affect a very small part of the LCA. Consequently, the amendment will not give rise to a new or different significant operational effect on the LCA and will not change the level of significance of the effects reported in the main ES.

Visual assessment

- 5.3.15 The loss of trees from the site of the car park will not be apparent from the new Viewpoint 003.2.012: view south from Prince Albert Road or Viewpoint 003.4.009: view south from Parkway because the car park will be partially or fully screened by intervening vegetation along Prince Albert Road and by intervening buildings.
- 5.3.16 The amendment will not give rise to a new or different significant operational effect on visual receptors and will not change the level of significance of the effects reported in the main ES.

Mitigation and residual effects

- 5.3.17 No additional mitigation measures to those identified in the main ES are required.
- 5.3.18 No new or different residual effects occur as a consequence of the amendment. The significant residual effects of the AP3 revised scheme in this area are therefore unchanged from those reported in the main ES.

Cumulative effects

- 5.3.19 There are no new or different likely significant cumulative effects for landscape and visual as a result of the proposed amendment acting in combination with another amendment in AP3, or as a result of any relevant committed development interacting with the AP3 revised scheme.

6 Combined effects of amendments in this CFA due to changes in traffic flows

- 6.1.1 All of the effects of the changes proposed in this CFA have been described in Section 3 and there are no further combined effects to report.

HIGH SPEED RAIL (LONDON - WEST MIDLANDS)

Supplementary Environmental Statement 2 and
Additional Provision 3 Environmental Statement

Volume 2 | Community forum area reports
CFA4 | Kilburn (Brent) to Old Oak Common

Contents

Structure of the HS2 Supplementary Environmental Statement 2 and Additional Provision 3 Environmental Statement	1
Structure of this report	3
1 Introduction	4
Part 1: Supplementary Environmental Statement 2	6
2 Summary of changes	6
2.1 Changes to the design or to construction assumptions not requiring a change to the Bill	6
2.2 Updates to transport models	7
2.3 Corrections to the main ES	7
2.4 Topics included in the SES2 assessment	8
3 Assessment of changes	9
3.1 Air quality	9
3.2 Sound, noise and vibration	13
3.3 Traffic and transport	15
Part 2: Additional Provision 3 Environmental Statement	24
List of tables	
Table 1: Scheme definitions	4
Table 2: Summary of corrections to the main ES in CFA4	7
Table 3: Old Oak Common station 2026 AM peak hour rail to rail interchange and station exit/access passenger flows	19
Table 4: Old Oak Common station 2041 AM peak hour rail to rail interchange and station exit/access passenger flows	19
Table 5: Old Oak Common station person trips by mode (2-way)	20

Structure of the HS2 Supplementary Environmental Statement 2 and Additional Provision 3 Environmental Statement

The Supplementary Environmental Statement 2 (SES2) and Additional Provision 3 Environmental Statement (AP3 ES) comprises:

- non-technical summary (NTS). This provides a summary in non-technical language of the SES2 (Part 1) and AP3 ES (Part 2) and of the likely significant environmental effects, both beneficial and adverse, including those which are new or different to those reported in the High Speed Two (HS2) Phase One Environmental Statement (ES) submitted to Parliament in November 2013 in support of the hybrid Bill ('the Bill') for Phase One of HS2 (hereafter referred to as 'the main ES'). In the case of community forum areas (CFAs) 4 and 5 and relevant route-wide effects, account is also taken of the Supplementary Environmental Statement (SES) and Additional Provision 2 Environmental Statement (AP2 ES) submitted in July 2015;
- Volume 1: introduction to the SES2 and AP3 ES. This introduces the supplementary environmental information and design changes included within 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;
- Volume 2: CFA reports and map books. It should be noted that the structure of the CFA reports within Volume 2 vary as follows:
 - CFA1 is split into two parts. Part 1 comprises the SES2 for the Euston station and approach area. Part 2 describes the amendments requiring additional provisions in 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 for Euston, including a comparison with the original scheme described in the main ES, and 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 Euston station and approach area, whether or not these are different likely significant environmental effects from those reported in the main ES. This assessment includes the effects of the amendments to the Bill. It should be noted that the SES2 and AP3 ES Volume 2 CFA1 report therefore 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 in CFAs 1-3 compared to those reported in the main ES; and

- 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 reports new or different likely significant route-wide effects arising from the supplementary environmental information 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 environmental information and associated maps in support of the CFA sections of Volume 2; 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.

In the main ES, Volume 4 presented an assessment of the likely significant environmental effects that will occur in locations away from the route (i.e. outside the CFAs). As none of the SES2 changes or AP3 amendments relate to off-route areas, off-route effects have been scoped out of the assessment. Consequently, the SES2 and AP3 ES does not contain a Volume 4.

Structure of this report

This volume of the SES2 and AP3 ES is divided into CFA reports, which are in turn divided into two parts.

Part 1 provides supplementary environmental information relating to:

- changes to the design or to construction assumptions which do not require changes to the Bill;
- updates to transport models; and
- corrections to the ES reports.

Part 1 of each CFA report includes, where relevant:

- a description of the changes or updates within the CFA that have triggered the need for reassessment;
- an assessment of the environmental effects of the changes for relevant environmental topics considering the:
 - scope, assumptions and limitations of the SES2 assessment;
 - changes of relevance to the assessment;
 - environmental baseline;
 - effects arising during construction;
 - effects arising from operation; and
 - mitigation and residual effects; and
- a summary of any new or different likely residual significant effects as a result of the changes.

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. There are no amendments proposed in this CFA.

1 Introduction

1.1.1 The Bill for High Speed Rail between London and the West Midlands was submitted to Parliament together with the main ES in November 2013. The SES and AP2 ES (submitted in July 2015) updated the main ES and contained a number of further changes and amendments to the design of the original scheme in CFAs 4–26. The SES2 and AP3 ES contains further updates to the main ES and assesses a number of changes and amendments to the design of the original scheme in CFAs 1–5.

1.1.2 The Bill and associated Additional Provisions (APs) to the Bill, if enacted by Parliament, will provide the powers to construct, operate and maintain Phase One of HS2.

1.1.3 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 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

1.1.4 SES2 (Part 1 of this report) includes:

- the use of a construction compound for a longer period;
- an update to the West London Highway Assignment Model (WeLHAM) and Railplan public transport models that relate to construction and operation; and
- corrections to the main ES.

1.1.5 The changes are described in Part 1 under a series of sub-headings and assessed on a topic by topic basis using the same approach adopted in the main ES.

1.1.6 The purpose of the SES2 for this CFA report is to provide an assessment of any new or different likely significant environmental effects arising from the changes described compared to the SES scheme taking into account any AP2 amendments where relevant.

1.1.7 There are no amendments to the design of the scheme proposed within CFA4 that will require the use of land outside the original limits of the Bill, additional access rights, or

other extensions to the powers conferred by the Bill, making it necessary to submit an AP to the Bill.

1.1.8 There are also no combined effects due to changes in traffic flows to be reported.

1.1.9 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 (CoCP) submitted in support of the Bill. Implementation of these measures has been assumed in this SES2 and AP3 ES.

Part 1: Supplementary Environmental Statement 2

2 Summary of changes

2.1 Changes to the design or to construction assumptions not requiring a change to the Bill

2.1.1 There are no such changes in the Kilburn (Brent) to Old Oak Common CFA4 that result in a new or different significant effect.

Changes to the design or to construction assumptions in other CFAs affecting this CFA

2.1.2 The revised design of Euston station within CFA1 affects CFA4.

2.1.3 The high speed station at Euston will be constructed in two stages, the first to allow operation of HS2 Phase One services to commence in 2026 (following the completion of construction Stage A 2017-2026) and the second to provide additional platforms to allow for growth in services and to allow HS2 Phase Two services to commence in 2033 (following the completion of construction Stage B1 2026 - 2033).

2.1.4 For a full description of the revised design of Euston station, refer to Part 1B of the CFA1 report in Volume 2 of the SES2 and AP3 ES (SES2-001-001).

2.1.5 As a consequence of the changes to Euston there are changes to the use of the Willesden Euroterminal main compound in CFA4, changes to construction traffic in CFA4 related to Euston construction works and impacts on the passenger use of Old Oak Common station.

2.1.6 In the original scheme, the Willesden Euroterminal main compound was expected to be operational for approximately seven years and six months, starting in 2016.

2.1.7 In the SES2 scheme, the Willesden Euroterminal main compound will be operational for approximately 17 years, to support conventional railway works in the Euston area, periodically from 2016 to 2033. See Part 1B of the SES2 and AP3 ES, Volume 2, CFA1 report (SES2-001-001) for more information about this compound and details of construction activities.

2.1.8 The compound will be used to support conventional rail modification works at Euston from 2026 to 2033. This will be after this compound has been used to support construction in CFA4 as described in the main ES and the SES and AP2 ES. This change is not considered to require a reassessment of the environmental effects or proposed mitigation as set out in the main ES and SES and AP2 ES with respect to any environmental topics.

2.1.9 Some construction traffic related to the construction of Euston station uses roads within CFA4 and changes arising from the revised design have the potential to affect CFA4.

- 2.1.10 The revised Euston station will also affect the proportion and numbers of passengers using Old Oak Common station and consequently has the potential to change the significant effects in CFA4 of operation of the Old Oak Common station. This includes changes to the numbers of cars and taxis using the station and consequent highway impacts.

2.2 Updates to transport models

- 2.2.1 The assessment of the traffic and transport effects of the SES2 changes within CFAs 4–5 require updated traffic and public transport modelling. The highway traffic model base used for the main ES was the 2012 WeLHAM, 2012 Central London Highway Assignment Model (CLoHAM) and the 2012 Railplan public transport model, developed by Transport for London (TfL). However, since 2013 there have been major revisions to the WeLHAM, CLoHAM and Railplan models by TfL and HS2 Ltd to provide improved forecasting capabilities. These revised models have been used to provide updated baselines and the assessment of the SES2 scheme.
- 2.2.2 The results of this assessment of the SES2 scheme for this CFA are reported where they result in new or different significant effects.
- 2.2.3 The results from the revised models have also been used in the assessment of any consequential effects on the traffic related topics including: air quality; and sound, noise and vibration.

2.3 Corrections to the main ES

- 2.3.1 Since submission of the Bill, the need for a number of corrections in the contents of the main ES has been identified. Table 2 provides a list of those instances where there has been a need to correct the Volume 2 CFA report for Kilburn (Brent) to Old Oak Common area (CFA4) because of the potential to alter the significant environmental effects reported in the main ES or a factual inaccuracy relating to significant effects has been identified. The table gives the location of 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 SES.

Table 2: Summary of corrections to the main ES in CFA4

Reference in the main ES	Reason for correction	Text in the main ES	Revised text	Change to significant effects
Traffic and transport Volume 2, CFA4, 12.5.11	Correction to car and taxi numbers in operation at Old Oak Common station. Since submission of the main ES, it has been identified that the number of two-way car and taxi trips associated with the operation of Old Oak Common station was incorrectly estimated.	In 2041, these passengers are forecast to generate around 300 two-way vehicle flows in the morning peak hour.	In this SES2 assessment this is corrected to 400 two-way vehicle trips, although this is the result of a combination of SES2 changes.	Yes, in combination with other SES2 changes and detailed in Section 3.

2.4 Topics included in the SES2 assessment

- 2.4.1 The changes described above in Sections 2.1 to 2.3 above result in new or different significant effects in respect of: air quality; sound, noise and vibration, and traffic and transport.

3 Assessment of changes

3.1 Air quality

Introduction

- 3.1.1 This section of the report describes the environmental baseline in relation to air quality that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the SES scheme, taking into account any relevant AP2 amendments.

Scope, assumptions and limitations

- 3.1.2 The assessment scope, key assumptions and limitations for the air quality assessment are as set out in the SMR Addendum 3 (Appendix CT-001-000/4) of the SES2 and AP3 ES.
- 3.1.3 Environmental Protection UK (EPUK)¹ and the Institute of Air Quality Management (IAQM) have issued new guidance (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.
- 3.1.4 Use of the approach to assess significance from the revised IAQM/EPUK guidance in the air quality assessments for the SES2 and AP3 ES rather than the previous HS2 air quality methodology is likely to 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 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.
- 3.1.5 This outcome is more likely for receptors where the baseline NO₂ concentration is in excess of the air quality standard value, which is 40µg/m³.
- 3.1.6 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 the Volume 5 Appendix, for annual NO₂, annual mean PM₁₀ and 24 hour PM₁₀.
- 3.1.7 The assessment of traffic emissions in the SES2 scheme during construction of Euston station has used traffic data that are based on an estimate of the average daily flows in peak months during four distinct scenarios, three of which occur during Stage A construction (2017-2026) and one during Stage B1 construction (2026 to 2033). These

¹ Environmental Protection UK is a national charity that provides expert policy analysis and advice on air quality, land quality, waste and noise and their effects on people and communities in terms of a wide range of issues including public health, planning, transport, energy and climate.

scenarios are detailed in Volume 2, CFA1. The construction scenarios assessed represent peak vehicle movements, following a conservative approach. The full results are presented in the SES2 and AP3 ES, Volume 5: Appendix AQ-001-004.

- 3.1.8 The assessment of traffic emissions during operation has assessed an estimate of the average daily flows for one scenario, in the operation year 2026.

SES2 changes of relevance to this assessment

- 3.1.9 The changes that are relevant to this assessment are:

- the revised design of Euston Station described in CFA1 (SES2-001-001); and
- the consequential use of the revised WeLHAM, CLoHAM and Railplan transport models.

Environmental baseline

Existing baseline

- 3.1.10 The baseline air quality information for the Kilburn (Brent) to Old Oak Common area is described in the main ES, Volume 2, CFA4 report: Section 4 and Volume 5: Appendix AQ-001-004. Details of the assessed receptors are provided within the SES2 and AP3 ES, Volume 5: Appendix AQ-001-004.

Future baseline

Construction (2017 - 2026)

- 3.1.11 The future baseline for construction in 2017 has been updated to reflect updates in the Department for Environment, Food and Rural Affairs (Defra) maps and changes in vehicle emission rates.
- 3.1.12 SES2 and AP3 ES Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES.

Operation (2026)

- 3.1.13 The future baseline for construction and operation in 2026 has been updated to reflect updates in the Defra maps and changes in vehicle emission factors.

Effects arising during construction

- 3.1.14 The SES and AP2 ES describes the effects arising from construction for air quality (refer to the SES and the AP2 ES, Volume 2, CFA4 report: Section 3.1). There are also changes to traffic flows during construction arising from SES2 changes at Euston and these will have air quality impacts for some receptors assessed in CFA4, which are identified in SES2 and AP3 ES, Volume 5: AQ-001-004.
- 3.1.15 The SES2 scheme results in one new significant adverse effect for NO₂ at an assessed receptor on Edgware Road, at its northern end.

Avoidance and mitigation measures

- 3.1.16 The assessment of construction impacts has incorporated HS2 Ltd's policy on the type of heavy goods vehicles (HGVs) to be used, which states: "In order to help mitigate

impacts on local air quality, in areas where there is action in place to meet EU limit values through the introduction of Low Emission Zones (such as the London Low Emission Zone), the Nominated Undertaker 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". Euro VI engines are required to have substantially lower emissions of NO_x and particulate matter than older engines.

Assessment of impacts and effects

Temporary effects

- 3.1.17 There are changes to traffic flows during construction arising from SES2 changes at Euston and these will have air quality impacts for some receptors assessed in CFA4. New or different significant effects arise during construction Stage A only (2017-2026), these are identified in SES2 and AP3 ES, Volume 5: AQ-001-004.
- 3.1.18 The SES2 changes are anticipated to result in one new significant adverse effect for NO₂, compared to those reported in the main ES, at an assessed receptor on Edgware Road, at the junction with Blomfield Road. It should be noted that this new significant effect is reported due to the change in methodology for describing impacts, as described in Volume 1 and paragraph 3.1.3 of this report. Using the approach for describing impacts in the main ES, this effect would not be considered significant.
- 3.1.19 The SES2 changes are also anticipated to result in the removal of significant effects for NO₂ compared to those reported in the main ES, at two further assessed receptors on Edgware Road.
- 3.1.20 The assessment does not result in new or different significant effects for PM₁₀.

Permanent effects

- 3.1.21 The changes do not generate any new or different significant permanent effects.

Other mitigation measures

- 3.1.22 No other mitigation measures are proposed.

Cumulative effects

- 3.1.23 There are no new or different likely significant cumulative effects for air quality as a result of any SES2 changes acting in combination with each other, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

- 3.1.24 The assessment results in one new significant adverse effect for NO₂, compared to those reported in the main ES, at an assessed receptor on Edgware Road. However, this effect is determined as significant as a result of the change in methodology for describing impacts. The assessment also results in the removal of significant adverse effects for NO₂ compared to those reported in the main ES, at two assessed receptors on Edgware Road.

Effects arising during operation

Avoidance and mitigation measures

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

Assessment of impacts and effects

- 3.1.26 Examination of the changes in traffic flows along the affected roads has identified some areas that meet the criteria for a more detailed assessment, as set out in the SMR Addendum 3 (Volume 5: Appendix CT-001-000/4) of the SES2 and AP3 ES.
- 3.1.27 The main ES reported significant adverse effects on NO₂ concentrations for assessed receptors on Old Oak Lane, between the junctions with Channel Gate Road and Atlas Road. The changes in traffic flows associated with the use of Old Oak Common station and the change in baseline flows in SES2 will remove these significant effects on air quality.
- 3.1.28 The SES2 changes are anticipated to result in new significant adverse effects for NO₂ at two assessed receptors on Old Oak Common Lane at the junction with Long Drive.
- 3.1.29 The SES2 changes are not anticipated to result in new or different significant effects for PM₁₀.
- 3.1.30 Details of all the predicted effects are presented in the SES2 and AP3 ES, Volume 5: AQ-001-004.

Other mitigation measures

- 3.1.31 No other mitigation measures are proposed.

Cumulative effects

- 3.1.32 There are no new or different likely significant cumulative effects for air quality as a result of the SES2 changes acting in combination with each other or with any AP2 amendments, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

- 3.1.33 New residual significant adverse effects are likely for some receptors on roads affected by the SES2 scheme during operation. These are at the junction of Old Oak Common Lane and Long Drive.
- 3.1.34 Residual significant adverse effects are predicted to be removed for receptors on Old Oak Lane, between the junctions with Channel Gate Road and Atlas Road.

3.2 Sound, noise and vibration

Introduction

- 3.2.1 This section of the report describes the environmental baseline in relation to sound, noise and vibration that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the SES scheme, taking into account any relevant AP2 amendments.

Scope, assumptions and limitations

- 3.2.2 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 3.2.3 Local assumptions and limitations for sound, noise and vibration are set out in main ES Volume 2, CFA4 report: Section 11.

SES2 changes of relevance to this assessment

- 3.2.4 The changes that are relevant to this assessment are:
- the revised design of Euston station described in CFA1 of the SES2 and AP3 ES (SES2-001-001); and
 - the consequential use of the revised WeLHAM, CLoHAM and Railplan transport models.

Environmental baseline

Existing baseline

- 3.2.5 The baseline traffic information has been updated since the main ES; further information can be found in the Traffic and transport section (Section 3.3).
- 3.2.6 In other respects, the baseline sound, noise and vibration information for CFA4 Kilburn (Brent) to Old Oak Common will not change as a result of the SES2 changes. The baseline is described in the main ES, Volume 2, CFA4 report: Section 11 and SES and AP2 ES, Volume 2, CFA4 report: Section 3. Baseline sound levels representative of the assessment locations affected by the SES2 scheme have been used in the construction and operational sound, noise and vibration assessments.

Future baseline

Construction (2017)

- 3.2.7 The future baseline for construction in 2017 remains unchanged from that reported in the SES and AP2 ES (Volume 2, CFA4, Section 3).
- 3.2.8 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2017, additional to those identified in the main ES.
- 3.2.9 None of the identified developments affect the assessment of the SES2 scheme's likely construction impacts on sound, noise and vibration.

Operation (2026)

- 3.2.10 The future baseline for operation post 2026 is described in the SES and AP2 ES (Volume 2, CFA4 report: Section 3).
- 3.2.11 Volume 5: Appendix CT-004-000 provides details of the developments which are assumed to have been implemented by 2026, additional to those identified in the main ES.
- 3.2.12 None of the identified developments affect the assessment of the SES2 scheme's likely construction impacts on sound, noise and vibration.

Effects arising during construction

- 3.2.13 The SES and AP2 ES describes the effects arising from construction for sound, noise and vibration (refer to the SES and AP2 ES, Volume 2, CFA4 report: Section 3.3).
- 3.2.14 The SES2 scheme does not result in any new or different significant construction effects for sound, noise and vibration.

Effects arising from operation

Avoidance and mitigation measures

- 3.2.15 No mitigation measures in addition to those reported in the main ES are required.

Assessment of impacts and effects

- 3.2.16 The main ES and SES and AP2 ES did not identify any significant operational sound, noise or vibration effects in this CFA.
- 3.2.17 The SES2 scheme alters the baseline road traffic flow and composition, which in turn has the potential to alter the indirect operational airborne noise assessment presented in the main ES.
- 3.2.18 An assessment has been undertaken to determine whether operational noise levels from the SES2 scheme would result in a likely significant effect, using the significance criteria detailed in the main ES (Volume 5: Appendix SV-001-000).
- 3.2.19 Changes in road traffic (associated with operation of Old Oak Common station) due to the SES2 scheme are predicted to cause adverse noise effects along the following local roads:
- Old Oak Common Lane, between Victoria Road and the new Old Oak Common station access, increased road traffic noise levels of approximately 3-5dB; and
 - Old Oak Common Lane, between the new Old Oak Common station access and Wells House Road, increased road traffic noise levels of approximately 1-2dB.
- 3.2.20 The closest residential properties to the section of Old Oak Common Lane between Victoria Road and Old Oak Common station access, are located on Old Oak Lane and Shaftsbury Gardens. At these properties the baseline noise level is controlled by traffic noise from Victoria Road or Old Oak Lane, and other non-road traffic sources, with a much smaller contribution from Old Oak Common Lane, and therefore, the full

magnitude of the predicted noise level changes are unlikely to occur at these residential receptors. Non-residential receptors along these roads are not known to be noise sensitive.

- 3.2.21 Considering the unsubstantial contribution from Old Oak Common Lane traffic to the baseline noise levels and the magnitude of change at the residential properties, the changes in road traffic noise levels are unlikely to affect the acoustic character of the area such that there is a perceived adverse change in the quality of life. The effects are consequently not considered significant when assessed on a community basis taking account of the local context.
- 3.2.22 The assessment of operational noise and vibration indicates that significant indirect effects on residential receptors are unlikely to occur in this area.
- 3.2.23 The SES2 scheme does not alter the predicted operational ground-borne noise or vibration levels presented in the main ES, or SES and AP2 ES.

Other mitigation measures

- 3.2.24 No other mitigation measures in addition to those identified in the main ES are required.

Cumulative effects

- 3.2.25 There are no new or different likely significant cumulative effects for sound, noise and vibration as a result of any SES2 changes acting in combination with each other, or with any AP2 amendments, or as a result of any relevant committed development interacting with the SES2 scheme.

Summary of likely residual significant effects

- 3.2.26 No residual significant effects during operation were reported in the main ES relating to sound, noise and vibration. The SES2 scheme will not give rise to any new residual significant effects during operation.

3.3 Traffic and transport

Introduction

- 3.3.1 This section of the report describes the environmental baseline in relation to traffic and transport that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the SES scheme, taking into account any relevant AP2 amendments.

Scope, assumptions and limitations

- 3.3.2 The assessment scope, key assumptions and limitations for the traffic and transport assessment are as set out Volume 1, the SMR (Appendix CT-001-000/1), the SMR Addendum (Appendix CT-001-000/2) of the main ES, and the SMR Addendum 3 (Appendix CT-001-000/4) of the SES2 and AP3 ES.

SES2 changes of relevance to this assessment

3.3.4 The changes that are relevant to this assessment are:

- the revised design of Euston station described in CFA1 of the SES2 and AP3 ES (SES2-001-001);
- corrections to car and taxi numbers in operation at Old Oak Common station; and
- the consequential use of revised WeLHAM, CLoHAM, and Railplan transport models.

3.3.5 The assessment of construction in CFA4 and its effects were addressed in AP2 (SES and AP2 ES, Volume 2, CFA4 report). There is, however, the potential for construction traffic associated with the construction of Euston station to affect CFA4. The changes to Euston potentially also affect passenger use of Old Oak Common station and, in particular, the numbers of users going to and from the station in the wider area.

Environmental baseline

Existing baseline

3.3.6 The baseline traffic and transport information for Kilburn (Brent) to Old Oak Common is as described in the main ES (Volume 2, CFA4 report: Section 12) as updated by the revised WeLHAM model in the SES and AP2 ES. The revised Railplan model provides a further update for public transport, which is reported in the SES2 and AP3 ES, Volume 5: Appendix TR-001-000.

3.3.7 Since the submission of the main ES, the London Borough of Ealing (LBE) has replaced the signalised junction at the Victoria Road/Atlas Road junction with a non-signalised roundabout.

Future baseline

Construction

3.3.8 The future baseline for construction is as described in the main ES, Volume 2, CFA4 report: Section 12, as updated in the SES and AP2 ES. No other changes to the traffic and transport future baseline are anticipated in the study area.

Operation (2026 and 2041)

3.3.9 The future baseline for operation is as described in the main ES, Volume 2, CFA4 report: Section 12, as updated in the SES and AP2 ES. In addition, the revised Railplan model provides a further update for public transport. No other changes to the traffic and transport future baseline are anticipated in the study area.

Effects arising during construction

Avoidance and mitigation measures

3.3.10 Avoidance and mitigation measures are as set out in Volume 2, CFA4 report: Section 12 of the main ES.

- 3.3.11 The main ES proposed the widening of a signalised junction at the Victoria Road/Atlas Road junction. Since the submission of the main ES, LBE has replaced this junction with a non-signalised roundabout. To mitigate the effects on congestion, in both construction and operation, the original scheme proposal will be implemented, which will replace this roundabout.

Assessment of impacts and effects

Temporary effects

- 3.3.12 Changes to the temporary traffic and transport impacts within CFA4 are principally due to construction vehicle movements to and from Euston station. In the busiest month, there are estimated to be a total of approximately 800 combined two-way vehicle movements per day resulting from the works at Euston with some impacts on roads in this CFA.
- 3.3.13 Some of the construction routes for Euston pass through CFA4 and have the potential to result in new or different significant effects.
- 3.3.14 The Euston HS2 station will be constructed in two stages. Stage A provides the initial high speed station to enable HS2 Phase One services to commence in 2026. Stage B1 will complete the high speed station and provide the additional platforms to enable HS2 Phase Two services to be introduced.
- 3.3.15 In order to assess the different combinations of advanced works, utility diversions and construction lorry movements through the construction period for Euston station (CFA1), the effects have been considered for four distinct temporal phases or scenarios, three of which occur during Stage A construction (2016-2026) and one during Stage B1 construction and operation of HS2 Phase One (2026 to 2033). These scenarios address the impacts of the range and combination of activities associated with the construction of Euston high speed station. These are detailed in Volume 2, CFA1 of the SES2 and AP3 ES (SES2-001-001). The assessment has considered each of these scenarios separately, which can result in different effects on the same roads in different scenarios.
- 3.3.16 During Stage A construction (2017-2026), changes in traffic flows are expected to lead to new significant effects in CFA4 in relation to traffic related severance for non-motorised users in the following locations:
- Randolph Avenue – all traffic (minor adverse significant effect);
 - Lanark Road – all traffic (moderate adverse significant effect); and
 - A5 Edgware Road – HGVs only (moderate beneficial significant effect).
- 3.3.17 During construction of Stage B1 (2026 to 2033) in combination with operation of HS2 Phase One services, changes in traffic flows are expected to lead to new significant effects in relation to traffic related severance for non-motorised users in the following locations:
- B413 Clifton Gardens/Formosa Street/Shirland Road/Warwick Avenue, major adverse significant effect in PM peak; and
 - Sutherland Avenue, moderate adverse significant effect in PM peak.

Permanent effects

- 3.3.18 Any permanent effects of construction have been considered in the operations section.

Other mitigation measures

- 3.3.19 No additional mitigation measures are required.

Cumulative effects

- 3.3.20 Cumulative effects are reported in Volume 2, CFA4 report: Section 12 of the main ES. The above assessment has taken into account these cumulative effects, including planned development by taking account of background traffic growth, as well as traffic and transport impacts of works being undertaken in other areas.

Summary of likely residual significant effects

- 3.3.21 Compared to the main ES, changes in traffic as a result of the construction of Euston station results in new significant residual effects in relation to traffic related severance for non-motorised users. There are adverse significant effects at Randolph Avenue, Lanark Road, Sutherland Avenue and B413 Clifton Gardens/Formosa Street/Shirland Road/Warwick Avenue and a reduction in traffic severance for non-motorised users at A5 Edgware Road.
- 3.3.22 The significant effects that result from construction of the SES2 scheme are shown in the SES2 and AP3 ES Volume 5 Map Book: CFA 4 Maps TR-03-005-L1, TR-03-005, TR-03-004b and TR-03-004b-L1.

Effects arising from operation

Avoidance and mitigation measures

- 3.3.23 The main ES proposed the widening of a signalised junction at the Victoria Road/Atlas Road junction. Since the submission of the main ES, LBE has replaced this junction with a non-signalised roundabout. To mitigate the effects on congestion, in both construction and operation, the original scheme proposal will be implemented, which will replace this roundabout.
- 3.3.24 No additional avoidance and mitigation measures are proposed other than those reported in the main ES.

Assessment of impacts and effects

- 3.3.25 The following section considers the impacts on traffic and transport and the consequential effects resulting from the operational phase of the SES2 scheme.
- 3.3.26 The proposed station and facilities at Old Oak Common are unchanged, but with the changes at Euston and the new baseline data, there are changes to the number of users of Old Oak Common station. Compared to the main ES, the removal of the HS2-HS1 Link also removes the associated HS1 users that were forecast to use Old Oak Common station.
- 3.3.27 Table 3 and Table 4 show the number of users (excluding car and taxi access trips) expected at Old Oak Common station in 2026 (Phase One) and 2041 (Phase Two).

SES2 and AP3 ES Volume 2 – CFA4, Kilburn (Brent) to Old Oak Common

Table 3: Old Oak Common station 2026 AM peak hour rail to rail interchange and station exit/access passenger flows

Departure route	Crossrail and GWML local services	GWML fast Services	HS2	Station exit (bus and walk)	Totals
Arrival Route					
Crossrail and GWML local services	580	2,009	1,283	614	4,485
GWML fast services	6,733	59	355	191	7,338
HS2	1,552	297	0	71	1,919
Station access (bus and walk)	796	90	334	0	1,219
Totals	9,660	2,455	1,971	876	14,961

Table 4: Old Oak Common station 2041 AM peak hour rail to rail interchange and station exit/access passenger flows

Departure route	Crossrail and GWML local services	GWML fast Services	HS2	Station exit (bus and walk)	Totals
Arrival Route					
Crossrail and GWML local services	667	2,181	2,349	534	5,731
GWML fast services	6,886	70	876	187	8,019
HS2	2,613	788	0	166	3,567
Station access (bus and walk)	768	117	578	0	1,463
Totals	10,934	3,155	3,803	887	18,779

- 3.3.28 The number of users for the station changes with the SES2 scheme. The total number of station users for all services at the station in the 2026 AM peak hour has reduced to just under 15,000 for the SES2 scheme compared to just under 18,000 reported in the main ES. For the 2041 AM peak hour the number of station users has reduced from just under 24,000 as reported in the main ES to just under 19,000 in the SES2 scheme.
- 3.3.29 HS2 passenger arrivals reduce from 3,093 in 2026 and 4,793 in 2041 in the main ES to 1,919 and 3,567 respectively with the SES2 scheme. HS2 passenger departures similarly reduce from 2,115 in 2026 and 4,108 in 2041 in the main ES to 1,971 and 3,803 respectively with the SES2 scheme.
- 3.3.30 The tables also illustrate the patterns of interchange through the station in the AM peak. Total arrivals on HS2 services account for under 15% of users of the station in both 2026 and 2041, with departures on HS2 services some 19% of total departures in 2026 increasing to 21% in 2041. Users of Great Western main Line (GWML) fast services make up some 49% of arrivals in 2026 and 42% in 2041 and 17% of departures. There is a high level of interchange between GWML services and Crossrail

because Old Oak Common station provides an easy and convenient link between the two. This will in turn reduce pressure on Paddington station.

- 3.3.31 Table 5 sets out the number of passengers expected to access the station and their mode of access for 2026 and 2041.

Table 5: Old Oak Common station person trips by mode (2-way)

Demand/mode	2026 Phase One	2041 Phase Two
	AM peak hour	AM peak hour
	Combined boarders and alighters	Combined boarders and alighters (mode share % 2041)
Approximate total passengers through front door	2,370	2,660 (100 %)
Car (short-stay parking)	<15	<15 (0.5 %)
Taxi	100	110 (4.0 %)
Motorcycle	40	40 (1.5 %)
Bus	1,140	1,280 (48.0 %)
Walk/cycle	930	1,040 (39.0 %)
Kiss-and-ride	170	190 (7.0 %)
Total by vehicle (person trips)	280	310
Rail-rail interchange	13,280	16,880

- 3.3.32 The total number of AM peak passengers arriving at or leaving the station by non-rail modes falls to 2,370 in 2026 and 2,660 in 2041. This compares to 2,700 and 3,360 respectively reported in the main ES.
- 3.3.33 Compared to the 2,370 passengers entering or leaving the station in the AM peak hour and around 1,990 in the evening peak hour in 2026, in 2041 these will increase with HS2 Phase Two services, to 2,660 and 2,500 respectively.
- 3.3.34 In 2026, there are expected to be around 280 two way person trips by vehicle (including both inbound and outbound trips) in the morning peak hour (08:00-09:00) and 250 two way trips by vehicle in the evening peak hour (17:00-18:00). In 2041, this increases to around 310 two way trips in the morning peak hour and 280 two way trips by vehicle in the evening peak hour. These trips by vehicle represent only some 1.5% of total users of the station (or 11.8% of passengers through the station front door) and are small in relation to overall traffic levels.

- 3.3.35 Recognising some vehicles will be used by more than one passenger and also for kiss-and-ride² and some taxis will involve a car trip both to and from the station, this results in a maximum of nearly 400 vehicles (two-way) in the busiest 2041 AM peak hour. Although the numbers of passengers accessing the station by car or taxi reduces, the correction to the calculation of vehicle trips results in total vehicle movements increasing from a maximum of some 300 two-way trips in the main ES.
- 3.3.36 Alongside the changes to vehicle trips accessing the station, the SES2 scheme introduces a signalised junction at Victoria Road/Atlas Road that provides capacity but also slightly increases delays and results in diversionary effects on traffic on the approach links. This reduces overall flows when compared to those reported in the main ES. As a consequence, the increase in traffic related severance for non-motorised users in both 2026 and 2041 reported in the main ES has been removed at the following locations:
- Barlby Road – moderate adverse significant effect in the main ES;
 - A4000 Old Oak Lane – major adverse significant effect in the main ES;
 - St. Mark's Road – major adverse significant effect in the main ES;
 - A219 Shepherds Bush Road – moderate adverse significant effect in the main ES;
 - A40 A219 Wood Lane on-slip (the slip road onto the A40) – major adverse significant effect in the main ES;
 - Cambridge Gardens – moderate adverse significant effect in the main ES;
 - B412 Westbourne Park Road – moderate adverse significant effect in the main ES;
 - A4000 Victoria Road – moderate adverse significant effect in the main ES;
 - Chase Road – moderate adverse significant effect in the main ES;
 - A219 Wood Lane – major adverse significant effect in the main ES; and
 - Sussex Gardens – moderate adverse significant effect in the main ES.
- 3.3.37 The major adverse significant effect on traffic related severance for non-motorised users at Du Cane Road in 2026 and 2041 reported in the main ES is reduced to a minor adverse significant effect.
- 3.3.38 In the SES2 scheme the following new locations have been identified for 2026 and 2041 where the main ES did not report any significant effect due to increase in traffic related severance for non-motorised users:
- Fitzneal Street – minor adverse significant effect in 2026 and moderate in 2041; and
 - Central Way – minor adverse significant effect in 2026 and 2041.

² Kiss-and-ride refers to passengers being dropped off or collected by private car.

- 3.3.39 With the SES2 scheme, the increase in traffic related severance for non-motorised users in 2041 reported in the main ES has been removed at the following locations:
- East Churchfield Road – major adverse significant effect in the main ES; and
 - A4000 Wales Farm Road – moderate adverse significant effect in the main ES.

3.3.40 The following significant effects reported for congestion and delays in 2041 in the main ES still occur with the SES2 scheme but with a different level of significance:

- Old Oak Common Lane/Du Cane Road junction – minor adverse significant effect (moderate adverse significant effect in the main ES);
- Old Oak Common Lane/A40 junction – major adverse significant effect (moderate adverse significant effect in the main ES);
- Old Oak Common Lane/A4000 Old Oak Lane/Atlas Road – moderate adverse significant effect (minor adverse significant effect in the main ES); and
- Acton Lane/Mordaunt Road – major adverse significant effect (minor adverse significant effect in the main ES).

3.3.41 Traffic related severance due to congestion and delays in 2041 at Acton Lane/North Acton Lane as reported in the main ES has been removed with the SES2 scheme.

3.3.42 There are in addition some traffic effects arising from the operation of Euston station with the SES2 scheme. These are expected to result in new increases in peak hour traffic flows causing significant increases in traffic severance for non-motorised users at the following locations:

- B413 Clifton Gardens/Formosa Street/Shirland Road/Warwick Avenue – moderate adverse significant effect in 2026 and major in 2041 (PM);
- Sutherland Avenue – moderate adverse significant effect in 2026 and 2041 (PM); and
- Elgin Avenue – moderate adverse significant effect in 2041 (PM).

Other mitigation measures

3.3.43 No additional mitigation measures are proposed.

Cumulative effects

3.3.44 The assessment includes the cumulative effects of planned development during operation by taking this into account within the background traffic growth. The assessment also includes for in-combination effects by taking into account transport impacts as a result of the SES2 scheme in neighbouring CFA areas.

Summary of likely residual significant effects

3.3.45 Only limited operational effects are expected as a result of the operation of Euston station within CFA4.

3.3.46 The increase in traffic related severance for non-motorised users in 2026 and 2041 as reported in the main ES has been removed at the following locations: Barlby Road;

A4000 Old Oak Lane; St. Mark's Road; A219 Shepherds Bush Road; A40/A219 Wood Lane on-slip; Cambridge Gardens; B412 Westbourne Park Road; A4000 Victoria Road; Chase Road; A219 Wood Lane; and Sussex Gardens. The increase in traffic related severance for non-motorised users in 2041 as reported in the main ES at East Churchfield Road and A4000 Wales Farm Road has also been removed under the SES2 scheme.

- 3.3.47 A reduced level of effect associated with reduced traffic related severance for non-motorised users is reported at Du Cane Road under the SES2 scheme (2026 and 2041).
- 3.3.48 New locations have been identified with the SES2 scheme that previously did not report any significant effect due to increase in traffic related severance for non-motorised users on Fitzneal Street (2026 and 2041) and Central Way (2026 and 2041).
- 3.3.49 There is a change in significance for adverse significant effects arising due to congestion and delays in 2041 under the SES2 scheme with a higher level of significance at: Old Oak Common Lane/A40 junction; Old Oak Common Lane/A4000; Old Oak Lane/Atlas Road; and Acton Lane/Mordaunt Road. There is a reduced level of adverse effect at the junction of Old Oak Common Lane and Du Cane Road and the adverse significant effect reported in the main ES at Acton Lane/North Acton Lane is removed.
- 3.3.50 New traffic severance effects due to changes in traffic flow arising from the operation of Euston station are reported at Sutherland Avenue, B413 Clifton Gardens/Formosa Street/Shirland Road/Warwick Avenue and Elgin Avenue.
- 3.3.51 The significant effects that result in this area from the SES2 scheme in 2026 and 2041 are shown in the SES2 and AP3 ES, Volume 5 Map Book: Maps TR-04-002 to TR-04-003a.

Part 2: Additional Provision 3 Environmental Statement

There are no amendments proposed within the Kilburn (Brent) to Old Oak Common area (CFA4).

There are no combined effects due to changes in traffic flows to be reported.

HIGH SPEED RAIL (LONDON - WEST MIDLANDS)

Supplementary Environmental Statement 2 and
Additional Provision 3 Environmental Statement

Volume 2 | Community forum area reports
CFA5 | Northolt Corridor

Contents

Structure of the HS2 Supplementary Environmental Statement 2 and Additional Provision 3 Environmental Statement	1
Structure of this report	3
1 Introduction	4
Part 1: Supplementary Environmental Statement 2	6
2 Summary of changes	6
2.1 Changes to the design or to construction assumptions not requiring a change to the Bill	6
2.2 Topics included in the SES2 assessment	6
3 Assessment of changes	7
3.1 Traffic and transport	7
Part 2: Additional Provision 3 Environmental Statement	9
List of tables	
Table 1: Scheme definitions	4

Structure of the HS2 Supplementary Environmental Statement 2 and Additional Provision 3 Environmental Statement

The Supplementary Environmental Statement 2 (SES2) and Additional Provision 3 Environmental Statement (AP3 ES) comprises:

- non-technical summary (NTS). This provides a summary in non-technical language of the SES2 (Part 1) and AP3 ES (Part 2) and of the likely significant environmental effects, both beneficial and adverse, including those which are new or different to those reported in the High Speed Two (HS2) Phase One Environmental Statement (ES) submitted to Parliament in November 2013 in support of the hybrid Bill ('the Bill') for Phase One of HS2 (hereafter referred to as 'the main ES'). In the case of community forum areas (CFAs) 4 and 5 and relevant route-wide effects, account is also taken of the Supplementary Environmental Statement (SES) and Additional Provision 2 Environmental Statement (AP2 ES) submitted in July 2015;
- Volume 1: introduction to the SES2 and AP3 ES. This introduces the supplementary environmental information and design changes included within 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;
- Volume 2: CFA reports and map books. It should be noted that the structure of the CFA reports within Volume 2 vary as follows:
 - CFA1 is split into two parts. Part 1 comprises the SES2 for the Euston station and approach area. Part 2 describes the amendments requiring additional provisions in 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 for Euston, including a comparison with the original scheme described in the main ES, and 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 Euston station and approach area, whether or not these are different likely significant environmental effects from those reported in the main ES. This assessment includes the effects of the amendments to the Bill. It should be noted that the SES2 and AP3 ES Volume 2 CFA1 report therefore 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; and

- 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 reports new or different likely significant route-wide effects arising from the supplementary environmental information 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 environmental information and associated maps in support of the CFA sections of Volume 2; 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.

In the main ES, Volume 4 presented an assessment of the likely significant environmental effects that will occur in locations away from the route (i.e. outside the CFAs). As none of the SES2 changes or AP3 amendments relate to off-route areas, off-route effects have been scoped out of the assessment. Consequently, the SES2 and AP3 ES does not contain a Volume 4.

Structure of this report

This volume of the SES2 and AP3 ES is divided into CFA reports, which are in turn divided into two parts.

Part 1 provides supplementary environmental information relating to changes to the design or to construction assumptions which do not require changes to the Bill.

Part 1 of each CFA report includes, where relevant:

- a description of the changes or updates within the CFA that have triggered the need for reassessment;
- an assessment of the environmental effects of the changes for relevant environmental topics considering the:
 - scope, assumptions and limitations of the SES2 assessment;
 - changes of relevance to the assessment;
 - environmental baseline;
 - effects arising during construction;
 - effects arising from operation; and
 - mitigation and residual effects; and
- a summary of any new or different likely residual significant effects as a result of the changes.

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. There are no amendments proposed in this CFA.

1 Introduction

- 1.1.1 The Bill for High Speed Rail between London and the West Midlands was submitted to Parliament together with the main ES in November 2013. The SES and AP2 ES (submitted in July 2015) updated the main ES and contained a number of changes and amendments to the design of the original scheme in CFAs 4 – 26. The SES2 and AP3 ES contains further updates to the main ES and SES and assesses a number of changes and amendments to the design of the original scheme in CFAs 1 – 5.
- 1.1.2 The Bill and associated Additional Provisions (APs) to the Bill, if enacted by Parliament, will provide the powers to construct, operate and maintain Phase One of HS2.
- 1.1.3 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 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

- 1.1.4 SES2 (Part 1 of this report) contains changes to the design or to construction assumptions which do not require changes to the Bill.
- 1.1.5 The change assessed within SES2 for this CFA comprise the use of a construction compound for a longer period due to changes in the design and construction assumptions at Euston, as reported in the SES2 and AP3 ES, Volume 2, CFA 1 report.
- 1.1.6 The change is described in Part 1 under a series of sub-headings and assessed on a topic by topic basis using the same approach adopted in the main ES.
- 1.1.7 The purpose of the SES2 report for this CFA is to provide an assessment of any new or different likely significant environmental effects arising from the change described compared to the SES scheme, taking into account any AP2 amendments where relevant.
- 1.1.8 There are no amendments to the design of the scheme proposed within CFA5 that will require the use of land outside the original limits of the Bill, additional access rights, or

other extensions to the powers conferred by the Bill, making it necessary to submit an AP to the Bill.

1.1.9 There also are no combined effects due to changes in traffic flows to be reported.

1.1.10 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 submitted in support of the Bill. Implementation of these measures has been assumed in this SES2 and AP3 ES.

Part 1: Supplementary Environmental Statement 2

2 Summary of changes

2.1 Changes to the design or to construction assumptions not requiring a change to the Bill

2.1.1 There are no such changes in the Northolt Corridor area (CFA5) that result in a new or different significant effect.

Changes to the design or to construction assumptions in other CFAs affecting this CFA

2.1.2 The revised design of Euston station within CFA1 affects CFA5.

2.1.3 The high speed station at Euston will be constructed in two stages, the first to allow operation of HS2 Phase One services to commence in 2026 (following the completion of construction Stage A 2017 – 2026) and the second to provide additional platforms to allow for growth in services and to allow HS2 Phase Two services to commence in 2033 (following the completion of construction Stage B1 2026 – 2033).

2.1.4 For a full description of the revised design of Euston station, refer to Part 1B of the SES2 and AP3 ES Volume 2, CFA1 report.

2.1.5 As a consequence of these changes, the duration of use of the Willesden F-Sidings satellite compound in CFA5 will change.

2.1.6 In the original scheme, the Willesden F-sidings satellite compound would have been operational for approximately nine years. During this period there would have been enabling works to modify the existing sidings for approximately nine months, followed by approximately eight years and three months of activities supporting works to existing railway infrastructure in CFAs 1 and 2.

2.1.7 The AP2 revised scheme provides for a new temporary access route via a private road within the Townsend Industrial Estate to the east of the route previously identified in the main ES (amendment AP2-005-001). The land temporarily required includes 22 car parking spaces (including two that are designated for use by people with disabilities) and requires the removal of a boundary fence and hedge.

2.1.8 In the SES2 scheme, the Willesden F-sidings satellite compound will be used periodically for 17 years from 2016 to 2033 to support conventional railway works in the Euston area.

2.2 Topics included in the SES2 assessment

2.2.1 The changes described above in Section 2.1 result in new or different significant effects in respect of traffic and transport.

3 Assessment of changes

3.1 Traffic and transport

Introduction

- 3.1.1 This section of the report describes the environmental baseline in relation to traffic and transport that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the changes introduced in Section 2, compared to the AP revised scheme.

Scope, assumptions and limitations

- 3.1.2 The assessment scope, key assumptions and limitations for the traffic and transport assessment are as set out in Volume 1, the SMR (Appendix CT-001-000/1), the SMR Addendum (Appendix CT-001-000/2) of the main ES, and the SMR Addendum 3 (Appendix CT-001-000/4) of the SES2 and AP3 ES.

SES2 Changes of relevance to this assessment

- 3.1.3 The only change of relevance to the assessment of the SES2 changes is the revised design of Euston station within CFA1 (SES2-001-001) and the consequential change in use of the Willesden F-Sidings satellite compound.

Environmental baseline

Existing baseline

- 3.1.4 The baseline traffic and transport information for the Northolt Corridor area is as described in the main ES, Volume 2, CFA5 Report: Section 12 and the SES and AP2 ES, Volume 2, CFA5 Report: Section 5.1.

Future baseline

Construction (2017)

- 3.1.5 The future baseline for construction is as described in the main ES, Volume 2, CFA5, Section 12 and the SES and AP2 ES, Volume 2, CFA5 Report: Section 5.1.

Operation (2026 and 2041)

- 3.1.6 The future baselines for operation are as described in the main ES Volume 2, CFA5, Section 12.

Effects arising during construction

Avoidance and mitigation measures

- 3.1.7 There are no additional avoidance or mitigation measures relevant to these changes, in addition to those described in the main ES and SES and AP2 ES.

Assessment of impacts and effects

- 3.1.8 The main ES reported no significant traffic and transport effects during construction relating to the Willesden F-sidings satellite compound.

- 3.1.9 The SES and AP2 ES (Volume 2, CFA5 Report, Section 5.1) reported a moderate adverse significant effect relating to amendment AP2-005-001 due to the temporary loss of 22 car parking spaces, specifically two that are designated for use by people with disabilities, along the new access route to the Willesden F-sidings satellite compound.
- 3.1.10 The Willesden F-sidings satellite compound will now be used to support work at Euston station for eight years longer than reported in the main ES and the SES and AP2 ES. This longer duration of time will result in a different significant effect to that reported in the AP2 ES, but it will not change its significance, which will remain moderate adverse.

Other mitigation measures

- 3.1.11 No mitigation measures in addition to those identified in the main ES are required. The SES and AP2 ES proposed that mitigation could be provided by reallocation of existing parking spaces as disabled bays on public highway, subject to agreement with the local highway authority. The SES2 scheme would require the reallocation of parking spaces for a longer duration, in line with the extended use of the compound. With this, the significant effect would be fully mitigated.

Cumulative effects

- 3.1.12 The assessment includes the cumulative effects of planned development during construction and operation by taking account of background traffic growth. The assessment also includes in-combination effects by taking into account traffic and transport impacts of works being undertaken in neighbouring areas. This assessment has taken account of these cumulative effects.

Summary of likely residual significant effects

- 3.1.13 The SES2 changes will result in a different residual effect than that reported in the SES and AP2 ES due to the extended duration of the use of the compound but will not change the level of significance from moderate adverse reported in the SES and AP2 ES.

Effects arising from operation

- 3.1.14 The land required temporarily for the Willesden F-sidings satellite compound will be restored to its former use once the construction works are completed. The SES2 changes therefore do not give rise to new or different operational effects for traffic and transport.

Part 2: Additional Provision 3 Environmental Statement

There are no amendments proposed within the Northolt Corridor CFA5. There are no combined effects due to changes in traffic flows to be reported.

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