

HIGH SPEED RAIL (LONDON - WEST MIDLANDS)

Supplementary Environmental Statement 3 and
Additional Provision 4 Environmental Statement

Volume 2 | Community forum area reports

CFA14 Newton Purcell to Brackley

October 2015

SES3 and AP4 ES 3.2.1.14



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Department for Transport

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Structure of the HS2 Supplementary Environmental Statement 3 and Additional Provision 4 Environmental Statement

The Supplementary Environmental Statement 3 (SES3) and Additional Provision 4 Environmental Statement (AP4 ES) comprises:

- non-technical summary (NTS). This provides a summary in non-technical language of the SES3 (Part 1) and AP4 ES (Part 2) and of any likely significant environmental effects, both beneficial and adverse, 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') as updated by subsequent SES and AP ES documents;
- Volume 1: introduction to the SES3 and AP4 ES. This introduces the supplementary environmental information and design changes included within the SES3 and amendments, which have resulted in the need to amend the Bill, within the AP4 ES. It also explains any changes to the scope, methodology, assumptions and limitations required for the environmental assessment;
- Volume 2: community forum area (CFA) reports and map books. These describe the supplementary environmental information and design changes included within the SES3 (Part 1) and amendments within the AP4 ES (Part 2). Any new or different likely significant environmental effects arising from these changes and amendments in each CFA, compared to those reported in the main ES, as updated by SES and SES2 documents (and SES3 for the AP4 amendments) are reported. The AP1, AP2 and AP3 amendments are also taken into account where relevant. In addition, the main local alternatives that have been considered are described, where relevant;
- Volume 3: route-wide effects. This reports new or different likely significant route-wide effects arising from the supplementary environmental information and design changes included within the SES3 (Part 1) and amendments within the AP4 ES (Part 2) compared to those reported in the main ES as updated by SES and SES2 (and SES3 for the AP4 amendments). The AP1, AP2 and AP3 amendments are also taken into account where relevant;
- Volume 4: off-route effects. This reports new or different likely significant off-route effects arising from the supplementary environmental information and design changes included within the SES3 and amendments within the AP4 ES compared to those reported in the main ES as updated by SES and SES2 (and

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SES₃ for the AP₄ amendments). The AP₁, AP₂ and AP₃ 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 other volumes of the SES₃ and AP₄ ES; and
- glossary of terms and list of abbreviations. This contains any new or different terms and abbreviations used throughout the SES and AP ES reports, additional to those included in the main ES.

Structure of this report

This volume of the SES3 and AP4 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 ecological surveys conducted during 2015; and
- changes to the design or 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 SES3 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 to the design, in the Newton Purcell to Brackley area, which have resulted in the need to alter the powers conferred by the Bill, so there is no Part 2 to this report.

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 AP ES, which was submitted in September 2014, contained generally minor amendments to the design of the original scheme (i.e. the scheme submitted in November 2013) in CFAs 7 – 26. The SES and AP2 ES which was submitted in July 2015, updated the main ES and contained a number of further amendments to the design of the original scheme in CFAs 4 – 26. The SES2 and AP3 ES which was submitted in September 2015, contained further updates to the main ES and reported the assessment of a number of amendments to the design of the original scheme in CFAs 1 - 5.
- 1.1.2 Since the submission of the main ES and subsequent SES and AP documents, updates to environmental baseline information and changes to scheme design or assumptions have occurred, which may lead to new or different significant effects. These effects, depending on the type of change, are reported in the SES3 (Part 1) or AP4 ES (Part 2) of this document.
- 1.1.3 The Bill and associated Additional Provisions (APs) to the Bill described above, if enacted by Parliament, will provide the powers to construct, operate and maintain Phase One of HS2.
- 1.1.4 In order to differentiate between the original scheme and the subsequent changes, the terms set out in Table 1 are used:

Table 1: Scheme definitions

Scheme name	Definition	Relevant 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 (i.e. this applies in the London area only)
the AP3 revised scheme	the SES2 scheme as amended by the AP3 submitted in September 2015	1 – 5 (i.e. this applies in the London area only)
the SES3 scheme	the SES2 scheme with the design changes described in the SES3 submitted in October 2015	4 – 26

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Scheme name	Definition	Relevant CFAs
the AP4 revised scheme	the SES3 scheme as amended by the AP4 submitted in October 2015	4 – 26

- 1.1.5 SES3 (Part 1 of this report) contains updated environmental baseline information and describes changes to the scheme that have occurred within the current limits and powers of the Bill, and therefore do not require an AP to the Bill. This includes:
- new baseline information with respect to ecological surveys conducted during 2015; and
 - changes to the design or to construction assumptions which do not require changes to the Bill.
- 1.1.6 Design changes assessed within the SES3 for this CFA include:
- repositioning a balancing pond proposed by the original scheme to enhance landscape mitigation planting which was also proposed by the original scheme; and
 - provision for further noise mitigation.
- 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 SES3 is to provide an assessment of any new or different likely significant environmental effects arising from the changes described.
- 1.1.9 There were no SES2 changes in this CFA, so the SES3 changes are compared to the SES scheme. There were AP1 and AP2 amendments, so these are taken into account as appropriate.
- 1.1.10 There are no 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 proposed within the Newton Purcell to Brackley area (CFA14) and therefore there is no Part 2 of this report.
- 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 submitted in support of the Bill. Implementation of these measures has been assumed in this SES3 and AP4 ES.

Part 1: Supplementary Environmental Statement 3

2 Summary of changes

2.1 New environmental baseline information

Ecology

- 2.1.1 Details of all amphibian surveys undertaken in this area during 2015 are provided in SES3 and AP4 ES, Volume 5: Appendix EC-001-002 and Volume 5 map series EC-02.
- 2.1.2 The additional baseline data does not generate any new or different significant effects. It is therefore not reported in Section 3.

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

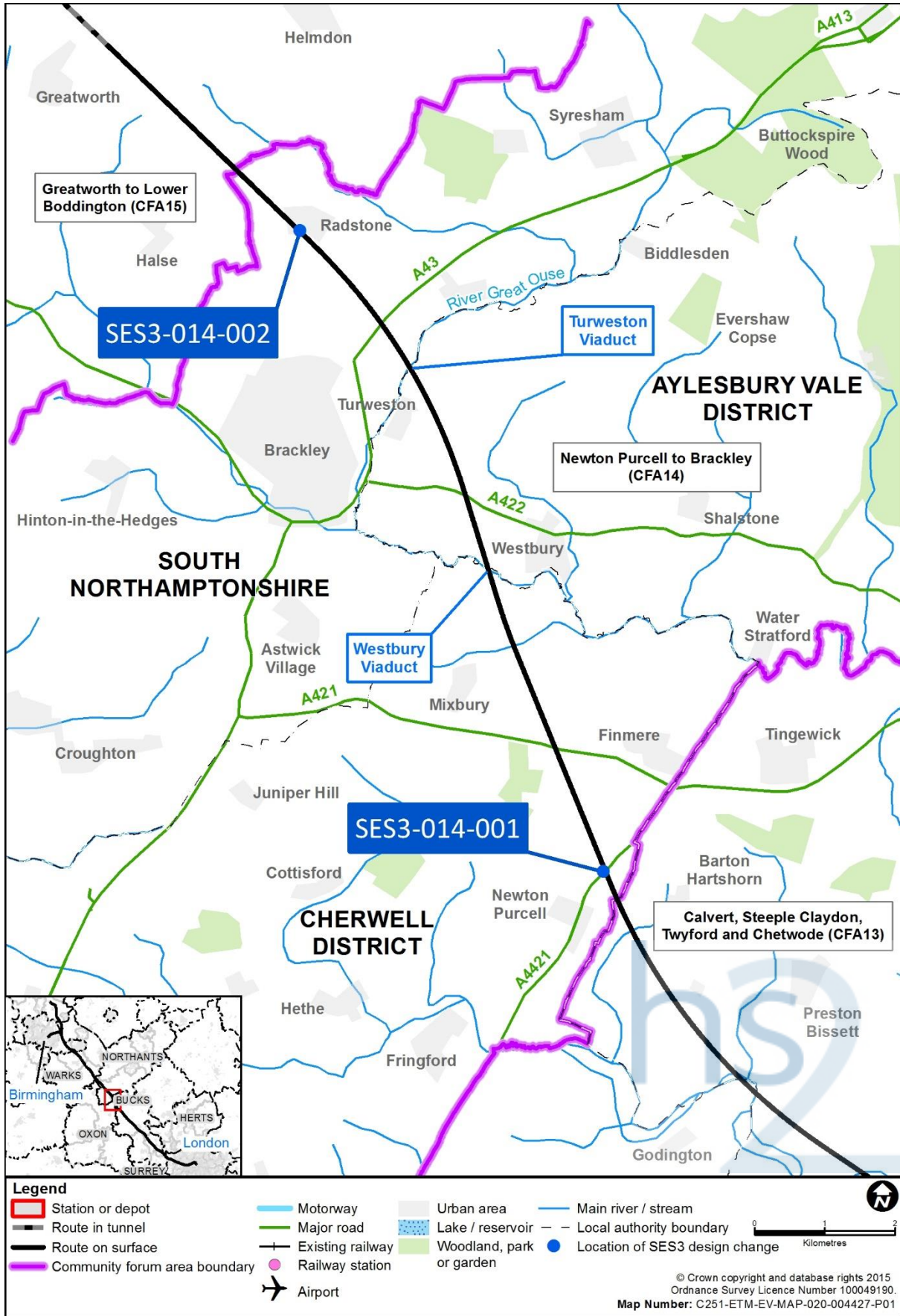
- 2.2.1 Table 2 provides a summary of the changes to the design or to construction assumptions not requiring a change to the Bill which will result in new or different significant effects in the Newton Purcell to Brackley CFA (CFA14), and Figure 1 shows the locations of the changes.

Table 2: Summary of changes to the design or construction assumptions not requiring a change to the Bill in CFA14

Name of design change or construction assumption	Description of the SES scheme	Description of the SES ₃ scheme
Provision of landscape mitigation planting at Newton Purcell SES ₃ -014-001	The permanent provision of a linear band of landscape planting to the east of the HS2 route south of the A4421 Buckingham Road overbridge. There is a 150m gap in this planting, immediately south of the highway overbridge, where a drainage balancing pond is located.	The balancing pond and maintenance access road will be permanently repositioned, and the 150m gap in planting will be filled in with landscape planting. Additional hedgerow planting will also be provided on both sides of the entrance to the access road.
Provision of additional noise mitigation at Radstone SES ₃ -014-002	The permanent provision of landscape earthworks on both sides of the HS2 route from north of Helmdon Disused Railway Site of Special Scientific Interest (SSSI) to Radstone Road, to integrate the embankment into the landscape; and provide visual screening to the west, and noise screening to the east.	The provision of a noise fence barrier to the east of the HS2 route, south-west of Radstone, is included in the design to reduce operational noise effects identified in the main ES. The barrier will be 5m high and approximately 800m long.

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Figure 1: Locations of design changes not requiring a change to the Bill in CFA14



Description of changes to the design or to construction assumptions

Provision of landscape mitigation planting at Newton Purcell (SES3-014-001)

- 2.2.2 The Bill provides for the permanent provision of a linear band of landscape planting to the east of the HS2 route, south of the A4421 Buckingham Road overbridge. There would be a 150m gap in this planting immediately south of the highway overbridge where a drainage balancing pond would be located (see maps CT-05-060b and CT-06-060b in the main ES, Volume 2, CFA14 Map Book).
- 2.2.3 Since submission of the Bill, the opportunity to permanently reposition the balancing pond and fill in the 150m gap with landscape planting has been identified (see maps CT-05-060b, CT-05-061, CT-06-060b and CT-06-061 in the SES3 and AP4 ES, Volume 2, CFA14 Map Book). Additional hedgerow planting will also be provided on both sides of the entrance to the access road.
- 2.2.4 The provision of landscape mitigation planting at Newton Purcell results in a different significant effect for the landscape and visual assessment. This is reported in Section 3.

Provision of additional noise mitigation at Radstone (SES3-014-002)

- 2.2.5 The Bill provides for the permanent provision of landscape earthworks on both sides of the HS2 route from north of the Helmdon Disused Railway SSSI to Radstone Road. The landscape earthworks would integrate the embankment into the landscape, providing visual screening to the west and noise screening to the east (see maps CT-05-067 and CT-06-067 in the main ES, Volume 2, CFA14 Map Book).
- 2.2.6 The provision of a green bridge at Radstone, changes to environmental mitigation, and realignment of Public Rights of Way (PRoW) were included in the AP2 revised scheme (AP2-014-006) (see SES and AP2 ES, Volume 2, CFA14 and maps CT-05-067 and CT-06-067 in the SES and AP2 ES, Volume 2, CFA14 Map Book). Approximately 2ha of landscape mitigation planting proposed for the original scheme will be removed by the AP2 revised scheme. Additional hedgerow habitat mitigation will be provided to encourage the movement of bats towards the proposed green bridge. The hedgerow planting will also provide visual screening for the village of Radstone. This SES3 design change (SES3-014-002) is independent of the amendments proposed by the AP2 revised scheme.
- 2.2.7 Since submission of the Bill and the SES and AP2 ES, an additional noise fence barrier to the east of the HS2 route, south-west of Radstone is proposed to further mitigate the significant operational noise effect identified in the main ES. The provision is for a barrier that is 5m high and approximately 800m long, located adjacent to the track at the base of the cutting. The SES3 scheme includes an additional area of landscape mitigation planting on the highway embankment along the eastern edge of Radstone Road to screen views from the west of the noise fence barrier. The landscape earthworks and planting proposed in the AP2 revised scheme will remain (see map CT-06-067 and CT-06-068a in the SES3 and AP4 ES Volume 2, CFA14 Map Book).
- 2.2.8 The installation of the noise barrier will occur at the same time as the landscape earthworks, and is therefore not expected to extend the construction programme presented in the main ES and SES and AP2 ES. The barrier will be installed in-situ, or as prefabricated panels, as described in the main ES, Volume 1, Section 6.20.

- 2.2.9 The provision of additional noise mitigation at Radstone results in different significant effects for community, cultural heritage, landscape and visual assessment, and sound, noise and vibration. These are reported in Section 3.

2.3 Topics included in the SES₃ assessment

- 2.3.1 The changes described above in Sections 2.1 to 2.2 result in new or different significant effects in respect of: community, cultural heritage, landscape and visual assessment, and sound, noise and vibration.

3 Assessment of changes

3.1 Community

Introduction

3.1.1 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 SES scheme, taking into account the AP₂ amendment associated with the provision of a green bridge at Radstone, changes to environmental mitigation and realignment of PRoW (AP₂-014-006).

3.1.2 Consideration is given to impacts on residential properties, community resources, amenity, open space and PRoW.

Scope, assumptions and limitations

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

SES₃ changes of relevance to this assessment

3.1.4 The SES₃ design change associated with the provision of additional noise mitigation at Radstone (SES₃-014-002) is considered in this community assessment.

Environmental baseline

Existing baseline

3.1.5 The additional noise mitigation at Radstone will reduce the operational airborne noise levels at the Church of St Lawrence. However, the significant noise and visual effects reported in the main ES remain. The additional noise mitigation 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.

Future baseline

Construction (2017)

3.1.6 Volume 5, Appendix CT-004-000 of the SES₃ and AP₄ ES provides details of the developments that are assumed to have been implemented by 2017, additional to those identified in the main ES and the SES and AP₂ ES.

3.1.7 None of the identified developments affect the assessment of the SES₃ scheme's likely construction impacts on community.

Operation (2026)

3.1.8 Volume 5: Appendix CT-004-000 of the SES₃ and AP₄ ES provides details of the developments that are assumed to have been implemented by 2026, additional to those identified in the main ES and the SES and AP₂ ES.

- 3.1.9 None of the identified developments affect the assessment of the SES₃ scheme's likely operation impacts on community.

Effects arising during construction

- 3.1.10 There are no new or different significant construction effects for community as a result of the proposed SES₃ changes, in comparison with the main ES and SES and AP₂ ES.

Effects arising during operation

Avoidance and mitigation measures

- 3.1.11 The provision of the additional noise mitigation at Radstone is the only measure further to those set out in the main ES (Volume 2, CFA 14, Section 5).

Assessment of impacts and effects

- 3.1.12 The main ES reported a likely significant adverse noise effect on approximately 15 dwellings in the vicinity of Radstone (see Section 11.4 of the main ES, Volume 2, CFA₁₄). Up to ten of these properties would also experience significant visual effects (see Section 9.5 of the main ES, Volume 2, CFA₁₄). This would result in a significant permanent operational amenity effect for up to 10 residential properties in Radstone due to a combination of significant visual effects and significant daytime and night-time noise effects.
- 3.1.13 The provision of additional noise mitigation at Radstone will reduce the number of residential properties included in the likely significant operational noise effect to five (see Section 3.4). These properties are also predicted to experience significant visual effects from the SES₃ scheme (see Section 3.3). Therefore, up to five rather than up to 10 properties will experience a combination of significant visual and noise effects.
- 3.1.14 Whilst fewer residential properties are predicted to experience significant permanent operational amenity effects, the effect remains major adverse, as reported in the main ES. The provision of additional noise mitigation at Radstone will therefore give rise to a different significant effect, as indicated on map CM-01-047a in the SES₃ and AP₄ ES, Volume 5, Community Map Book. However, this will not change the level of significance of the effects reported in the main ES. Details of the assessment of community resources are included in SES₃ and AP₄ ES, Volume 5, Appendix CM-001-014.
- 3.1.15 The additional noise mitigation at Radstone will reduce the operational airborne noise levels at the Church of St. Lawrence. However, the significant noise and visual effects reported in the main ES remain. The additional noise mitigation 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

- 3.1.16 No additional mitigation measures (i.e. in addition to those identified in the main ES) are proposed.

Cumulative effects

- 3.1.17 The AP2 revised scheme will remove the original scheme proposal for a footbridge associated with the diverted alignment of Footpath AX15 (AP2-014-007), and will introduce a revised route across the proposed Footpath AX15 green overbridge on the alignment of the Helmdon disused railway (see the SES and AP2 ES, Volume 2, CFA14, Section 5.10). The AP2 revised scheme will give rise to a different visual significant effect during year 1 of operation. However, there are no new or different likely significant cumulative effects for community as a result of the SES3 changes interacting with one another, the AP1 amendments, the AP2 amendments, or any relevant committed development.

Summary of likely residual significant effects

- 3.1.18 The provision of additional noise mitigation at Radstone will reduce the number of residential properties predicted to experience significant operational amenity effects. This will result in a different residual community amenity effect at Radstone during operation, but this will not change the level of significance (major adverse) of the effect as reported in the main ES.

3.2 Cultural heritage

Introduction

- 3.2.1 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 those of the SES scheme.
- 3.2.2 Consideration is given to effects upon the value of heritage assets, including effects on their setting, as a result of the changes.

Scope, assumptions and limitations

- 3.2.3 The assessment scope, key assumptions and limitations for cultural heritage 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.

SES3 changes of relevance to this assessment

- 3.2.4 The SES3 design change associated with the provision of additional noise mitigation at Radstone (SES3-014-002) is relevant to the assessment.

Environmental baseline

Existing baseline

- 3.2.5 The cultural heritage baseline for the assessment takes into account information collected for the main ES, which included walk-over survey, geophysical survey, remote-sensing data, and data from national and local registers. A full list of heritage assets is provided in the main ES (Volume 2, CFA14, Section 6.3) and the SES and AP2 ES (Volume 2, CFA14, Section 3.1).
- 3.2.6 A summary of the baseline information relevant to the assessment of new or different significant effects is provided below. For those assets described in the main ES,

further details are provided in the baseline reports, gazetteer of heritage assets, impact assessment tables and survey reports in Volume 5 of the main ES, and are shown on maps CH-01 (Heritage Assets within Study Area), CH-02 (Designated Heritage Assets) and CH-03 (Archaeological Character Sub-zones), as updated in the SES and AP2 ES Volume 5 appendices.

Designated assets

- 3.2.7 The design change associated with the provision of additional noise mitigation at Radstone will be located approximately 250m south-west of the Church of St. Lawrence, a Grade I listed building. The church is part of the historic settlement of Upper Radstone (asset reference¹ NPBo89), an asset of high heritage value. The noise fence barrier will be located within the setting of the church and the wider associated landscape.

Non-designated assets

- 3.2.8 The additional noise mitigation at Radstone will be located partially within the Upper Radstone Landscape (asset reference NPBo97), an asset of high heritage value. This landscape consists of a number of elements including non-designated assets. The additional noise mitigation at Radstone will be located partially within two of these elements, both of which are of high heritage value: the historic settlement of Upper Radstone (asset reference NPBo89), and an area of ridge and furrow to the south-west of Upper Radstone (asset reference NPBo96).

Future baseline

Construction (2017)

- 3.2.9 Volume 5, Appendix CT-004-000 of the SES3 and AP4 ES provides details of the developments that are assumed to have been implemented by 2017, additional to those identified in the main ES and the SES and AP2 ES.
- 3.2.10 None of the identified developments affect the assessment of the SES3 scheme's likely construction impacts on cultural heritage.

Operation (2026)

- 3.2.11 Volume 5: Appendix CT-004-000 of the SES3 and AP4 ES provides details of the developments that are assumed to have been implemented by 2026, additional to those identified in the main ES and the SES and AP2 ES.
- 3.2.12 None of the identified developments affect the assessment of the SES3 scheme's likely construction impacts on cultural heritage.

Effects arising during construction

- 3.2.13 There are no new or different significant construction effects for cultural heritage as a result of the proposed SES3 changes, in comparison with the main ES and SES and AP2 ES.

¹ Asset references refer to the gazetteer of heritage assets in Volume 5 of the main ES.

Effects arising from operation

Avoidance and mitigation measures

- 3.2.14 The provision of the noise fence barrier at Radstone is the only mitigation measure additional to those set out in the main ES (Volume 2, CFA 14, Section 6.5).

Assessment of impacts and effects

Temporary effects

- 3.2.15 The provision of additional noise mitigation at Radstone 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.

Permanent effects

- 3.2.16 The main ES reported that the historic settlement at Upper Radstone (asset reference NPBo89), an asset grouping of high value that includes the Grade I listed Church of St. Lawrence, would be subject to changes to its setting. The setting would be changed by the movement of trains and the associated increase in noise. In combination with the presence of the constructed scheme, this would result in a high adverse impact resulting in a major adverse effect.
- 3.2.17 The provision of additional noise mitigation at Radstone (SES3-014-002) will reduce the amount of operational noise from the passing trains (see Section 3.4). This noise reduction will give rise to a different significant effect on Upper Radstone (asset reference NPBo89) during operation. However, this will not change the level of significance (major adverse) of the effects reported in the main ES.

Other mitigation measures

- 3.2.18 No additional mitigation measures (i.e. in addition to those identified in the main ES) are proposed.

Cumulative effects

- 3.2.19 There are no new or different likely significant cumulative effects for cultural heritage as a result of the SES3 changes interacting with one another, the AP1 amendments, AP2 amendments, or any relevant committed development.

Summary of likely residual significant effects

- 3.2.20 The provision of additional noise mitigation at Radstone will reduce operational noise from the passing trains reducing the impact on the setting of the heritage assets. This will give rise to a different major adverse residual significant effect on Upper Radstone (asset reference NPBo89) during operation. However, this will not change the level of significance of the effects reported in the main ES.

3.3 Landscape and visual assessment

Introduction

- 3.3.1 This section of the report describes the environmental baseline in relation to the landscape and visual assessment 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 those of the SES scheme taking into account the AP2 amendment associated with the provision of a green bridge at Radstone, changes to environmental mitigation and realignment of PRoW (AP2-014-006).

Scope, assumptions and limitations

- 3.3.2 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.

SES3 changes of relevance to this assessment

- 3.3.3 The following SES3 design changes are considered in this assessment:
- the provision of landscape mitigation planting at Newton Purcell (SES3-014-001); and
 - the provision of additional noise mitigation at Radstone (SES3-014-002).

Environmental baseline

Existing baseline

- 3.3.4 A summary of the baseline information in the main ES relevant to the assessment of the SES3 design changes is provided below. Further details are provided in the main ES (Volume 2, CFA14, Section 9.3).
- 3.3.5 The provision of landscape mitigation planting at Newton Purcell (SES3-014-001) will be located within the Shelswell and Turweston Wooded Estatelands and Farmland Plateau landscape character area (LCA). The LCA comprises a rolling landscape with a strong pattern of agricultural fields, remnant estate parklands, and occasional woodland groups. Settlement is characterised by dispersed farms and dwellings and small villages, with other notable man-made influence including Finmere Quarry, roads, dismantled railway lines and overhead power lines. This LCA is of local value and is considered to be of medium sensitivity to change.
- 3.3.6 The provision of additional noise mitigation at Radstone (SES3-014-002) will be located within the Tove Catchment Undulating Claylands LCA. The LCA comprises a broadly doming landform and gently undulating topography. Land use is typically agricultural with limited woodland cover. Settlement is characterised by dispersed farms and dwellings and small villages. The area includes several secondary and minor roads and PRoW and is of medium tranquillity. This LCA is of local value and is considered to be of medium sensitivity to change.
- 3.3.7 Viewpoint 170.2.001: view looking south-west from Barley Fields residential property on the A4421 Buckingham Road, north of Newton Purcell, is close to the location of the landscape mitigation planting at Newton Purcell. The view looks across the junction of the A4421 and a secondary road to Barton Hartshorn and extends along the line of the A4421 towards a road underbridge beneath a disused railway line of the former Great Central Railway. The extent of view is limited by vegetation associated

with the disused railway line running across the line of sight. The viewpoint is considered to be of high sensitivity to change since it is residential.

- 3.3.8 Viewpoint 187.2.001: view looking east from Radstone Road adjacent to the residential property north of Hall Farm is close to the location of the provision of additional noise mitigation at Radstone. The view looks along and beyond Radstone Road, which is bounded by roadside hedgerows in the foreground, and across an undulating landscape of arable fields and woodland groups. The viewpoint is considered to be of high sensitivity to change since it is partially residential.

Future baseline

Construction (2017)

- 3.3.9 Volume 5: Appendix CT-004-000 of the SES3 and AP4 ES provides details of the developments that are assumed to have been implemented by 2017, additional to those identified in the main ES and the SES and AP2 ES.
- 3.3.10 None of the identified developments affect the assessment of the SES3 scheme's likely construction impacts on landscape and visual.

Operation (2026)

- 3.3.11 Volume 5: Appendix CT-004-000 of the SES3 and AP4 ES provides details of the developments that are assumed to have been implemented by 2026, additional to those identified in the main ES and the SES and AP2 ES.
- 3.3.12 None of the identified developments affect the assessment of the SES3 scheme's likely operation impacts on landscape and visual.

Temporary effects arising during construction

- 3.3.13 The construction of landscape mitigation planting at Newton Purcell (SES3-014-001) and additional noise mitigation at Radstone (SES3-014-002) will represent a barely perceptible change to landscape character and views in the area compared to the construction of the SES scheme. There are therefore no new or different significant construction effects for landscape and visual as a result of the proposed SES3 changes, in comparison with the main ES and Part 1 of the SES and AP2 ES.

Permanent effects arising during operation

Avoidance and mitigation measures

- 3.3.14 The SES3 scheme associated with the provision of additional noise mitigation at Radstone (SES3-014-002) includes an additional area of landscape mitigation planting on the highway embankment along the eastern edge of Radstone Road to screen views from the west of the noise fence barrier. This measure has been taken into account in the assessment of the operational effects.

Assessment of impacts and effects

Landscape assessment

- 3.3.15 The Shelswell and Turweston Wooded Estatelands and Farmland Plateau LCA was assessed as being affected by the original scheme and will also be affected by the SES3 scheme. The main ES reported a moderate adverse significant effect on this LCA

during year 1 of operation due to the presence of engineered landforms of steep slopes cutting across the natural landform, overhead line equipment and trains, elevated structures including pedestrian overbridges and road overbridges, noise fence barriers, and permanent severance of land. The main ES reported a minor adverse non-significant effect for year 15 and for year 60, once planting had matured.

- 3.3.16 The provision of landscape mitigation planting at Newton Purcell (SES3-014-001) will result in localised change adjacent to the Buckingham Road overbridge. The additional planting will partially enclose the rail corridor and the Buckingham Road overbridge and will accentuate the continuity of the original scheme landscape mitigation planting along the eastern side of the HS2 route. However, the change will be small and localised, and will therefore 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.
- 3.3.17 The Tove Catchment Undulating Claylands LCA was assessed as being affected by the original scheme and will also be affected by the SES3 scheme. The main ES reported a moderate adverse significant effect on this LCA during year 1 of operation due to the engineered landforms of steep slopes cutting across the natural landform, elevated structures including pedestrian and highway overbridges, noise fence barriers and permanent severance of land. The main ES reported a minor adverse non-significant effect for year 15 and for year 60, once planting had matured.
- 3.3.18 The provision of additional noise mitigation at Radstone (SES3-014-002) will occupy an approximately 800m-long section to the east of, and adjacent to, the HS2 route. In the context of the extent and scale of the proposed HS2 elements in the landscape, the design change will not give rise to new or different significant effects and will not change the level of significance of the effects reported in the main ES.

Visual assessment

- 3.3.19 Viewpoint 170.2.001: view looking south-west from Barley Fields residential property on the A4421 Buckingham Road, north of Newton Purcell was assessed as being affected by the original scheme, and will also be affected by the provision of landscape mitigation planting at Newton Purcell (SES3-014-001). The main ES reported a significant effect due to the presence of new features, which would be incongruous with the existing view including trains, overhead line equipment and noise fence barriers, visible in the foreground and middle ground of the view. The effect would be major adverse in year 1, reducing to a moderate adverse significant effect in year 15 and year 60.
- 3.3.20 The provision of landscape mitigation planting at Newton Purcell (SES3-014-001) will represent a noticeable addition to the original scheme from this viewpoint (approximately 25m distant). The addition of the landscape planting will be in keeping with the landscape mitigation woodland planting proposed in the main ES. Views of the balancing pond in the middle ground are likely, resulting in a localised change in the view. During year 1 of operation, prior to the establishment of the additional landscape mitigation planting, the design change will not change the level of the significance of effects reported in the main ES. The design change will however contribute further visual screening of the HS2 route by year 15 and year 60, once the landscape mitigation planting has matured. This will give rise to a different significant

effect, changing the level of significance of the effects reported in the main ES during year 15 and year 60 from moderate adverse (significant) to negligible (non-significant).

- 3.3.21 Viewpoint 187.2.001: view looking east from Radstone Road adjacent to the residential property north of Hall Farm was assessed as being affected by the original scheme and will also be affected by the provision of additional noise mitigation at Radstone (SES3-014-002). The main ES reported significant effects due to the presence of moving trains and overhead line equipment, engineered cuttings and embankments, and elevated structures including pedestrian and highway overbridges. The effect would be moderate adverse in year 1, which is significant, reducing to minor adverse in year 15 and year 60, which is not significant.
- 3.3.22 The provision of additional noise mitigation at Radstone (SES3-014-002) will accentuate the visibility of the HS2 route from the location of viewpoint 187.2.001, looking obliquely north along Radstone Road, where the noise fence barrier will extend across the line of sight between earthworks. Additional landscape mitigation planting on the lower slopes of the highway embankment for the Radstone Road overbridge will reduce potential views of the noise fence barrier by year 15 and beyond to year 60 of operation. The provision of additional noise mitigation at Radstone will therefore give rise to a different significant effect, but will not change the level of significance of the effects reported in the main ES.
- 3.3.23 The significant effects that result from operation of the SES3 scheme are shown on map LV-04-051b in the SES3 and AP4 ES, Volume 2, CFA14 Map Book).

Other mitigation measures

- 3.3.24 Effects in year 1 of operation for the provision of landscape mitigation planting at Newton Purcell (SES3-014-001) and the provision of additional noise mitigation at Radstone (SES3-014-002), may be further reduced by establishing planting early in the construction programme, which will be considered during the detailed design stage. This would provide earlier visual screening and integration of the SES3 scheme into the landscape.

Cumulative effects

- 3.3.25 The AP2 revised scheme will remove the original scheme proposal for a footbridge associated with the diverted alignment of Footpath AX15 (AP2-014-007) and will introduce a revised route across the proposed Footpath AX15 green overbridge on the alignment of the Helmdon disused railway (see the SES and AP2 ES, Volume 2, CFA14, Section 5.10). For viewpoint 187.2.001: view looking east from Radstone adjacent to the residential property north of Hall Farm, the AP2 revised scheme will give rise to a different significant effect during year 1 of operation but will not change the level of significance of the effect reported in the main ES. By year 15 and beyond to year 60 of operation, planting established as part of the scheme will have matured, largely screening the scheme and resulting in non-significant effects. The provision of additional noise mitigation at Radstone (SES3-014-002) is independent of the amendments included in the AP2 revised scheme.
- 3.3.26 The provision of landscape mitigation planting at Newton Purcell (SES3-014-001) and the provision of additional noise mitigation at Radstone (SES3-014-002) will not give

rise to new or different likely cumulative effects for landscape and visual as a result of the SES3 changes interacting with one another, the AP1 amendments, the AP2 amendments or any relevant committed development.

Summary of likely residual significant effects

- 3.3.27 The provision of landscape mitigation planting at Newton Purcell (SES3-014-001) will change the level of significance of the effects reported in the main ES for viewpoint 170.2.001 during year 15 and year 60 from moderate adverse to negligible. The residual significant effect during operation of the scheme on viewpoint 170.2.001 reported in the main ES will therefore no longer occur.

3.4 Sound, noise and vibration

Introduction

- 3.4.1 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 the AP2 amendment associated with the provision of a green bridge at Radstone, changes to environmental mitigation, and realignment of PRoW (AP2-014-006).
- 3.4.2 Consideration is given to the changes in construction and operational noise and vibration, and to the identification of new receptors not previously included in the main ES and SES and AP2 ES.

Scope, assumptions and limitations

- 3.4.3 The assessment scope, key assumptions and limitations for the sound, noise and vibration 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.
- 3.4.4 Local assumptions and limitations for sound, noise and vibration are set out in the main ES (Volume 2, CFA14, Section 11).

SES3 changes of relevance to this assessment

- 3.4.5 The SES3 design change associated with the provision of additional noise mitigation at Radstone (SES3-014-002) is relevant to the assessment.

Environmental baseline

Existing baseline

- 3.4.6 The existing baseline sound, noise and vibration information for this area is described in the main ES (Volume 2, CFA14, Section 11.2). Baseline sound levels representative of the assessment locations affected by the SES3 changes have been used in the construction and operational assessments.

Future baseline

Construction (2017)

- 3.4.7 The future baseline for construction in 2017, and construction traffic in 2021, remains unchanged from that reported in the main ES (Volume 2, CFA₁₄ Report, Section 11.2).

Operation (2026)

- 3.4.8 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA₄ Report, Section 11.2).

Effects arising during construction

- 3.4.9 There are no new or different significant construction effects for sound, noise and vibration for construction as a result of the proposed SES₃ changes, in comparison with the main ES or SES and AP₂ ES.

Effects arising from operation

Avoidance and mitigation measures

- 3.4.10 The design change includes the provision of noise fence barriers. This is in addition to the mitigation identified within the main ES (Volume 2, CFA₁₄, Section 11.4).

Assessment of impacts and effects

- 3.4.11 The main ES identified a likely significant adverse noise effect at the community represented by approximately 15 dwellings in the vicinity of Radstone, identified as OSV₁₄-Co₃ on Map Series SV-01 and SV-02 (main ES, Volume 5, Sound, Noise and Vibration Map Book).
- 3.4.12 The main ES also identified, on a precautionary basis, the Church of St. Lawrence, Radstone, as being subject to a significant adverse noise effect denoted by OSV₁₄-No₁ on Map Series SV-01 and SV-02 (main ES, Volume 5, Sound, Noise and Vibration Map Book).
- 3.4.13 An assessment has been undertaken to determine whether operational noise levels from the SES₃ scheme will result in a new or different likely significant effect, using the significance criteria detailed in the main ES (Volume 5: Appendix SV-001-000).
- 3.4.14 The predicted operational sound and vibration levels as a result of the SES₃ scheme are presented in Table 3.

SES₃ and AP₄ ES Volume 2 – CFA₁₄, Newton Purcell to Brackley

Table 3: Operational airborne sound level, noise impacts and effects

Assessment location		Impact criteria ²										Significance criteria							Significant effect	
ID	Area represented	SES ₃ scheme only (year 15 traffic)			Do nothing (opening year baseline)			Do something (opening year baseline + year 15 traffic) ³		Change with SES ₃ scheme		Type of effect ⁴	Number of impacts represented	Type of receptor ⁵	Receptor design ⁶	Existing environment	Unique feature	Combined impact		Mitigation of effect
		D ⁷	N ⁸	M ⁹	D	N	M	D	N	D	N									
273397	Radstone, Brackley	51	42	64/67	45	38	43	51	43	6	5	A	3	R	T	-	-	-	-	OSV ₁₄ -Co ₃
273418	Radstone, Brackley	47	39	61/64	60	28	33	60	39	0	10	NA	1	R	T	-	-	-	-	# ¹⁰
273468	Radstone, Brackley	50	42	66/69	42	37	43	50	42	8	5	A	1	R	T	-	-	-	-	OSV ₁₄ -Co ₃
273513	Radstone, Brackley	48	39	64/67	42	37	43	48	41	6	4	NA	3	R	T	-	-	-	-	#
273532	Radstone, Brackley	48	40	64/67	42	37	43	48	41	6	4	A	1	R	T	-	-	-	-	OSV ₁₄ -Co ₃
273535	Radstone, Brackley	48	39	63/66	49	42	54	51	44	2	1	NA	1	R	T	-	-	-	-	
273549	Radstone, Brackley	47	38	62/65	49	42	54	51	43	2	1	NA	2	R	T	-	-	-	-	
273561	Radstone, Brackley	48	39	63/66	49	42	54	51	44	2	1	NA	6	R	T	-	-	-	-	
273483	Church of St. Lawrence	50	42	66/69	42	37	43	50	42	8	5	B	1	G ₃	T	-	-	-	-	OSV ₁₄ -No ₁

3.4.15 The additional noise mitigation at Radstone will reduce the operational airborne noise levels at some properties in the community of Radstone and at the Church of St. Lawrence. However, a significant adverse noise effect remains likely in the vicinity of Radstone, and at the Church of St. Lawrence, identified as OSV₁₄-Co₃ and OSV₁₄-No₁ respectively, on SES₃ and AP₄ ES, Volume 5, Sound, Noise and Vibration Map Series SV-01 and SV-02. The additional noise mitigation at Radstone will not result in a new or different significant effect compared to that reported in the main ES at the Church of St. Lawrence.

3.4.16 The reduction in the number of residential properties included within the significant adverse noise effect, reference OSV₁₄-Co₃, on the community of Radstone from approximately 15 to five is considered to constitute a different significant adverse effect from that reported in the main ES.

² Yellow denotes a minor impact at a residential building – a change is of 3-5 dB. Orange denotes a moderate impact at a residential building – a change is of 5-10 dB.

³ Where the scheme modifies an existing source, i.e. road or railway realignments, the 'scheme only' level in the table includes the sound from the modified source. In this situation the Do something (Opening year baseline + Year 15 traffic) level has been corrected so as to not double count the sound associated with the road or railway on its new and existing alignment.

⁴ A - Adverse effect. B - For non-residential receptors further detail about the type of effect is set out in the text of Appendix SV-001-000 of the main ES. NA - Generally no adverse effect.

⁵ R - Residential. G₃ - Places of meeting for religious worship, courts, cinemas, lecture theatres, museums and small auditoria or halls.

⁶ T - Traditional.

⁷ D - Day - L_{pAeq,07:00-23:00}.

⁸ N - Night - L_{pAeq,23:00-07:00}.

⁹ M - Max - L_{pAFmax}. In the 'scheme only' column, two values are presented. The first is the value for the HS2 mitigated train and the second is the value for the Technical Specification Interoperability compliant train. For further information refer to main ES, Volume 5: Appendix SV-001-000.

¹⁰ - A change of 3dB or greater has been identified. However, the assessment methodology only defines an impact where the absolute sound level from the Proposed Scheme is greater or equal to 50 dB L_{pAeq, 23:00-07:00} during the daytime or 40 dB L_{pAeq, 07:00-23:00} at night. At the receptor denoted the absolute level condition is not met and therefore no impact is identified.

Other mitigation measures

- 3.4.17 No additional mitigation measures (i.e. in addition to those identified in the main ES and subsequent SES and AP ES reports) are proposed.

Cumulative effects

- 3.4.18 There are no new or different likely significant cumulative effects for sound, noise and vibration as a result of the SES₃ changes interacting with one another, the AP₁ amendments; AP₂ amendments; or any relevant committed development.

Summary of likely residual significant effects

- 3.4.19 The provision of additional noise mitigation at Radstone will give rise to a different residual significant operational noise effect, as the number of affected properties in Radstone will reduce from approximately 15 to five.

Part 2: Additional Provision 4 Environmental Statement

There are no amendments proposed within the Newton Purcell to Brackley area (CFA14).

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