

# HIGH SPEED RAIL (LONDON - WEST MIDLANDS)

Supplementary Environmental Statement 3 and  
Additional Provision 4 Environmental Statement

Volume 2 | Community forum area reports

CFA15 Greatworth to Lower Boddington

October 2015

SES3 and AP4 ES 3.2.1.15



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## Department for Transport

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High Speed Two (HS2) Limited,  
One Canada Square,  
London  
E14 5AB

Details of how to obtain further copies are available from HS2 Ltd.

Telephone: 020 7944 4908

General email enquiries: [HS2enquiries@hs2.org.uk](mailto:HS2enquiries@hs2.org.uk)

Website: [www.gov.uk/hs2](http://www.gov.uk/hs2)

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# Contents

<b>Structure of the HS2 Supplementary Environmental Statement 3 and Additional Provision 4 Environmental Statement</b>	<b>1</b>
<b>Structure of this report</b>	<b>3</b>
1 Introduction	5
<b>Part 1: Supplementary Environmental Statement 3</b>	<b>7</b>
2 Summary of changes	7
2.1 New environmental baseline information	7
2.2 Changes to the design or construction assumptions not requiring a change to the Bill	7
2.3 Corrections	10
2.4 Topics included in the SES <sub>3</sub> assessment	11
3 Assessment of changes	11
3.1 Landscape and visual assessment	11
3.2 Sound, noise and vibration	15
3.3 Traffic and transport	19
<b>Part 2: Additional Provision 4 Environmental Statement</b>	<b>22</b>
4 Summary of amendments	22
5 Assessment of amendments	26
5.1 Additional land required for junction improvements at the B4525 and Sulgrave Road (AP <sub>4</sub> -015-001)	26
5.2 Additional land required for the reconfiguration of a balancing pond at West Mill Farm (AP <sub>4</sub> -015-002)	36
5.3 Additional land required for the relocation of ecological mitigation near Trafford Bridge (AP <sub>4</sub> -015-003)	40
5.4 Additional land required for junction improvements at the A361 and Welsh Road (AP <sub>4</sub> -015-004)	55
5.5 Additional land required for temporary stockpiling at Chipping Warden (disused) Airfield (AP <sub>4</sub> -015-005)	67
5.6 Additional land required for land drainage, balancing pond changes and improved access at Old House Farm (AP <sub>4</sub> -015-006)	77
5.7 Additional land required for the provision of an accommodation overbridge at Cedars Farm (AP <sub>4</sub> -015-007)	85
6 Combined effects of amendments in this CFA due to changes in traffic flows	97

**List of figures**

Figure 1: Locations of design changes not requiring a change to the Bill in CFA15	9
Figure 2: Locations of amendments in CFA15	25

**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 CFA15	8
Table 3: Summary of corrections in CFA15	10
Table 4: Operational airborne sound level, noise impacts and effects	18
Table 5: Summary of amendments in CFA15	23
Table 6: Cumulative area of land required by the AP4 revised scheme at Warden Farms	43
Table 7: Amendments to Volume 5, Appendix CH-003-015 (impact assessment table)	47

# Structure of the HS<sub>2</sub> Supplementary Environmental Statement 3 and Additional Provision 4 Environmental Statement

The Supplementary Environmental Statement 3 (SES<sub>3</sub>) and Additional Provision 4 Environmental Statement (AP<sub>4</sub> ES) comprises:

- Non-technical summary (NTS). This provides a summary in non-technical language of the SES<sub>3</sub> (Part 1) and AP<sub>4</sub> 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 2 (HS<sub>2</sub>) Phase One Environmental Statement (ES) submitted to Parliament in November 2013 in support of the hybrid Bill ('the Bill') for Phase One of HS<sub>2</sub> (hereafter referred to as 'the main ES') as updated by subsequent SES and AP ES documents.
- Volume 1: Introduction to the SES<sub>3</sub> and AP<sub>4</sub> ES. This introduces the supplementary environmental information and design changes included within the SES<sub>3</sub> and amendments, which have resulted in the need to amend the Bill, within the AP<sub>4</sub> 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 SES<sub>3</sub> (Part 1) and amendments within the AP<sub>4</sub> 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 SES<sub>2</sub> documents (and SES<sub>3</sub> for the AP<sub>4</sub> amendments) are reported. The AP<sub>1</sub>, AP<sub>2</sub> and AP<sub>3</sub> 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 SES<sub>3</sub> (Part 1) and amendments within the AP<sub>4</sub> ES (Part 2) compared to those reported in the main ES as updated by SES and SES<sub>2</sub> (and SES<sub>3</sub> for the AP<sub>4</sub> amendments). The AP<sub>1</sub>, AP<sub>2</sub> and AP<sub>3</sub> 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 SES<sub>3</sub> (Part 1) and amendments within the AP<sub>4</sub> ES (Part 2) compared to those reported in the main ES as updated by SES and SES<sub>2</sub> (and SES<sub>3</sub> for the AP<sub>4</sub> amendments). The AP<sub>1</sub>, AP<sub>2</sub> and AP<sub>3</sub> amendments are also taken into account where relevant.

## SES<sub>3</sub> and AP<sub>4</sub> ES Volume 2 - CFA<sub>15</sub>, Greatworth to Lower Boddington

- Volume 5: Appendices and Map Books. This contains environmental information and associated maps in support of the other volumes of the SES<sub>3</sub> and AP<sub>4</sub> ES.
- 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 SES<sub>3</sub> and AP<sub>4</sub> ES is divided into CFA reports, which are in turn divided into two parts.

Part 1 of this CFA report provides supplementary environmental information relating to:

- new baseline information with respect to ecological and traffic and transport surveys;
- changes to the design or construction assumptions which do not require changes to the Bill; and
- corrections to the main ES and the SES and AP<sub>2</sub> ES.

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 SES<sub>3</sub> assessment;
  - changes of relevance to the assessment;
  - environmental baseline;
  - effects arising during construction;
  - effects arising from operation; and
  - mitigation and residual effects.
- a summary of any new or different likely residual significant effects as a result of the changes.

Part 2 of this CFA report 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 AP<sub>4</sub> ES assessment;
  - environmental baseline;
  - effects arising during construction;
  - effects arising from operation; and

- mitigation and residual effects.
- 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 AP<sub>1</sub> 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 AP<sub>2</sub> 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 SES<sub>2</sub> and AP<sub>3</sub> 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 SES<sub>3</sub> (Part 1) or AP<sub>4</sub> ES (Part 2) of this document, where they occur.
- 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 HS<sub>2</sub>.
- 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 AP <sub>1</sub> 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 AP <sub>2</sub> revised scheme	the SES scheme as amended by the AP <sub>2</sub> submitted in July 2015	4 - 26
the SES <sub>2</sub> scheme	the original scheme as updated by the SES scheme, with the design changes described in the SES <sub>2</sub> submitted in September 2015	1 - 5 (i.e. this applies in the London area only)
the AP <sub>3</sub> revised scheme	the SES <sub>2</sub> scheme as amended by the AP <sub>3</sub> submitted in September 2015	1 - 5 (i.e. this applies in the London area only)
the SES <sub>3</sub> scheme	the SES <sub>2</sub> scheme with the design changes described in the SES <sub>3</sub> submitted in October 2015	4 - 26
the AP <sub>4</sub> revised scheme	the SES <sub>3</sub> scheme as amended by the AP <sub>4</sub> submitted in October 2015	4 - 26

- 1.1.5 SES<sub>3</sub> (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 and traffic and transport surveys;
  - changes to the design or to construction assumptions which do not require changes to the Bill; and
  - corrections to the main ES and the SES and AP<sub>2</sub> ES.
- 1.1.6 The provision for noise mitigation at Culworth is the only design change assessed within the SES<sub>3</sub> for this CFA.
- 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 SES<sub>3</sub> 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 SES<sub>2</sub> changes in this CFA, so the SES<sub>3</sub> changes are compared to the SES scheme. There were AP<sub>1</sub> and AP<sub>2</sub> amendments, so these are taken into account as appropriate.
- 1.1.10 The AP<sub>4</sub> 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. The amendments assessed within the AP<sub>4</sub> ES for this CFA include:
- access arrangements: public highway junction improvements; and improved accommodation access to that proposed by the original scheme;
  - mitigation provision: relocation of ecological mitigation and changes to balancing pond locations to that proposed by the original scheme; and
  - changes to the location of temporary stockpiling during construction.
- 1.1.11 The AP<sub>4</sub> ES assesses each amendment separately for all relevant topics. The purpose of the AP<sub>4</sub> ES is to provide an assessment of any new or different likely significant environmental effects arising from the amendments compared to the SES<sub>3</sub> scheme, taking into account AP<sub>1</sub> and AP<sub>2</sub> where relevant.
- 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 SES<sub>3</sub> and AP<sub>4</sub> 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 the SES<sub>3</sub> and AP<sub>4</sub> ES Volume 5: Appendix EC-001-002 and the SES<sub>3</sub> and AP<sub>4</sub> ES Volume 5 Map Series EC-04.

2.1.2 The additional baseline data does not generate any new or different significant effects, and therefore is not reported in Section 3.

#### Traffic and transport

2.1.3 Additional traffic surveys have been undertaken at junctions in the Greatworth to Lower Boddington area to update and supplement the information reported in the main ES. The impacts of traffic associated with HS2 construction have been re-assessed in the context of this supplementary data. The assessment is reported in Section 3.

2.1.4 Details of the additional traffic surveys are provided in the SES<sub>3</sub> and AP<sub>4</sub> ES Volume 5: TR-001-000.

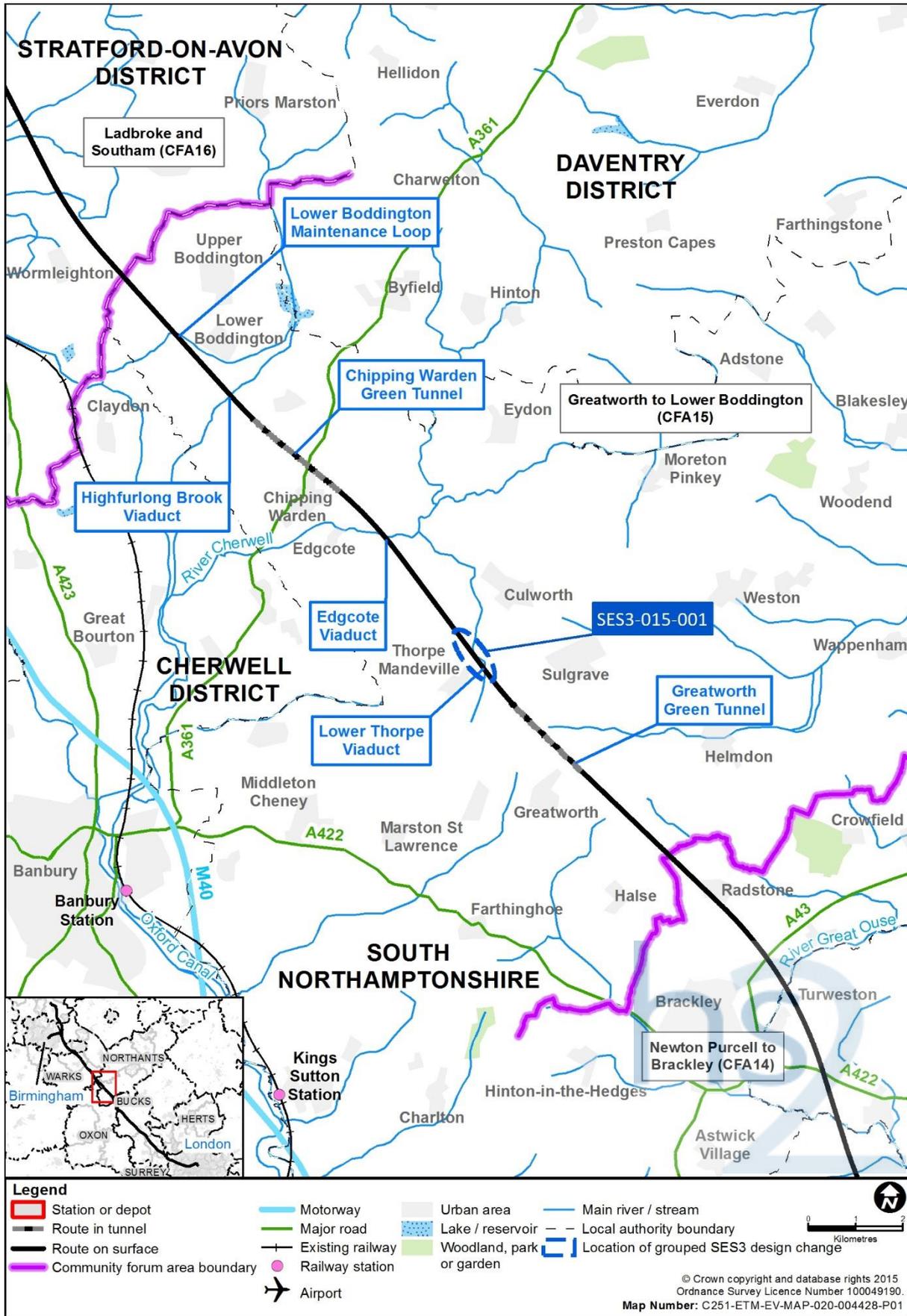
### 2.2 Changes to the design or construction assumptions not requiring a change to the Bill

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 Greatworth to Lower Boddington community forum area (CFA<sub>15</sub>). Figure 1 shows the locations of the changes.

Table 2: Summary of changes to the design or to construction assumptions not requiring a change to the Bill in CFA15

Name of design change or construction assumption	Description of the SES scheme	Description of the SES <sub>3</sub> scheme
Provision of noise mitigation at Culworth (SES <sub>3</sub> -015-001)	<p>The permanent provision of a noise fence barrier along the western side of the HS2 route east of Lower Thorpe. The barrier will be approximately 780m long, extending from just north of Banbury Road to approximately 240m north of Banbury Lane at Lower Thorpe viaduct. The barrier will be up to 3m high, except across the viaduct where the 1.4m high protection barrier will be modified to include a sound absorbent facing.</p> <p>No noise mitigation will be provided along the eastern side of the HS2 route.</p>	<p>A permanent noise fence barrier will also be included, with a height of 2m high above rail level along the eastern side of the HS2 route. The barrier will extend from just north of Banbury Lane at Lower Thorpe viaduct and will be approximately 500m in length. The 1.4m high protection barrier along the approximately 170m long viaduct will be modified to include a sound absorbing facing.</p>

Figure 1: Locations of design changes not requiring a change to the Bill in CFA15



## Description of changes to the design or to construction assumptions

### *Provision of noise mitigation at Culworth (SES3-015-001)*

- 2.2.2 The Bill provides for a permanent noise fence barrier along the western side of the HS2 route east of Lower Thorpe. The barrier envisaged in the main ES would be approximately 780m long, extending from just north of Banbury Road to approximately 240m north of Banbury Lane at Lower Thorpe viaduct. The envisaged height of the barrier would be up to 3m high, except across the viaduct where the 1.4m high protection barrier would include a sound absorptive facing. No noise mitigation would have been provided along the eastern side of the HS2 route (refer to maps CT-06-072 in the main ES Volume 2, CFA15 Map Book).
- 2.2.3 Since submission of the Bill, further noise investigation has been carried out and identified the need for noise mitigation for properties at Culworth, east of the HS2 route. A permanent noise fence barrier has consequently been included in the design, envisaged to be 2m high above rail level along the eastern side of the HS2 route. The barrier will extend from just north of Banbury Road at Lower Thorpe viaduct to the Culworth Grounds accommodation overbridge, and will be approximately 500m in length. In addition, the design of the 1.4m high protection barrier along the Lower Thorpe viaduct, approximately 170m in length proposed in the original scheme, will be modified to include a sound absorbing facing (refer to maps CT-06-072 in the SES3 and AP4 ES Volume 2, CFA15 Map Book).
- 2.2.4 The area of land permanently required for this design change is within the original limits of the Bill and therefore no amendment to the Bill is required.
- 2.2.5 The provision of noise mitigation at Culworth results in new or different significant effects for the landscape and visual assessment. This is reported in Section 3. An assessment for sound, noise and vibration is also reported in Section 3, however there are no new or different significant effects associated with this design change.

## 2.3 Corrections

- 2.3.1 Since submission of the SES and AP2 ES, the need for a number of corrections in the contents of the main ES, SES or AP ES reports has been identified. Table 3 provides a list of those instances where there has been a need to correct the Volume 2 CFA report for Greatworth to Lower Boddington because of the potential to alter the significant environmental effects reported or a factual inaccuracy relating to significant effects has been identified. The table gives the location of the correction in the relevant ES, the reason for the correction, replicates the text, where applicable provides revised text, and identifies whether the correction changes a significant effect reported. Where relevant, these corrections have been taken into account in the technical assessments contained within Section 3 of this SES3.

Table 3: Summary of corrections in CFA15

Reference in the relevant ES	Reason for correction	Text in the relevant ES	Revised text	Change to significant effects and mitigation
Landscape and visual assessment	For the following landscape and visual receptors, the	The amendment will not give rise to a new or different significant	The amendment will give rise to different significant effects on	No.

Reference in the relevant ES	Reason for correction	Text in the relevant ES	Revised text	Change to significant effects and mitigation
Section 5.12, Volume 2, CFA <sub>15</sub> of the SES and AP <sub>2</sub> ES  (Reconfiguration of the Warwick Road and Banbury Road junction (AP <sub>2</sub> -015-008))	assessment does not accurately reflect the change in significant effects from operation:  • Boddington Broad Unwooded Vale Landscape Character Area (LCA);  • Viewpoint 222.2.001: Looking south-west from Hill Farm; and  • Viewpoint 222.2.002: Looking south-west from Spella House	effect and will not change the level of significance of the effects reported in the main ES	landscape and visual receptors, but will not change the level of significance of the effects reported in the main ES	The correction relates to a change arising from an AP <sub>2</sub> amendment, resulting in a 'different' significant effect on certain landscape and visual receptors. This correction does not change the level of the significance of the effects reported in the main ES, SES and AP <sub>2</sub> ES or require changes to mitigation.
Sound, noise and vibration  Table 2, Volume 5, CFA <sub>15</sub> of the main ES	Assessment locations 259666 and 259722 were each identified as being representative of one property  Further investigation has identified three further dwellings which should have been associated with these assessment locations	Assessment location 259666, number of properties represented, 1  Assessment location 259722, number of properties represented, 1	Assessment location 259666, number of properties represented, 2  Assessment location 259722, number of properties represented, 3	No.  Although there is an increase in the number of properties at which adverse effects are forecast, these adverse effects are not considered to be significant when assessed on a community basis

## 2.4 Topics included in the SES<sub>3</sub> assessment

- 2.4.1 The changes described above in Sections 2.1 and 2.2 result in new or different significant effects in respect of: landscape and visual assessment; sound, noise and vibration; and traffic and transport.

# 3 Assessment of changes

## 3.1 Landscape and visual assessment

### Introduction

- 3.1.1 This section of the report describes the environmental baseline in relation to 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.
- 3.1.2 Consideration is given to the changes on landscape character and views.

## Scope, assumptions and limitations

- 3.1.3 The assessment scope, key assumptions and limitations for the landscape and visual assessment 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. Updates to the methodology for the landscape and visual assessment are also described in Volume 1 of the AP<sub>1</sub> ES and Volume 1 of the SES and AP<sub>2</sub> ES.

## SES<sub>3</sub> changes of relevance to this assessment

- 3.1.4 The design change to provide for noise mitigation on the eastern side of the HS<sub>2</sub> route at Culworth (SES<sub>3</sub>-015-001) is relevant to this assessment.

## Environmental baseline

### *Existing baseline*

- 3.1.5 A summary of the baseline information in the main ES relevant to the assessment of the SES<sub>3</sub> design changes is provided below. Further details are provided in the main ES (Volume 2, CFA<sub>15</sub>, Section 9). Maps are provided in the SES<sub>3</sub> and AP<sub>4</sub> ES Volume 5, CFA<sub>15</sub> Map Book).
- 3.1.6 The SES<sub>3</sub> design change for the provision of noise mitigation at Culworth is within the Middleton Cheney and Woodford Halse Undulating Hills and Valleys LCA. As described in the main ES (Volume 2, CFA<sub>15</sub>, Section 9.3), the LCA comprises broad, sweeping undulations in the landform and is characterised by a combination of arable and pastoral farmland subdivided by hedge and tree-lined field boundaries. This LCA is of local value and is therefore considered to be of medium sensitivity to change.
- 3.1.7 Four viewpoints are located in close proximity to the area of the provision of noise mitigation at Culworth which are described in the main ES (Volume 2, CFA<sub>15</sub>, Section 9.3).
- 3.1.8 Viewpoint 201.2.001: view looking north-east from Banbury Lane towards Lower Thorpe looks across the immediate valley floor setting of residential properties at Lower Thorpe. The combined effect of field boundary hedgerows, hedgerow trees and woodland copses creates the impression of a well vegetated landscape with glimpsed views of agricultural fields. The viewpoint is considered to be of high sensitivity in acknowledgement of its part residential outlook.
- 3.1.9 Viewpoint 201.2.002: view looking north-east from Banbury Lane towards Lower Thorpe, from the edge of Thorpe Mandeville looks out from the residential edge of Thorpe Mandeville across an agricultural landscape that falls away towards the valley setting of Lower Thorpe. Vegetation cover associated with hedgerow field boundaries and woodland copses accentuates the field pattern and filters views. The viewpoint is considered to be of high sensitivity in acknowledgement of its part residential outlook.
- 3.1.10 Viewpoint 201.3.002: view looking north-east from the Public Right of Way (PRoW) network north of Thorpe Mandeville (viewpoint located on PRoW (Footpath BB/5)) looks out across agricultural fields within a domed hilltop landform. Beyond this, views extend more widely across an expansive undulating agricultural landscape composed of large scale arable fields delineated by hedgerows, hedgerow trees and

woodland copses. The viewpoint is considered to be of high sensitivity in acknowledgement of its P<sub>RoW</sub> recreational outlook.

- 3.1.11 Viewpoint 203.2.001: view looking from Hill Farm, north-west of Thorpe Mandeville (view located on P<sub>RoW</sub> (Bridleway BB/13)) looks out across an expansive undulating agricultural landscape composed of large scale arable fields delineated by hedgerows, hedgerow trees and woodland copses. The viewpoint is considered to be of high sensitivity in acknowledgement of its residential and P<sub>RoW</sub> recreational outlook.

### *Future baseline*

#### **Construction (2017)**

- 3.1.12 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA<sub>15</sub>, Section 9.3).

#### **Operation (2026)**

- 3.1.13 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA<sub>15</sub>, Section 9.3).

### **Temporary effects arising during construction**

- 3.1.14 There are no new or different significant construction effects for landscape and visual as a result of the SES<sub>3</sub> changes, in comparison with the main ES or the SES and AP<sub>2</sub> ES.

### **Permanent effects arising from operation**

#### *Avoidance and mitigation measures*

- 3.1.15 The operational assessment of impacts and effects is based on year 1 (2026), year 15 (2041) and year 60 (2086). A process of iterative design and assessment has been employed to avoid or reduce adverse effects during the operation of the SES<sub>3</sub> scheme. With respect to the provision of noise mitigation at Culworth (SES<sub>3</sub>-015-001), an additional length of hedgerow along the eastern side of the noise fence barrier has been incorporated into the design of the SES<sub>3</sub> scheme to contribute to visual screening of the noise fence barrier.

#### *Assessment of impacts and effects*

##### **Landscape assessment**

- 3.1.16 The Middleton Cheney and Woodford Halse Undulating Hills and Valleys LCA was assessed as being affected by the SES scheme and will also be affected by the SES<sub>3</sub> scheme. The main ES reported a moderate adverse significant effect on this LCA during year 1 of operation due to engineered slopes cutting across the natural landform, elevated structures, including Lower Thorpe viaduct and Culworth Grounds accommodation overbridge, noise fence barriers and permanent severance of land. The main ES reported a non-significant effect for year 15 and for year 60, once planting had matured.
- 3.1.17 The noise fence barrier at Culworth will extend for approximately 500m, partly at-grade and partly at the foot of the cutting on the eastern side of the HS<sub>2</sub> route. In the context of the extent and scale of the SES<sub>3</sub> scheme in the landscape, the provision of noise mitigation at Culworth (SES<sub>3</sub>-015-001) will not give rise to a new or different

significant effect on the Middleton Cheney and Woodford Halse Undulating Hills and Valleys LCA and will not change the level of significance of the effects reported in the main ES.

### **Visual assessment**

- 3.1.18 Viewpoint 201.2.001: View looking north-east from Banbury Lane towards Lower Thorpe was assessed as being affected by the original scheme and will also be affected by the noise mitigation at Culworth. The main ES reported significant effects due to views of Lower Thorpe viaduct, moving trains, overhead line equipment and noise fence barriers. The effect would be major adverse in year 1, year 15 and year 60.
- 3.1.19 The provision of noise mitigation at Culworth will accentuate the built influence of the SES<sub>3</sub> scheme locally to Banbury Lane, but will be viewed behind the noise fence barrier proposed in the main ES, located on the western side of the HS2 route. The provision of noise mitigation at Culworth will give rise to a different significant effect as a result of visibility of the southern section of the noise fence barrier. The provision of noise mitigation at Culworth will extend the original scheme visual influence of noise fence barriers north by approximately 300m, which will accentuate the line of the HS2 route across the valley floor. This effect will be apparent at year 1 and will continue through year 15 and beyond to year 60. However, this will not change the level of significance of the effects reported in the main ES.
- 3.1.20 Viewpoints 201.2.002, 201.3.002 and 203.2.001 will all experience similar operational visual impacts. All were assessed as being affected by the original scheme and will also be affected by the noise mitigation at Culworth. The main ES reported significant effects for each due to views of Lower Thorpe viaduct, moving trains, overhead line equipment and noise fence barriers. The effect on each viewpoint would be major adverse in year 1, reducing to moderate adverse significant effect by year 15 and year 60 with the establishment of mitigation planting north of Thorpe Mandeville.
- 3.1.21 The provision of noise mitigation at Culworth will extend the original scheme visual influence of noise fence barriers north by approximately 300m, which will accentuate the line of the HS2 route across the valley floor. This effect will be apparent at year 1 but will be screened by the landscape mitigation planting proposed in the original scheme, by year 15 and beyond to year 60. However, this will not change the level of significance of the effects reported for viewpoints 201.2.002, 201.3.002 and 203.2.001 in the main ES.

### *Other mitigation measures*

- 3.1.22 The permanent effects of the design change on landscape and visual receptors have been substantially reduced through incorporation of the measures reported in the main ES. Effects in year 1 of operation may be further reduced by establishing planting early in the construction programme, which will be considered during the detailed design stage. This would provide additional screening and greater integration of the SES<sub>3</sub> scheme into the landscape. An additional length of hedgerow along the eastern side of the noise fence barrier has been incorporated in the design of the SES<sub>3</sub> scheme to contribute to visual screening of the noise fence barrier.

### *Cumulative effects*

- 3.1.23 There are no new or different likely significant cumulative temporary effects for landscape and visual assessment as a result of the design change for the provision of noise mitigation at Culworth interacting with any relevant committed development.

### *Summary of likely residual significant effects*

- 3.1.24 As no other mitigation measures are considered practicable, the permanent likely residual significant effects during operation remain as above. In most cases, significant effects will reduce over time as the proposed mitigation planting matures and reaches its designed intention.
- 3.1.25 The main ES reported a moderate adverse significant effect on viewpoint 201.2.001 during year 1, year 15 and year 60 of operation. The SES<sub>3</sub> design change for the provision of noise mitigation at Culworth will give rise to a different residual significant effect on this viewpoint during year 15 and year 60 of operation as a result of visibility of the southern section of the noise fence barrier. However, it will not change the level of significance of the effects reported in the main ES or the SES and AP<sub>2</sub> ES.
- 3.1.26 The main ES reported a major adverse significant effect in year 1, (reducing to moderate adverse significant effect by year 15 and year 60 of operation on viewpoints 201.2.002, 201.3.002 and 203.2.001) of operation as a result of visibility of the northern end of the noise fence barrier. However, it will not change the level of significance of the effects reported in the main ES or the SES and AP<sub>2</sub> ES.

## **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 those of the SES scheme.
- 3.2.2 Consideration is given to the change in construction and operational noise and vibration and to the identification of new receptors not previously included in the main ES.

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

- 3.2.3 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.

### **SES<sub>3</sub> changes of relevance to this assessment**

- 3.2.4 The design change for the provision of noise mitigation at Culworth (SES<sub>3</sub>-015-001) is relevant to this assessment.

## Environmental baseline

### *Existing baseline*

- 3.2.5 The existing baseline for sound, noise and vibration information for this area is described in the main ES (Volume 2, CFA15, Section 11.2). Baseline sound levels representative of the assessment locations affected by the SES3 design change have been used in the assessment.

### *Future baseline*

#### **Construction (2017)**

- 3.2.6 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 11.2).

#### **Operation (2026)**

- 3.2.7 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 11.2).

## Effects arising during construction

- 3.2.8 There are no new or different significant construction effects for sound, noise and vibration as a result of the SES3 design change, in comparison with the main ES and Part 1 of the SES and AP2 ES.

## Effects arising from operation

### *Avoidance and mitigation measures*

- 3.2.9 The SES3 design change includes the provision for operational noise mitigation in the form of a noise fence barrier and modification of the protection barrier along the viaduct to include a sound absorbing facing along the eastern side of the HS2 route. This proposed mitigation is in addition to the mitigation identified within the main ES (Volume 2, CFA15, Section 11).

### *Assessment of impacts and effects*

- 3.2.10 In this area, the main ES reported two major noise impacts at Culworth Grounds Farm and Chumscote House, which were not considered to constitute a significant operational airborne noise effect. Since submission of the main ES, three additional properties have been identified in the locale. These properties are Culworth Grounds Lodge and two recently constructed dwellings at Culworth Grounds Farm, making five dwellings in total.
- 3.2.11 This change to the number of affected properties, along with their proximity to the route, has been assessed and would not change the outcome of the main ES regarding likely significant effects in this area. The adverse operational noise effects in the vicinity of Culworth Grounds Farm are not considered significant when assessed on a community basis, taking into account local context.
- 3.2.12 A noise fence barrier at a height of 2m above rail level has been included in the SES3 design on the eastern side of the HS2 route. The barrier will extend from just north of Banbury Lane at Lower Thorpe viaduct and will be approximately 500m in length. Additionally, the SES3 change includes the modification of the 1.4m protection barrier

along the viaduct to include a sound absorbent facing, as shown on SES<sub>3</sub> and AP<sub>4</sub> ES Volume 5, map series SV-01 and SV-02.

3.2.13 An assessment has been undertaken to determine whether operational noise levels from the design change would result in a new or different likely significant effect, using the significance criteria detailed in the main ES (Volume 5: Appendix SV-001-000).

3.2.14 The predicted operational sound and vibration levels as a result of this design change are presented in Table 4.

Table 4: Operational airborne sound level, noise impacts and effects

Assessment location		Impact criteria										Significance criteria							Significant effect	
ID	Area represented	SES3 scheme only (year 15 traffic)			Do nothing (opening year baseline)			Do something (opening year baseline + year 15 traffic) <sup>1</sup>		Change with SES3 scheme		Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact		Mitigation of effect
		D <sup>2</sup>	N <sup>3</sup>	M <sup>4</sup>	D	N	M	D	N	D	N									
259666	Thorpe Mandeville, Banbury	56	47	74/77	44	34	42	56	47	12 <sup>5</sup>	13	A <sup>6</sup>	2	R <sup>7</sup>	T <sup>8</sup>	-	-	-	-	~ <sup>9</sup>
259722	Thorpe Mandeville, Banbury	52	42	68/71	46	44	48	53	46	7 <sup>10</sup>	2	A	3	R	T	-	-	-	-	~ <sup>9</sup>

<sup>1</sup> Where the SES3 scheme modifies an existing source, e.g. realignment of an existing road, 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 adjusted to avoid double counting the sound associated with the existing sound source.

<sup>2</sup> D - Day - L<sub>pAeq,07:00 - 23:00</sub>

<sup>3</sup> N - Night - L<sub>pAeq,23:00 - 07:00</sub>

<sup>4</sup> M - Max - L<sub>pAFmax</sub>. In the SES3 scheme only column, two values are presented. The first is the value for a train that has pass by sound levels that are equal to the 2008 TSI limits (2008/232/CE: Commission Decision of 21 February 2008 concerning a technical specification for interoperability relating to the 'rolling stock' sub-system of the trans-European high-speed rail system (notified under document C (2008) 648).). For further information refer to the main ES Volume 5: Appendix SV-001-000.

<sup>5</sup> Red denotes a major airborne noise impact.

<sup>6</sup> N/A – generally no adverse effects; A - adverse effect; S – significant adverse effect.

<sup>7</sup> R – residential; B- non-residential.

<sup>8</sup> Traditional house construction

<sup>9</sup> ~ - The forecast adverse effects are not considered to be significant on a community basis (further information on methodology is provided in the main ES Volume 5: Appendix SV-001-000).

<sup>10</sup> Orange denotes a moderate airborne noise impact.

- 3.2.15 The SES<sub>3</sub> design change reduces the operational airborne noise levels at the properties represented by assessment locations 259666 and 259722, and reduces the impact during the daytime at Chumscote House and the two recently constructed dwellings at Culworth Grounds Farm, from a major impact to moderate impact. The introduction of the noise fence barrier reduces sound levels from those forecast in the main ES, and the effects are still not considered significant when assessed on a community basis.
- 3.2.16 The change does not result in a new or different likely significant operational noise effect.
- 3.2.17 The design change does not alter the predicted operational ground-borne noise or vibration levels presented in the main ES.
- 3.2.18 The noise mitigation at Culworth will not give rise to any new or different significant effects compared to those reported in the main ES.

#### *Other mitigation measures*

- 3.2.19 No mitigation measures are proposed other than those identified in the main ES (Volume 2, CFA 15, Section 11).

#### *Cumulative effects*

- 3.2.20 There are no new or different likely significant cumulative effects for sound, noise and vibration as a result of the SES<sub>3</sub> changes or any relevant committed development.

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

- 3.2.21 The SES<sub>3</sub> design change for the provision of noise mitigation at Culworth will not give rise to a new or different likely residual significant effect compared to those reported in the main ES.

### **3.3 Traffic and transport**

#### **Introduction**

- 3.3.1 This section of the report provides a description of 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 those of the SES scheme and any relevant AP<sub>2</sub> amendments.

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

- 3.3.2 The assessment scope, key assumptions and limitations and the methodology for determining significance of effects for traffic and transport are as set out in Volume 1, the SMR and the SMR Addendum (Volume 5: Appendix CT-001-000/1 and CT-001-000/2) of the main ES.

#### **SES<sub>3</sub> changes of relevance to this assessment**

- 3.3.3 Supplementary traffic data has been collected at the following highway junctions and section of highway, that are the subject of this assessment:

- the A361 and Welsh Road junction;
- the B4525 and Sulgrave Road (also known locally as Dump Road) junction; and
- the A422 (between the B4525 and the M40 junction 11).

3.3.4 There are also amendments proposed to the junctions of the A361 and Welsh Road and of the B4525 and Sulgrave Road, which are reported in Part 2 of this report.

### **Environmental baseline**

#### *Existing baseline*

3.3.5 The existing baseline for traffic and transport is as set out in the main ES (Volume 2, CFA15, Section 12), updated by the additional traffic survey information.

#### *Future baseline*

##### **Construction**

3.3.6 The future baseline for construction remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 12), updated by the additional traffic survey information.

##### **Operation (2026 and 2041)**

3.3.7 The future baselines for operation in 2026 and 2041 are as set out in the main ES (Volume 2, CFA15, Section 12), updated by the additional traffic survey information.

### **Effects arising during construction**

#### *Avoidance and mitigation measures*

3.3.8 No avoidance or mitigation measures, additional to those reported in the main ES, are proposed for the SES3 scheme. There are however, junction improvements proposed for the AP4 revised scheme (the B4525 and Sulgrave Road junction improvements (AP4-015-001) and the A361 and Welsh Road junction improvements (AP4-015-004)).

#### *Assessment of impacts and effects*

##### **Temporary effects**

3.3.9 The supplementary traffic data has the potential to change the assessment of the impacts of construction traffic on the local network in relation to congestion and delays and to traffic-related severance for non-motorised users.

3.3.10 The assessment removes the minor adverse significant effect reported in the SES and AP2 ES in relation to congestion and delay to vehicle users at the A361 and Welsh Road junction.

3.3.11 The assessment of the B4525 and Sulgrave Road junction has not identified any new or different likely different significant effects compared to those reported in the main ES or the SES and AP2 ES (a non-significant impact with regard to the B4525 and Sulgrave Road junction).

3.3.12 The A422 (between B4525 and M40 junction 11) was not previously assessed as part of the original scheme. The revised assessment identifies a new major adverse

significant effect in relation to traffic-related severance for non-motorised users due to increased HGV traffic at the A422 (between B4525 and M40 junction 11).

### **Permanent effects**

- 3.3.13 The permanent effects of construction on traffic and transport are reported under 'Effects arising from operation'.

### *Other mitigation measures*

- 3.3.14 No avoidance or mitigation measures, additional to those reported in the main ES, are proposed for the SES3 scheme. There are however, junction improvements proposed for the AP4 revised scheme (the B4525 and Sulgrave Road junction improvements (AP4-015-001) and the A361 and Welsh Road junction improvements (AP4-015-004)).

### *Cumulative effects*

- 3.3.15 The assessment has taken into account cumulative effects, including planned developments by taking account of background traffic growth, as well as traffic and transport impacts of works being undertaken in neighbouring areas.
- 3.3.16 There are no new or different likely significant cumulative effects for traffic and transport as a result of the SES3 changes interacting with AP2 amendments.

### *Summary of likely residual significant effects*

- 3.3.17 The revised assessment has identified the removal of the minor residual adverse significant effect at the A361 with Welsh Road junction in relation to junction congestion and delay to vehicle users.
- 3.3.18 In addition, the revised assessment has identified a new major residual adverse significant effect at the A422, between the B4525 and M40 junction 11 in relation to traffic-related severance for non-motorised users.
- 3.3.19 The significant effects that result from construction of the SES3 scheme are shown on the SES3 and AP4 ES Map Series TR-03 (Volume 5, Traffic and Transport Map Book).

### **Effects arising from operation**

- 3.3.20 There will be no new or different significant operation effects for traffic and transport as a result of the SES3 assessment, in comparison with the reporting in the main ES and the SES and AP2 ES.

# Part 2: Additional Provision 4 Environmental Statement

## 4 Summary of amendments

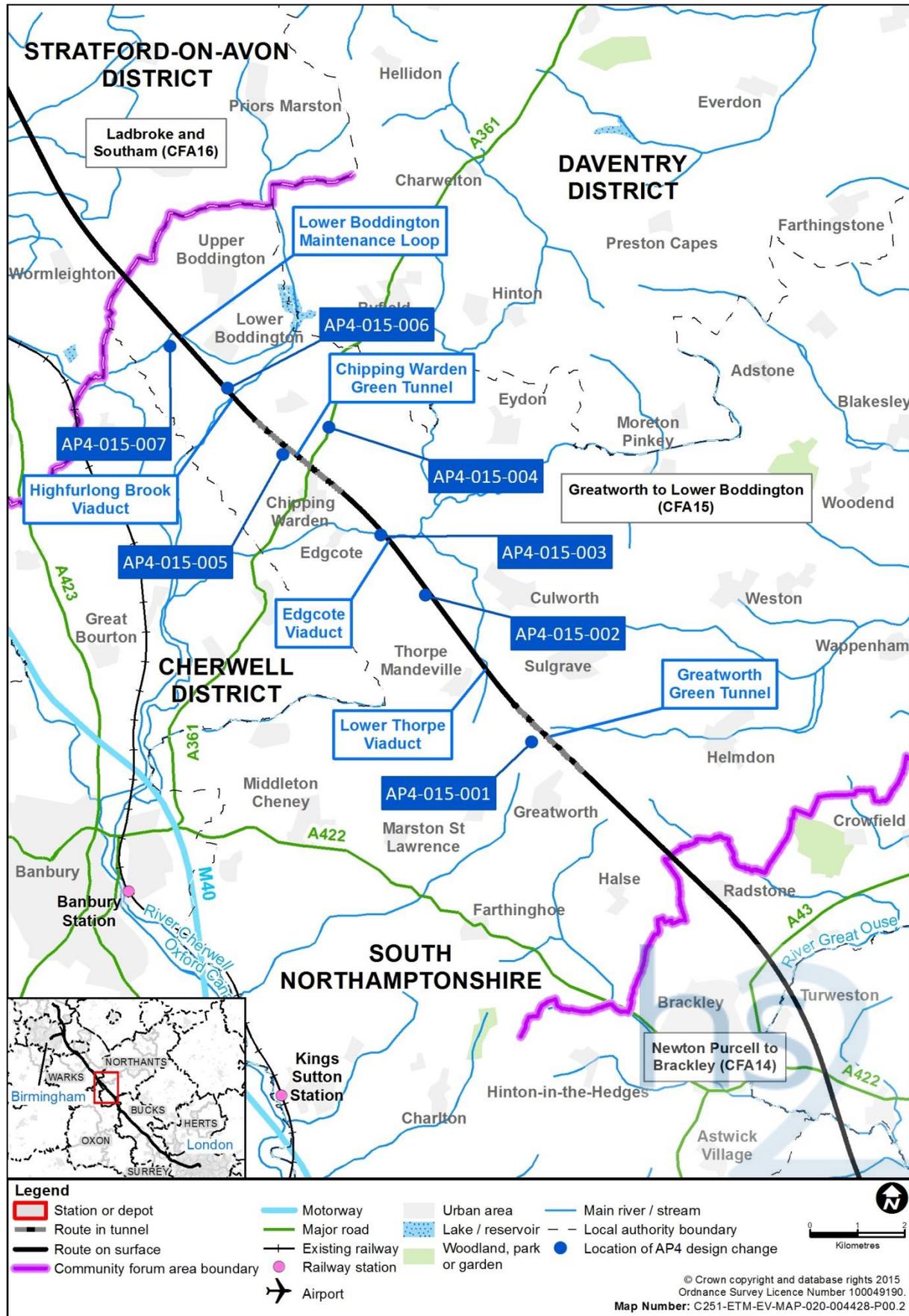
- 4.1.1 Table 5 provides a summary of the amendments in the Greatworth to Lower Boddington area (CFA15) and Figure 2 shows the locations.

Table 5: Summary of amendments in CFA15

Name of amendment	Description of the SES3 scheme	Description of the AP4 revised scheme
<p>Additional land required for junction improvements at the B4525 and Sulgrave Road</p> <p>(AP4-015-001)</p>	<p>There is no provision for highway improvements at the junction of the B4525 and Sulgrave Road (known locally as Dump Road).</p> <p>There will be a temporary realignment of the B4525 for a period of approximately two and a half years, then permanent reinstatement along its existing alignment.</p>	<p>Permanent highway improvements with lighting will be provided at the junction of the B4525 and Sulgrave Road. This will include widening of the approaches to the junction and the provision of road markings to separate on-coming traffic and provision of a safe turning area.</p> <p>A balancing pond will be provided adjacent to and west of the upgraded Sulgrave Road and hedgerow will be planted along the upgraded sections</p> <p>The amendment will permanently require land outside Bill limits.</p>
<p>Additional land required for the reconfiguration of a balancing pond at West Mill Farm</p> <p>(AP4-015-002)</p>	<p>The provision of a permanent balancing pond for railway drainage adjacent to and west of the HS2 route and east of Bridleway AG10, west of Culworth. The pond is located north of the proposed Bridleway AG9 overbridge and south of the proposed Bridleway AG10 accommodation overbridge. An access track will be provided to the railway balancing pond from Welsh Road.</p>	<p>The proposed balancing pond will be permanently reconfigured to avoid an area of surface water flood risk identified following further assessment.</p> <p>The access track will be extended and additional landscape planting will be carried out to the north of the pond.</p> <p>The amendment will permanently require land outside Bill limits.</p>
<p>Additional land required for the relocation of ecological mitigation near Trafford Bridge</p> <p>(AP4-015-003)</p>	<p>The provision of ecological compensation for the loss of land from Trafford Bridge Marsh Local Wildlife Site (LWS), mitigation of habitat losses and habitat land creation on the east and west of HS2 route, including at Culworth Mill (part of Warden Farms).</p>	<p>The proposed wetland habitat and landscape mitigation will be relocated from Culworth Mill to adjacent to the Trafford Bridge LWS, west of the HS2 route. Changes will be made to the grassland habitat creation and landscape mitigation planting areas to be provided on the southern and northern banks of the River Cherwell.</p> <p>The amendment will permanently require land outside Bill limits.</p>
<p>Additional land required for junction improvements at the A361 and Welsh Road</p> <p>(AP4-015-004)</p>	<p>There is no provision for highway improvements at the junction of the A361 and Welsh Road, located approximately 1.3km north-east of the edge of Chipping Warden.</p>	<p>A permanent staggered T-junction with lighting will be provided at the junction of the A361 and Welsh Road, with priority for the A361.</p> <p>A land drainage area will be situated on the southern side of the A361, east of Welsh Road. Hedgerow and landscape mitigation planting will be provided along the approaches to the upgraded junction.</p>

Name of amendment	Description of the SES <sub>3</sub> scheme	Description of the AP <sub>4</sub> revised scheme
<p>Additional land required for temporary stockpiling at Chipping Warden (disused) Airfield</p> <p>(AP<sub>4</sub>-015-005)</p>	<p>The provision of land on the Chipping Warden (disused) Airfield to be utilised during construction at the Chipping Warden tunnel north portal satellite compound. This is for temporary stockpiling of excavated material generated during the construction of the Chipping Warden green tunnel.</p>	<p>The amendment will permanently require land outside Bill limits.</p> <p>An additional area of land will be required for temporary stockpiling to avoid stockpiling on the hardstanding areas owned and utilised by the landowner. The additional area of land is located adjacent to and north of the buildings on the Appletree Industrial Estate.</p> <p>Access will be provided between the stockpiling area within the Chipping Warden tunnel north portal satellite compound and the new temporary stockpiling area.</p> <p>The amendment will temporarily require land outside Bill limits.</p>
<p>Additional land required for land drainage, balancing pond changes, improved access at Old House Farm</p> <p>(AP<sub>4</sub>-015-006)</p>	<p>The provision of permanent landscape earthworks to the east and west of the HS<sub>2</sub> route. A land drainage area will be provided and a balancing pond and new access track north of Highfurlong Brook to the west of the HS<sub>2</sub> route.</p> <p>The design change (SES-015-001) reported in the SES and AP<sub>2</sub> ES involves the re-grading of the permanent landscape mitigation earthworks between Highfurlong Brook and Cedars Farm. This design change would not affect the land drainage area and balancing pond.</p>	<p>The land drainage area and balancing pond will be repositioned to sit within the far edge of the landscape earthworks as proposed by the main ES. The location of the outfalls from the drainage structures in to Highfurlong Brook will also be repositioned.</p> <p>The associated access track will be permanently repositioned and the track beneath the viaduct of the HS<sub>2</sub> route to the land drainage area will be extended.</p> <p>The amendment will permanently require land outside Bill limits.</p>
<p>Additional land required for the provision of an accommodation overbridge at Cedars Farm</p> <p>(AP<sub>4</sub>-015-007)</p>	<p>The permanent provision of a new private access track to Cedars Farm from Claydon Road (also known as Boddington Road) on the western side of the HS<sub>2</sub> route, north-west of Lower Boddington.</p>	<p>The provision of a permanent new private accommodation overbridge across the HS<sub>2</sub> route within Cedars Farm. The accommodation overbridge will reduce disruption to farming operations. The upgrade to the existing private access track will no longer be provided.</p> <p>The amendment will permanently require land outside Bill limits.</p>

Figure 2: Locations of amendments in CFA15



## 5 Assessment of amendments

### 5.1 Additional land required for junction improvements at the B4525 and Sulgrave Road (AP4-015-001)

- 5.1.1 The Bill does not provide for highway improvements at the junction of the B4525 and Sulgrave Road (also known locally as Dump Road), located north-west of Greatworth. There will be a temporary realignment of the B4525 over the Greatworth green tunnel for a period of approximately two and a half years, then permanent reinstatement along its existing alignment (refer to maps CT-05-070 and CT-06-070 in the main ES Volume 2, CFA15 Map Book).
- 5.1.2 Since submission of the Bill, further consultation has been undertaken with the local highways authority, Northamptonshire County Council. Improvements will be made at the junction of the B4525 and Sulgrave Road, including the widening of the approaches to the junction and the provision of road markings to separate on-coming traffic and provision of a safe turning area and the provision of lighting. These junction improvements will tie in with the temporary realignment of the B4525, just east of the junction. A balancing pond, approximately 500m<sup>2</sup> in size, will be provided adjacent to and west of the upgraded Sulgrave Road and hedgerow will be planted along the upgraded sections (refer to maps CT-05-070 and CT-06-070 in the SES3 and AP4 ES Volume 2, CFA15 Map Book).
- 5.1.3 The estimated duration of construction of the junction improvements at the B4525 and Sulgrave Road is six months. Approximately 3.3ha of additional land is permanently required, of which approximately 0.5ha is existing road, approximately 2.5ha is arable land and approximately 0.3ha is semi-improved grassland. The additional land needed to meet this requirement is not included within the Bill, hence the need for this amendment.
- 5.1.4 The junction improvements at the B4525 and Sulgrave Road are not considered to make changes that require a reassessment of the environmental effects or proposed mitigation as set out in the main ES with respect to: air quality; community; land quality; landscape and visual assessment; socio-economics; sound, noise and vibration; and water resources and flood risk assessment. However, there were changes where reassessment was considered to be required in respect of: agriculture, forestry and soils; cultural heritage; ecology; and traffic and transport.

#### **Agriculture, forestry and soils**

##### *Introduction*

- 5.1.5 This section of the report describes the environmental baseline in relation to agriculture, forestry and soils that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the amendment, compared to those of the SES3 scheme.
- 5.1.6 There are no AP1 amendments or AP2 amendments that are relevant to the assessment.

### *Scope, assumptions and limitations*

- 5.1.7 The assessment scope, key assumptions and limitations for agriculture, forestry and soils 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.
- 5.1.8 The area of agricultural land affected by the AP4 amendment is small and will not alter the significance of effect, or result in a different significant effect, on best and most versatile (BMV) agricultural land or forestry land within the Greatworth to Lower Boddington area. The route-wide effects on BMV land and forestry land are reported in Volume 3.

### *Existing baseline*

- 5.1.9 One agricultural holding will be affected by the AP4 amendment. Marston St Lawrence Estate (holding reference no. CFA15/7) extends to 674ha and is in dairy and arable production.

### *Future baseline*

#### **Construction (2017)**

- 5.1.10 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 3.3)
- 5.1.11 Most existing Environmental Stewardship agreements will expire in 2015 and will be replaced by a new environmental land management scheme (Countryside Stewardship) which, together with the new greening measures introduced by Common Agricultural Policy reform, will affect the detailed management of individual farm holdings, but are not expected to change fundamentally the baseline circumstances described.

#### **Operation (2026)**

- 5.1.12 The future baseline for operation remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 3.3).

### *Effects arising during construction*

- 5.1.13 The change in the area of agricultural land required is permanent; there will be no temporary effects arising from this amendment.
- 5.1.14 The change of effect for Marston St Lawrence Estate will be marginal, with the total area of agricultural land required on a permanent basis increasing by approximately 2.8ha from approximately 2ha, as described in the main ES, to 4.8ha required for the AP4 revised scheme. This still represents less than 1% of the holding, and the impact due to land required remains negligible. The overall effect of the amendment on the Marston St Lawrence Estate remains assessed as moderate (due to property demolition), as described in the main ES. The AP4 amendment for junction improvements at the B4525 and Sulgrave Road 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 from operation*

- 5.1.15 The AP4 amendment for improvements at the B4525 and Sulgrave Road junction 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*

- 5.1.16 No additional mitigation measures are required, in addition to those identified in the main ES.
- 5.1.17 There are no residual significant effects associated with this amendment.

### *Cumulative effects*

- 5.1.18 There are no new or different likely significant cumulative effects for agriculture, forestry and soils as a result of the AP4 amendments interacting with one another, or any relevant committed development.

## **Cultural heritage**

### *Introduction*

- 5.1.19 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 amendment, compared to those of the SES3 scheme.
- 5.1.20 There are no AP1 amendments or AP2 amendments that are relevant to the assessment.

### *Scope, assumptions and limitations*

- 5.1.21 The assessment scope, key assumptions and limitations for cultural heritage are as set out Volume 1, the SMR (Volume 5: Appendix CT-001-000/01) and the SMR Addendum (Volume 5: Appendix CT-001-000/02) of the main ES.

### *Existing baseline*

- 5.1.22 The cultural heritage baseline for the assessment takes into account information collected in support of the main ES, which included walkover survey, geophysical survey, remote sensing data, and data from national and local registers. A full list is provided in Volume 2, Section 6.3 of the main ES. In addition, the baseline was updated with the results of additional survey work in the SES and AP2 ES (Volume 2, CFA15, Section 3.2).
- 5.1.23 The junction of the B4525 and Sulgrave Road is on the B4525 (asset reference GLB233<sup>11</sup>) which follows the course of a historical route marked on the 1634 Enclosure map. The low heritage value of the route lies in preserving an aspect of the historic landscape.

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<sup>11</sup> Cultural heritage assets are identified with a unique reference code, GLBXXX; further detail on these assets can be found in the gazetteer in Volume 5 of the main ES: Appendix CH-002-015.

- 5.1.24 Assets in the surrounding area include a prehistoric flint scatter to the west of Moreton Road (asset reference GLB051), approximately 300m to the north-west of the junction improvements, and potential pre-historic archaeology near Dean Barn (asset reference GLB050) approximately 425m to the north. Cropmarks of linear features (asset reference GLB056) may also be evidence of prehistoric settlement, and are located approximately 660m north-west of the AP4 amendment. The cropmarks are also of moderate heritage value.
- 5.1.25 Approximately 615m to the north-east of the junction improvements is a potential Iron Age/Roman British settlement of moderate heritage value (asset reference GLB039).
- 5.1.26 Approximately 385m to the north-west of the junction improvements is a former Saxon cemetery (asset reference GLB049) of moderate heritage value.
- 5.1.27 There are also 17th century enclosures (asset reference GLB220) of moderate heritage value 370m to the east, and an area of low heritage value ridge and furrow (asset reference GLB043), approximately 250m to the east.
- 5.1.28 Greatworth Park (asset reference GLB036) is approximately 480m east of the junction improvements. This asset of moderate heritage value was a Royal Air Force (RAF) wireless intercept/transmission system dating to World War II and was used throughout the Cold War.

### *Future baseline*

#### **Construction (2017)**

- 5.1.29 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 6.3) as updated by Part 1 of the SES and AP2 ES.

#### **Operation (2026)**

- 5.1.30 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 6.3) as updated by Part 1 of the SES and AP2 ES.

### *Effects arising during construction*

- 5.1.31 Construction will only impact on one identified heritage asset, the route of the B4525 (asset reference GLB233) an historic route marked on the 1634 Enclosure map. The route will remain legible within the landscape, and as such the junction improvements will not change the minimal adverse impact and negligible effect, which is not significant, to the historic route reported in the main ES.
- 5.1.32 As the junction improvements will not encroach on any other heritage assets or their setting, there will be no change to the impacts and effects reported in the main ES.
- 5.1.33 The junction improvements 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 from operation*

- 5.1.34 The permanent construction effects remain as reported in the main ES. The junction improvements will not give rise to a new or different significant effect on cultural heritage during operation and will not change the level of significance of the effects reported in the main ES.

### *Mitigation and residual effects*

- 5.1.35 No mitigation measures are required in addition to those identified in the main ES.
- 5.1.36 There are no residual significant effects associated with this amendment.

### *Cumulative effects*

- 5.1.37 There are no new or different likely significant cumulative effects for cultural heritage as a result of the AP4 amendments interacting with one another, or any relevant committed development.

## **Ecology**

### *Introduction*

- 5.1.38 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 amendment, compared to those of the SES3 scheme.
- 5.1.39 There are no AP1 amendments or AP2 amendments that are relevant to the assessment.

### *Scope, assumptions and limitations*

- 5.1.40 Updates to the scope of the assessment for ecology are set out in Volume 1 of the SES3 and AP4 ES. The key assumptions and limitations, and the methodology for determining significance of effects are as set out in Volume 1, the SMR and the SMR Addendum (Volume 5: Appendix CT-001-000/02 of the main ES) and in Addendum 4 to the SMR (SES3 and AP4 ES Volume 5: Appendix CT-001-000/5).
- 5.1.41 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. The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the AP4 revised scheme.

### *Existing baseline*

- 5.1.42 The ecological baseline of the land required for the AP4 amendment has been based on field data collated for the main ES, aerial photography and relevant existing information gathered from national organisations and from regional and local sources including the Northamptonshire Bat Group and Northamptonshire Biodiversity Records Centre.
- 5.1.43 A summary of the baseline information relevant to the assessment of the AP4 amendment is provided below. This takes account of any relevant 2015 survey

information provided in the SES3 and AP4 ES Volume 5: Appendix EC-001-002. For those receptors described in the main ES, further details are provided in Volume 2, CFA15, Section 7.1 of the main ES and in Volume 5, including maps EC-01 to EC-12 of the main ES.

### **Designated sites**

- 5.1.44 There are no statutory or non-statutory designated sites or ancient woodland relevant to the assessment.

### **Habitats**

- 5.1.45 Approximately 950m of hedgerow habitat is present within land required for the AP4 amendment. It forms part of an established network of hedgerows in this area that is reported in the main ES as being of district/borough value.
- 5.1.46 A pond is located adjacent to the land required for the junction improvements, on the northern side of the B4525, within an arable field. This pond was not identified in the main ES due to its distance from the original scheme. The pond is surrounded by scrub and trees, which are connected to the hedgerow that lines the northern side of the B4525. In line with the main ES, based on habitat alone, this pond is considered to be of local/parish value.
- 5.1.47 Of the 3.3ha of land required for the junction improvements, approximately 0.5ha is hardstanding (road), approximately 0.3ha is semi-improved grassland and approximately 2.5ha is arable land. The areas of semi-improved grassland are of up to local/parish value. The arable land was not evaluated in the main ES but is common in the wider area and it is therefore unlikely to be of more than local/parish value.

### **Protected and/or notable species**

- 5.1.48 The main ES reports the presence at Greatworth of a population of brown long-eared bats of county/metropolitan value and one population of Brandt's bat of district/borough value. Greatworth is located approximately 700m to the east of this amendment. The bats of these assemblages are likely to use the hedgerow network in the vicinity of the amendment for commuting and foraging.
- 5.1.49 As part of a precautionary approach it is assumed that the pond adjacent to the land required for the AP4 amendment, on the northern side of the B4525, supports a population of great crested newt. Scrub and tree vegetation immediately surrounding the pond and the hedgerow which bounds the northern side of the B4525 provide suitable terrestrial habitat for this species. This assumed population is considered to be of up to county/metropolitan value.

### *Future baseline*

#### **Construction (2017)**

- 5.1.50 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 7.3) as updated by Part 1 of the SES and AP2 ES.

## **Operation (2026)**

- 5.1.51 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 7.3) as updated by Part 1 of the SES and AP2 ES.

### *Effects arising during construction*

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

- 5.1.52 The assessment assumes implementation of the measures set out within the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES), which includes translocation of protected species where appropriate.

#### **Designated sites**

- 5.1.53 The AP4 amendment will not give rise to new or different significant effects on designated sites and will not change the level of significance of the effects reported in the main ES.

#### **Habitats**

- 5.1.54 The main ES reports that there are approximately 55km of hedgerows within land required for the construction of the original scheme within CFA15, of which 18km are important hedgerows under the Hedgerows Regulations 1997<sup>12</sup>. The loss of hedgerows is significant at a district/borough level. The AP4 amendment will involve the loss of approximately 950m of hedgerow leading to a different significant effect. However, the additional 950m of hedgerow loss will not change the level of significance of the effects reported in the main ES.
- 5.1.55 The AP4 amendment will not result in any other new or different effects on habitat receptors of relevance at more than the local/parish level. Additional local/parish level effects (i.e. in addition to those identified in the main ES or the SES and AP2 ES) arising from the AP4 amendment are listed in the SES3 and AP4 ES Volume 5: Appendix EC-003-002.

#### **Protected and/or notable species**

- 5.1.56 The main ES reports that the construction of the original scheme will result in a permanent adverse effect that is significant at the county/metropolitan level on the population of brown long-eared bats at Greatworth. The main ES reports that no significant effects are expected on the population of Brandt's bats at Greatworth in the main ES. This amendment will result in the temporary loss of approximately 950m of hedgerow, which may result in the fragmentation of foraging and commuting habitat for the bats at Greatworth. The amendment will therefore result in a different significant effect on the population of brown long-eared bats, but this will not change the level of significance reported in the main ES. Due to the abundance of alternative commuting and foraging habitat in this area, the amendment will not result in a new or different significant effect on the conservation status of Brandt's bat.

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<sup>12</sup> *The Hedgerows Regulations 1997 (1997 No. 1160)*. London, Her Majesty's Stationery Office.

- 5.1.57 The further loss of approximately 950m of hedgerows may result in the loss of suitable terrestrial habitat for the assumed population of great crested newt present in the pond adjacent to the land required for the AP4 amendment. The loss of terrestrial habitat adjacent to the assumed breeding pond has the potential to result in an adverse effect on the conservation status of the assumed great crested newt population, which would be significant at the county/metropolitan level. This is a new significant effect.
- 5.1.58 The AP4 amendment will not give rise to other new or different effects on species receptors of relevance at more than the local/parish level. Additional local/parish level effects (i.e. in addition to those identified in the main ES) are listed in the SES3 and AP4 ES Volume 5: Appendix EC-003-002.

### *Cumulative effects*

- 5.1.59 There are no new or different likely significant cumulative effects for ecology as a result of the AP4 amendments interacting with one another, or any relevant committed development.

### *Mitigation and residual effects*

#### **Other mitigation measures**

- 5.1.60 The planting of new hedgerows on completion of the works will address the new and different significant effects arising as a consequence of the AP4 amendment, and reduce effects to a level where they are not significant. The hedgerow planting will be undertaken in accordance with the ecological principles of mitigation (main ES Volume 5: CT-001-000/2).
- 5.1.61 Replanting of the hedgerows will also reinstate habitat potentially used by the population of brown long-eared bat at Greatworth and the assumed great crested newt population in the pond adjacent to the land required for the AP4 amendment.
- 5.1.62 With the implementation of the mitigation measures proposed the different ecological effects arising from the amendment are reduced to a level where they are not significant.

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

- 5.1.63 No new or different residual effects on ecological receptors occur as a consequence of the amendment. The significant residual effects of the AP4 revised scheme in this area are therefore unchanged from those reported in the SES and AP2 ES.

### *Effects arising from operation*

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

- 5.1.64 No avoidance and mitigation measures additional to those reported in the main ES as updated by the SES and AP2 ES are required.

#### **Designated sites**

- 5.1.65 The AP4 amendment will not give rise to new or different significant effects on designated sites during operation and will not change the level of significance of the effects reported in the main ES.

## **Habitats**

- 5.1.66 The amendment will not give rise to new or different significant effects on habitats during operation and will not change the level of significance of the effects reported in the main ES.

## **Protected and/or notable species**

- 5.1.67 The lighting of the improved junction could result in disturbance to commuting and foraging bat species, such that they need to use alternative habitat for movement throughout their home range during operation of the scheme. However, there is an abundance of alternative commuting routes and foraging habitats in the area surrounding the land required for the AP<sub>4</sub> amendment. Therefore, the amendment will not give rise to any new or different significant effects on the brown long-eared and Brandt's bat populations at Greatworth, or change the level of significance of the effects reported in the main ES.
- 5.1.68 The amendment will not result in any further new or different effects on species receptors of relevance during operation at more than the local/parish level. Additional local/parish level effects (i.e. in addition to those identified in the main ES) arising from SES changes are listed in the SES<sub>3</sub> and AP<sub>4</sub> ES Volume 5: Appendix EC-003-002.

## *Cumulative effects*

- 5.1.69 There are no new or different likely significant cumulative effects for ecology during operation as a result of the AP<sub>4</sub> amendments interacting with one another, or any relevant committed development.

## *Mitigation and residual effects*

### **Other mitigation measures**

- 5.1.70 No additional mitigation measures (i.e. in addition to those identified in the main ES and the SES and AP<sub>2</sub> ES) are required.

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

- 5.1.71 No new or different residual effects on ecological receptors occur as a consequence of the AP<sub>4</sub> amendment. The significant residual effects of the AP<sub>4</sub> revised scheme are therefore unchanged from those reported in the main ES.

## **Traffic and transport**

### *Introduction*

- 5.1.72 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 amendment, compared to those of the SES<sub>3</sub> scheme taking into account any relevant AP<sub>2</sub> amendments.

### *Scope, assumptions and limitations*

- 5.1.73 The assessment scope, key assumptions and limitations and the methodology for determining significance of effects for traffic and transport are as set out in Volume 1,

the SMR and the SMR Addendum (Volume 5: Appendix CT-001-000/1 and CT-001-000/2) of the main ES.

### *Existing baseline*

- 5.1.74 The environmental baseline for traffic and transport is set out in the main ES (Volume 2, CFA15, Section 12).
- 5.1.75 Supplementary traffic data has been collected at the B<sub>4525</sub> and Sulgrave Road junction, to support the assessment of the AP<sub>4</sub> amendment at the B<sub>4525</sub> and Sulgrave Road junction (see Section 3.3.3).

### *Future baseline*

#### **Construction**

- 5.1.76 The future baseline for construction is as set out in the main ES (Volume 2, CFA 15, Section 12), updated by the supplementary traffic survey data in Part 1 of this report.

#### **Operation (2026 and 2041)**

- 5.1.77 The future baselines for operation in 2026 and 2041 are as set out in the main ES (Volume 2, CFA 15, Section 12), updated by the supplementary traffic survey data in Part 1 of this report.

### *Effects arising during construction*

- 5.1.78 The main ES and the SES and AP<sub>2</sub> ES reported moderate significant adverse effects on the B<sub>4525</sub> (between the Greatworth green tunnel satellite compound and Banbury Lane) and Sulgrave Road, due to traffic-related severance for non-motorised users arising from the combination of construction traffic and traffic diverted from Helmdon Road, which will be temporarily closed as part of construction of the scheme. The AP<sub>4</sub> amendment does not affect the traffic flows along this section of road and consequently this significant effect remains.
- 5.1.79 With the existing junction layout, there were no significant effects identified within the main ES or the SES and AP<sub>2</sub> ES with regard to accident and safety risks.
- 5.1.80 The SES<sub>3</sub> includes an assessment in relation to congestion and delays which has been carried out using supplementary traffic data, as reported within Section 3.3.123.2.21. This identified that the junction will operate within capacity during construction, based upon the existing layout and, as reported in the main ES, identifies no significant effects.
- 5.1.81 The AP<sub>4</sub> amendment will widen approaches to the junction and provide road markings to separate on-coming traffic, a safe turning area and lighting. This is considered to provide a level of benefit with regard to capacity and safety in comparison to the existing layout. However, the impact on congestion and delays or accident risk (recognising the relatively low accident risk with the existing layout) will be small. Consequently, the SES<sub>3</sub> assessment, which reports that there are no significant effects in relation to congestion and delays and accident and safety risk, is unchanged with this amendment.

- 5.1.82 The AP4 amendment 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 and Section 3 of this report.

#### *Effects arising from operation*

- 5.1.83 The AP4 amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in Part 1 of this report.

#### *Mitigation and residual effects*

- 5.1.84 No additional mitigation measures, in addition to those identified in the main ES and subsequent SES and AP ES reports are proposed.

- 5.1.85 There is no change to the likely residual adverse effect during construction and operation as reported in the main ES.

#### *Cumulative effects*

- 5.1.86 The assessment has taken into account cumulative effects, including planned development, by taking account of background traffic growth, as well as traffic and transport impacts of works being undertaken in neighbouring areas.

- 5.1.87 There are no new or different likely significant cumulative effects for traffic and transport as a result of the AP4 amendments interacting with one another, or any relevant AP2 amendment.

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

- 5.1.88 The junction improvements at the B4525 and Sulgrave Road will not result in any new or different residual significant effects or change the significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA15) and Part 1 of this report.

## **5.2 Additional land required for the reconfiguration of a balancing pond at West Mill Farm (AP4-015-002)**

- 5.2.1 The Bill provides for a permanent balancing pond for railway drainage at West Mill Farm adjacent to and west of the HS2 route and east of Bridleway AG10, west of Culworth. The pond would be located north of the proposed Bridleway AG9 overbridge and south of the proposed Bridleway AG10 overbridge. An access track will be provided to the railway balancing pond from Welsh Road (refer to maps CT-05-073 and CT-06-073 in the main ES Volume 2, CFA15 Map Book).

- 5.2.2 An amendment in the AP1 revised scheme, for the revised access to Danes Moor auto-transformer station (ATS) (AP1-015-024), provides for the improvement and widening (3.5m with 1.5m verges) of a shared access with West Mill Farm and the railway balancing pond from Welsh Road. Approximately 0.2ha of land would be required from West Mill Farm for this AP1 amendment (refer to maps CT-05-073 and CT-06-073 in the AP1 ES Volume 2, CFA15 Map Book).

- 5.2.3 Since submission of the Bill and the AP1 ES, further assessment of areas of surface water flood risk has been undertaken and has identified that the balancing pond

proposed within the original scheme is partially located within a surface water flood area. To avoid the area of surface water flood risk, the balancing pond will be permanently reconfigured to sit adjacent to the western boundary of the HS2 route. The pond will be reshaped to be wider at its southern extent and narrower at the north. The access track will be extended by approximately 20m southwards, with a turning head<sup>43</sup> provided adjacent to the pond. Additional landscape planting will be carried out to the north of the pond (refer to maps CT-05-073 and CT-06-073 in the SES3 and AP4 ES Volume 2, CFA15 Map Book). The AP4 amendment is independent of the amendment for the revised access to Danes Moor ATS (AP1-015-024) as proposed by the AP1 revised scheme.

- 5.2.4 Approximately 0.5ha of additional land is permanently required. The additional land needed to meet this requirement is not included within the Bill, hence the need for this amendment.
- 5.2.5 The reconfiguration of the railway drainage balancing pond is not considered to make changes that require a reassessment of the environmental effects or proposed mitigation as set out in the main ES with respect to: 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 in respect of: agriculture, forestry and soils; and cultural heritage.

## **Agriculture, forestry and soils**

### *Introduction*

- 5.2.6 This section of the report describes the environmental baseline in relation to agriculture, forestry and soils that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the amendment, compared to those of the SES3 scheme taking into account the AP1 amendment for the revised access to Danes Moor ATS (AP1-015-024).

### *Scope, assumptions and limitations*

- 5.2.7 The assessment scope, key assumptions and limitations for agriculture, forestry and soils 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.
- 5.2.8 The area of agricultural land affected by the AP4 amendment is small and will not alter the significance of effect, or result in a different significant effect, on BMV agricultural land or forestry land within the Greatworth to Lower Boddington area. The route-wide effects on BMV land and forestry land are reported in Volume 3.

### *Existing baseline*

- 5.2.9 One agricultural holding will be affected by the AP4 amendment. West Mill Farm (holding reference no. CFA15/14) extends to 243ha and is engaged in sheep and arable production.

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<sup>43</sup> A space where vehicles can turn around.

### *Future baseline*

#### **Construction (2017)**

- 5.2.10 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 3.3).
- 5.2.11 Most existing Environmental Stewardship agreements will expire in 2015 and will be replaced by a new environmental land management scheme (Countryside Stewardship) which, together with the new greening measures introduced by Common Agricultural Policy reform, will affect the detailed management of individual farm holdings, but are not expected to change fundamentally the baseline circumstances described.

#### **Operation (2026)**

- 5.2.12 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 3.3).

### *Effects arising during construction*

- 5.2.13 The change in the area of agricultural land required is permanent; there will be no temporary effects arising from this amendment.
- 5.2.14 This amendment will increase the area of land required from West Mill Farm from 16.4ha to 16.9ha, which represents only 3% of the holding and the overall effect on West Mill Farm will therefore remain as minor adverse which is not significant, as reported in the main ES.

### *Effects arising from operation*

- 5.2.15 The AP4 amendment for the reconfiguration of the balancing pond at West Mill Farm 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 or the SES and AP2 ES.

### *Mitigation and residual effects*

- 5.2.16 No additional mitigation measures, in addition to those identified in the main ES and subsequent SES and AP ES reports are required.
- 5.2.17 There are no residual significant effects associated with this amendment.

### *Cumulative effects*

- 5.2.18 The effect on this holding was also modified by the revised access to Danes Moor ATS (AP1-015-024). This amendment resulted in a marginal increase in the area of agricultural land required for the scheme of approximately 0.2ha. Overall, the effect on the holding was reported in the main ES as minor adverse, and this assessment remains valid even after the AP1 amendment has been taken into account.

## **Cultural heritage**

### *Introduction*

- 5.2.19 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 amendment, compared to those of the SES3 scheme.

- 5.2.20 There are no AP1 amendments or AP2 amendments that are relevant to the assessment.

#### *Scope, assumptions and limitations*

- 5.2.21 The assessment scope, key assumptions and limitations for cultural heritage are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/01) and the SMR Addendum (Volume 5: Appendix CT-001-000/02) of the main ES.

#### *Existing baseline*

- 5.2.22 The cultural heritage baseline for the assessment takes into account information collected in support of the main ES, which included walkover survey, geophysical survey, remote sensing data, and data from national and local registers. A full list is provided in Volume 2, Section 6.3 of the main ES original scheme. In addition, the baseline was updated with the results of additional survey work in the SES and AP2 ES (Volume 2, CFA15, Section 3.2).
- 5.2.23 The land required for the reconfiguration of the balancing pond does not encroach on any heritage assets. The western edge of the new land required adjoins Edgcote Battlefield (asset reference GLB108), a Registered Battlefield. The battle of Edgcote was fought on 24 July 1469 and was the first in a series of engagements in the 1469 - 1471 campaign of the Wars of the Roses. The evidential value of remains within the battlefield itself, the landscape within which it sits and which played a key part in how the battle played out, and the associated views across the battlefield all contribute to the value of the Registered Battlefield.
- 5.2.24 Cropmarks (asset reference GLB105), located 500m east of the amendment provide evidence of prehistoric activity. These cropmarks are of moderate heritage value. The cropmarks include a distinct D-shaped feature and rectilinear features.

#### *Future baseline*

##### **Construction (2017)**

- 5.2.25 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 6.3) as updated by Part 1 of the SES and AP2 ES.

##### **Operation (2026)**

- 5.2.26 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA13, Section 6.3) as updated by Part 1 of the SES and AP2 ES.

#### *Effects arising during construction*

- 5.2.27 The land required for the reconfigured balancing pond does not encroach on any heritage assets. Given the relatively small amount of land required compared to the original scheme, the amendment does not change the permanent medium impact on

the setting of Edgcote Battlefield (asset reference GLB108), or the permanent major adverse significant effect reported in the main ES.

- 5.2.28 The AP4 amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

#### *Effects arising from operation*

- 5.2.29 The permanent construction effects remain as reported in the main ES. The reconfiguration of the balancing pond will not give rise to a new or different significant effect on cultural heritage during operation and will not change the level of significance of the effects reported in the main ES.

#### *Mitigation and residual effects*

- 5.2.30 No additional mitigation measures, in addition to those identified in the main ES are required.

- 5.2.31 There are no changes to the residual significant effects reported in the main ES.

#### *Cumulative effects*

- 5.2.32 There are no new or different likely significant cumulative effects for cultural heritage as a result of the AP4 amendments interacting with one another, or any relevant committed development.

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

- 5.2.33 The reconfiguration of the balancing pond at West Mill Farm will not result in new or different significant effects and will not change the level of significance of the environmental effects or the proposed mitigation as set out in the main ES (Volume 2, CFA15) and the AP1 ES (Volume 2, CFA15).

## **5.3 Additional land required for the relocation of ecological mitigation near Trafford Bridge (AP4-015-003)**

- 5.3.1 The Bill provides ecological compensation for the loss of lowland fen, swamp and semi-improved grassland from Trafford Bridge Marsh Local Wildlife Site (LWS). Mitigation of habitat losses from the LWS during construction, and to provide habitat connectivity, is provided by ecological habitat creation areas next to the LWS. This included an area of wetland habitat creation and landscape mitigation planting on the Culworth Mill landholding (part of Warden Farms) (2ha in total), east of the HS2 route near Edgcote. In addition, areas of wetland habitat creation, semi-improved grassland habitat creation and landscape mitigation planting were to be provided within and adjacent to the LWS to the east and west of the HS2 route. This included habitat creation on the southern and northern edges of the River Cherwell to give visual screening to Culworth Mill from the Edgcote viaduct (refer to maps CT-05-074 and CT-06-074 in the main ES, Volume 2, CFA15 Map Book).
- 5.3.2 Since submission of the Bill, the need to relocate the ecological mitigation area at Culworth Mill has been identified so as to minimise adverse impacts on the operation of this landholding. In order to achieve this, the proposed area of ecological mitigation

has been moved from Culworth Mill to adjacent to the Trafford Bridge LWS, west of the HS2 route. This is on the southern and northern banks of the River Cherwell in the vicinity of the semi-improved grassland and landscape mitigation areas as proposed by the original scheme (refer to maps CT-05-074 and CT-06-074 in the SES3 and AP4 ES Volume 2, CFA15 Map Book).

5.3.3 The revised ecological mitigation measures are: :

- wetland habitat creation, of approximately 1.2ha in size, along the southern bank of the River Cherwell;
- wetland habitat creation, of approximately 0.4ha in size, at the north-western extent of the mitigation planting in this location. This will partially replace an area of landscape mitigation planting proposed by the main ES; and
- semi-improved grassland habitat creation will be extended by approximately 0.5ha in size, adjacent to and south of the new wetland habitat, south of the River Cherwell. This will partially replace an area of landscape mitigation planting and will provide a buffer between the newly planted trees and the wetland to avoid shading effects.

5.3.4 Approximately 2ha of land that was permanently required from Culworth Mill by the original scheme will no longer be required by the AP4 revised scheme. However, the change in location of the mitigation permanently requires a different parcel of land (approximately 0.6ha) that was not previously included within the Bill, hence the need for this amendment. There will be an overall reduction of 1.4ha of land required, when compared to the original scheme.

5.3.5 The relocation of the ecological mitigation area is not considered to make changes that require a reassessment of the environmental effects or proposed mitigation as set out in the main ES with respect to: air quality; community; 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 in respect of: agriculture, forestry and soils; cultural heritage; ecology; and landscape and visual assessment.

## **Agriculture, forestry and soils**

### *Introduction*

5.3.6 This section of the report describes the environmental baseline in relation to agriculture, forestry and soils that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the amendment, compared to those of the SES3 scheme taking into account an amendment from the SES and AP2 ES (the provision of a Chipping Warden bypass (AP2-015-009)) and other AP4 amendments (junction improvements at the A361 and Welsh Road (AP4-015-004) and the temporary stockpiling at Chipping Warden (disused) Airfield (AP4-015-005)).

### *Scope, assumptions and limitations*

5.3.7 The assessment scope, key assumptions and limitations for agriculture, forestry and soils 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.

- 5.3.8 The area of agricultural land affected by the amendment is small and will not alter the significance of effect, or result in a different significant effect, on BMV agricultural land or forestry land within the Greatworth to Lower Boddington area. The route-wide effects on BMV land and forestry land are reported in Volume 3 of the main ES.

#### *Existing baseline*

- 5.3.9 Two holdings will be affected by the AP4 amendment. The first is Warden Farms (holding reference no. CFA15/16) which is an 809ha arable holding and which includes, as rented land, the separate private ownership of Culworth Mill (referred to as Trafford Bridge Farm in the main ES). The second is Edgcote Estate (holding reference no. CFA15/15) which extends to 349ha and is engaged in dairy and arable farming and equestrian activities.

#### *Future baseline*

##### **Construction (2017)**

- 5.3.10 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 3.3).
- 5.3.11 Most existing Environmental Stewardship agreements will expire in 2015 and will be replaced by a new environmental land management scheme (Countryside Stewardship) which, together with the new greening measures introduced by Common Agricultural Policy reform, will affect the detailed management of individual farm holdings, but are not expected to change fundamentally the baseline circumstances described.

##### **Operation (2026)**

- 5.3.12 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 3.3).

#### *Effects arising during construction*

- 5.3.13 The change in the area of agricultural land required is permanent; there will be no temporary effects arising from this amendment.
- 5.3.14 The change of effect for Warden Farms will be marginal, with the total area of land required on a permanent basis reducing by 2ha, from 8.7ha as required by the original scheme, to 6.7ha as required for this amendment. This remains less than 1% of the holding and the effect is negligible, which is not significant.
- 5.3.15 The total area of land required from Edgcote Estate on a permanent basis will increase from 13.4ha, as reported in the main ES, to 14ha for this amendment. This represents less than 1% of the holding and the effect is therefore negligible, which is not significant.
- 5.3.16 Overall, this AP4 amendment for the relocation of the ecological mitigation near Trafford Bridge will not give rise to a new or different significant effect and will not change the level of significance of effects as reported in the main ES.

*Effects arising from operation*

5.3.17 The AP4 amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

*Mitigation and residual effects*

5.3.18 No additional mitigation measures, in addition to those identified in the main ES are required.

5.3.19 There are no residual significant effects associated with this amendment.

*Cumulative effects*

5.3.20 Warden Farms is affected by this and other amendments in AP4 and AP2, as set out in Table 6. Overall, however, the area of land required from Warden Farms is less than 5% and the effect is assessed as negligible and does not give rise to a new or different likely significant cumulative effect for agriculture, forestry and soils as a result of the AP4 amendments interacting with one another, the AP2 amendments or any relevant committed development.

Table 6: Cumulative area of land required by the AP4 revised scheme at Warden Farms

Relevant ES or amendment	Approximate area of land required temporarily	Assessment of temporary effect	Approximate area of land required permanently	Assessment of permanent effect
Main ES (Volume 2, CFA15, Section 3.4)	+52.3ha	Moderate adverse due to temporary severance impact	+8.7ha	Negligible
Provision of a Chipping Warden bypass (AP2-015-009)	+7.1ha	Moderate adverse due to temporary severance impact	+6.5ha	Negligible
The relocation of ecological mitigation near Trafford Bridge (AP4-015-003)	-2ha	Moderate adverse due to temporary severance impact	-2ha	Negligible
Junction improvements at the A361 and Welsh Road (AP4-015-004)	+3.3ha	Moderate adverse due to temporary severance impact	+3.3ha	Negligible
Temporary stockpiling at Chipping Warden (disused) Airfield (AP4-015-005)	+6.1ha	Moderate adverse due to temporary severance impact	+0ha	Negligible
Total / cumulative assessment	+66.8ha	Moderate adverse due to temporary severance impact	+16.5ha	Negligible

## Cultural heritage

### *Introduction*

- 5.3.21 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 amendment, compared to those of the SES<sub>3</sub> scheme.
- 5.3.22 There are no AP<sub>1</sub> amendments or AP<sub>2</sub> amendments that are relevant to the assessment.

### *Scope, assumptions and limitations*

- 5.3.23 The assessment scope, key assumptions and limitations for cultural heritage are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/01) and the SMR Addendum (Volume 5: Appendix CT-001-000/02) of the main ES.

### *Existing baseline*

- 5.3.24 The cultural heritage baseline for the assessment takes into account information collected in support of the main ES, which included walkover survey, geophysical survey, remote sensing data, and data from national and local registers. A full list is provided in Volume 2, Section 6.3 of the main ES. In addition, the baseline was updated with the results of additional survey work in the SES and AP<sub>2</sub> ES (Volume 2, CFA<sub>15</sub>, Section 3.2).
- 5.3.25 Land is no longer required near Trafford Bridge for the mitigation planting. This land is within the Trafford Bridge to Trafford House landscape component (asset reference GLB<sub>226</sub>), an asset of moderate heritage value. The land is also in an area of archaeological potential of moderate heritage value containing the possible location of an early crossing over the Cherwell, a water management system, an earlier mill and paleo-environmental evidence of the Holocene environment within the Cherwell Valley (asset reference GLB<sub>131</sub>). Culworth Mill (asset reference GLB<sub>130</sub>), a post-medieval mill complex of moderate heritage value lies 30m to the east of the land no longer required. Trafford Bridge (asset reference GLB<sub>132</sub>), a Grade II listed 18th century bridge of moderate heritage value is along Welsh Road, just north-west of the land no longer required.
- 5.3.26 The new land required for the mitigation planting is within the non-designated Edgcote House Park (asset reference GLB<sub>134</sub>) and Edgcote Battlefield (asset reference GLB<sub>108</sub>), a designated historic battlefield. Both are high value heritage assets and were outside of the area required for the mitigation planting in the original scheme.

### *Future baseline*

#### **Construction (2017)**

- 5.3.27 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA<sub>15</sub>, Section 6.3) as updated by Part 1 of the SES and AP<sub>2</sub> ES.

### Operation (2026)

- 5.3.28 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 6.3) as updated by Part 1 of the SES and AP2 ES.

#### *Effects arising during construction*

- 5.3.29 The AP4 amendment results in an area of land south of Culworth Mill no longer being required for the AP4 revised scheme. This land is within the area of buried archaeology and paleo-environmental evidence near Trafford Bridge (asset reference GLB131). As the area of land is no longer required it will no longer disturb the potential archaeological remains within this asset, the medium impact and moderate adverse significant effect reported in the main ES will no longer occur.
- 5.3.30 There will be a different significant effect on the Trafford Bridge to Trafford House landscape component (asset reference GLB226) as the disturbance of buried archaeology will no longer occur as part of the AP4 revised scheme. However this will not change the medium adverse impact and moderate adverse significant effect reported in the main ES on the Trafford Bridge to Trafford House landscape component (asset reference GLB226). This significant effect is due to the severance of the connection between the Trafford Bridge to Trafford House landscape component (asset reference GLB226), the Edgcote Parkland (asset reference GLB134) and Edgcote Battlefield (asset reference GLB108), and the impact on the understanding of the historic landscape from the construction of the Edgcote viaduct.
- 5.3.31 The Grade II Trafford Bridge (asset reference GLB132) reported a high adverse impact with a significant major adverse effect and Culworth Mill (asset reference GLB130) reported a non-significant minor adverse effect in the main ES. This was as a result of the impact of the construction of the Edgcote viaduct on their setting and the understanding of the historic landscape. There are no further impacts on these assets as a result of the AP4 amendment. Therefore the amendment will not give rise to a new or different significant effect on Trafford Bridge (asset reference GLB132) and the non-significant effect on Culworth Mill (asset reference GLB130) and will not change the level of significance for both assets as reported in the main ES.
- 5.3.32 The AP4 amendment also includes the requirement for a relatively small addition to land already required within Edgcote Battlefield (asset reference GLB108) (an additional 0.2% of the total asset) and Edgcote House Park (asset reference GLB134) (an additional 1.2% of the total asset). Both assets have already reported significant effects in the main ES due to the impact on the landscape and removal of archaeological remains with permanent medium adverse impacts and a significant major adverse effect. The amount of additional land required in both assets will not result in a change to the scale of impact due to its relative size within the assets. No specific features associated with the assets are identified in the new land, and therefore the level of significance of the effects remain as reported in the main ES.

#### *Effects arising from operation*

- 5.3.33 The permanent construction effects remain as reported in the main ES. The AP4 amendment for the relocation of ecological mitigation near Trafford Bridge will not

give rise to a new or different significant effect on cultural heritage during operation and will not change the level of significance of the effects reported in the main ES.

#### *Mitigation and residual effects*

- 5.3.34 No mitigation measures in addition to those identified in the main ES are required.
- 5.3.35 A significant residual moderate adverse effect was reported in the main ES for the area of buried archaeology and paleo-environment near Trafford Bridge (asset reference GLB131) due to the permanent removal of any associated buried archaeology. As the land is no longer required within this asset for the AP<sub>4</sub> revised scheme this residual significant moderate adverse effect will no longer occur.
- 5.3.36 A significant moderate adverse residual effect on the Trafford Bridge to Trafford House landscape component (asset reference GLB226) was reported in the main ES due to removal of associated buried remains and the permanent impact on setting of the asset and its connection with the wider historic landscape from the construction of the Edgcote viaduct. Land is no longer required within this asset for the AP<sub>4</sub> revised scheme, and any associated buried archaeology will no longer be removed, however the impact on setting will remain. Therefore the AP<sub>4</sub> amendment will give rise to a different residual moderate adverse significant effect on Trafford Bridge to Trafford House landscape component (asset reference GLB226) but does not change the level of significance reported in the main ES.

#### *Cumulative effects*

- 5.3.37 There are no new or different likely significant cumulative effects for cultural heritage as a result of the AP<sub>4</sub> amendments interacting with one another, or any relevant committed development.

#### *Volume 5 amendments*

- 5.3.38 Table 7 sets out the amendments to the main ES Volume 5, Appendix CH-003-015 (impact assessment table).

Table 7: Amendments to Volume 5, Appendix CH-003-015 (impact assessment table)

Unique identification	Name	Designation(s)	Value	Construction impact			Operation impact			New or different environmental effect from that reported in the main ES or the AP1 ES or SES and AP2 ES
				Nature of impact including mitigation	Scale of impact	Effect	Nature of impact including mitigation	Scale of impact	Effect	
GLB131	Buried archaeology and paleo-environment at Trafford Bridge	None	Moderate	The asset is not within the land required temporarily or permanently for the construction of the AP4 revised scheme	No change	Neutral	No impact on the heritage value	No change	Neutral	This is a different effect from that reported in the main ES which was a medium adverse impact and a moderate adverse significant effect

## Ecology

### *Introduction*

- 5.3.39 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 amendment, compared to those of the SES3 scheme.
- 5.3.40 There are no AP1 amendments or AP2 amendments that are relevant to the assessment.

### *Scope, assumptions and limitations*

- 5.3.41 Updates to the scope of the assessment for ecology are set out in Volume 1 of the SES3 and AP4 ES. The key assumptions and limitations, and the methodology for determining significance of effects are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/01) and the SMR Addendum (Volume 5: Appendix CT-001-000/02) of the main ES and in Addendum 4 to the SMR (SES3 and AP4 ES Volume 5: Appendix CT-001-000/5).
- 5.3.42 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. The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the AP4 revised scheme.

### *Existing baseline*

- 5.3.43 The ecological baseline of the land required for the AP4 amendment has been based on field data collated for the main ES, aerial photography and relevant existing information gathered from national organisations and from regional and local sources including: Northamptonshire Bat Group and Northamptonshire Biodiversity Records Centre.
- 5.3.44 A summary of the baseline information relevant to the assessment of the AP4 amendment is provided below. This takes account of any relevant 2015 survey information provided in the SES3 and AP4 ES Volume 5: Appendix EC-001-002. For those receptors described in the main ES, further details are provided in Volume 2, CFA15, Section 7.1 of the main ES and in Volume 5, including maps EC-01 to EC-12 of the main ES.

### **Designated sites**

- 5.3.45 There are no statutory designated sites or ancient woodlands which are relevant to the assessment.
- 5.3.46 The land required for the AP4 amendment is adjacent to a non-statutory designated site, Trafford Bridge Marsh LWS. This site is on the southern and northern banks of the River Cherwell and is designated for its semi-improved grassland, swamp and lowland fen, of which the latter is a habitat of principal importance and local BAP habitat. As reported in the main ES, it is of county/metropolitan value.

- 5.3.47 Statutory and non-statutory designated sites are described in the main ES, Volume 2, CFA15, Section 7 and are shown on Maps EC-01-035b to EC-01-041a, Volume 5, Ecology Map Book.

### **Habitats**

- 5.3.48 The additional land required for the AP4 amendment is approximately 0.5ha of existing poplar planting and 0.1ha of arable land. As reported in the main ES, the poplar planting is part of the resource of plantation woodland that is of local/parish value. The arable land was not reported in the main ES, but is common in the wider area and therefore will not exceed local/parish value.
- 5.3.49 Areas of semi-improved grassland and lowland fen within Trafford Bridge Marsh LWS are adjacent to the land required for the AP4 amendment. As reported in the main ES, they are of county/metropolitan value as they are both reasons for designation of the LWS.
- 5.3.50 The River Cherwell is situated on the boundary of the land identified for habitat creation for the AP4 amendment. As reported in the main ES, it is of county/metropolitan value.
- 5.3.51 Habitats surrounding the land required for the AP4 amendment are described in the main ES, Volume 5, CFA15, Section 7.3 and are shown on Maps EC-02-035b to EC-02-041a, Volume 5, Ecology Map Book.

### **Protected and/or notable species**

- 5.3.52 There is aquatic and terrestrial habitat suitable for water vole along the River Cherwell and associated tributaries. As reported in the main ES, it is assumed that water voles may be present in low numbers in this river. As part of the precautionary assessment this potential population is assessed as being of up to county/metropolitan value.
- 5.3.53 The main ES reported the potential for the presence of a bat assemblage associated with habitats near Trafford Bridge that is considered to be of up to county/metropolitan value.
- 5.3.54 The main ES also reported an otter population using habitat associated with the River Cherwell for foraging and commuting. This otter population is reported in the main ES as being of district/borough value.

### *Future baseline*

#### **Construction (2017)**

- 5.3.55 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 7.3).

#### **Operation (2026)**

- 5.3.56 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 7.3).

### *Effects arising during construction*

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

- 5.3.57 As stated in the main ES, the viaduct over the River Cherwell will limit habitat loss from the river and associated floodplain habitats.
- 5.3.58 The assessment assumes implementation of the measures set out within the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES), which includes translocation of protected species where appropriate.

#### **Designated sites**

- 5.3.59 The AP4 amendment will not give rise to new or different significant effects on designated sites and not will change the level of significance of the effects reported in the main ES.

#### **Habitats**

- 5.3.60 The main ES reported adverse effects on both the neutral grassland and lowland fen habitats of Trafford Bridge Marsh LWS that were significant at the county/metropolitan level. The amendment does not change the effects on the LWS.
- 5.3.61 The amendment will result in the loss of approximately 0.5ha of planted poplar trees and 0.1ha of arable land. In each case the loss of these habitats will result in an adverse effect at the local/parish level that is not significant.
- 5.3.62 The amendment results in 2ha of improved grassland to the east of the route at Culworth Mill no longer being required. This will not result in a new or different significant effect to those identified in the main ES and the SES and AP2 ES.

#### **Protected and/or notable species**

- 5.3.63 The main ES reported that no significant effects are expected on the bat assemblage associated with the River Cherwell and adjacent habitats near Trafford Bridge. This amendment will remove 0.5ha of poplar planting providing commuting and foraging habitat for this assemblage. The planting is too recent to be likely to contain trees suitable for roosting bats. Based on the limited scale of additional habitat loss and fragmentation the AP4 amendment will not give rise to new or different significant effects on the possible bat assemblage using the River Cherwell and Trafford Bridge, and will not change the level of significance of the effects reported in the main ES. As reported in the main ES, no significant effect on the potential bat population is expected to occur.
- 5.3.64 The AP4 amendment will not result in any new or different effects on species receptors of relevance at more than the local/parish level. Additional local/parish level effects (i.e. in addition to those identified in the main ES) arising from SES3 changes are listed in the SES3 and AP4 ES Volume 5: Appendix EC-003-002.

### *Cumulative Effects*

- 5.3.65 There are no new or different likely significant cumulative effects for ecology as a result of the AP4 amendments interacting with one another, or any relevant committed development.

### *Mitigation and residual effects*

#### **Other mitigation measures**

- 5.3.66 Both the original scheme and the AP<sub>4</sub> revised scheme result in the loss of a 0.7ha of lowland fen, swamp and semi-improved grassland from Trafford Bridge Marsh LWS. The main ES provided approximately 2.5ha of lowland fen and wet grassland to compensate for these losses. The total area of habitat creation provided by the AP<sub>4</sub> revised scheme is approximately 2.9ha and so slightly exceeds that originally provided. It will comprise approximately 2.3ha of wetland habitat creation and 0.6ha of semi-improved grassland (lowland meadow), both of which will be of sufficient quality to be habitats of principal importance. As in the original scheme, the areas of new wetland habitat will be adjacent to the retained parts of the LWS or to the River Cherwell, and therefore in an appropriate location for the creation of this habitat. New habitat will be created in accordance with the ecological principles of mitigation (main ES Volume 5: CT-001-000/2). Therefore the revised habitat creation will compensate for loss of habitats at Trafford Bridge Marsh LWS and will reduce the effects to a level that is not significant.

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

- 5.3.67 No new or different significant residual effects on ecological receptors occur as a consequence of the AP<sub>4</sub> amendment.

### *Effects arising from operation*

- 5.3.68 The AP<sub>4</sub> amendment for the relocation of ecological mitigation near Trafford Bridge will not give rise to new or different significant effects during operation and will not change the level of significance of the effects reported in the main ES or Part 1 of the SES and AP<sub>2</sub> ES.

### **Landscape and visual assessment**

#### *Introduction*

- 5.3.69 This section of the report describes the environmental baseline in relation to landscape and visual that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the amendment, compared to those of the SES<sub>3</sub> scheme.
- 5.3.70 There are no AP<sub>1</sub> amendments or AP<sub>2</sub> amendments that are relevant to the assessment.

#### *Scope, assumptions and limitations*

- 5.3.71 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 AP<sub>1</sub> ES. And Volume 1 of the SES and AP<sub>2</sub> ES.

### *Existing baseline*

- 5.3.72 The area of land required for the AP4 amendment is located within the Middleton Cheney and Woodford Halse Undulating Hills and Valleys LCA as described in the main ES (Volume 2, CFA15, Section 9.3).
- 5.3.73 The Middleton Cheney and Woodford Halse Undulating Hills and Valleys LCA comprises broad, sweeping undulations in the landform, and is characterised by a combination of arable and pastoral farmland subdivided by hedge and tree lined field boundaries. The Middleton Cheney and Woodford Halse Undulating Hills and Valleys LCA is of good condition, medium tranquillity and local value, therefore it is considered to be of medium sensitivity to change. Viewpoints located in close proximity to the area of the AP4 amendment and which are described in the main ES (Volume 2, CFA15, Section 9.3) are:
- Viewpoint 208.2.001: view looking west from Culworth Mill at Trafford Bridge;
  - Viewpoint 208.4.001: view looking west from Welsh Road, north of Trafford Bridge;
  - Viewpoint 209.2.003: view looking east from Edgcote House; and
  - Viewpoint 209.3.003: view looking east from Battlefields Trail PRoW (Footpath AE/005), north-east of Edgcote House.

### *Future baseline*

#### **Construction (2017)**

- 5.3.74 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 9.3).

#### **Operation (2026)**

- 5.3.75 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 9.3).

### *Effects arising during construction*

- 5.3.76 The AP4 amendment relates to change in the extent of landscape mitigation planting and wetland habitat creation, with its most notable effects associating with the long term establishment of vegetation during operation. During construction there will be a localised increase in the extent of vegetation clearance to open up areas of wetland habitat, but this will be barely perceptible in the context of other, more prominent construction activity in the vicinity of Trafford Bridge. There no new or different significant construction effects for landscape and visual as a result of the AP4 amendment, in comparison with the main ES.

### *Effects arising from operation*

#### **Landscape assessment**

- 5.3.77 The Middleton Cheney and Woodford Halse Undulating Hills and Valleys LCA was assessed as being affected by the original scheme and will also be affected by this amendment.

- 5.3.78 The main ES reported a moderate adverse significant effect on the LCA during year 1 of operation due to the presence of rail infrastructure, landform and bridges, reducing to a minor adverse, non-significant effect for year 15 and for year 60.
- 5.3.79 The AP4 amendment will result in a partial reduction in the extent of the landscape mitigation planting proposed in the main ES adjacent to the River Cherwell and Edgcote viaduct. The amendment will also reduce the extent of wetland habitat creation to the east of Edgcote viaduct and a corresponding increase in extent of wetland habitat creation to the west of Edgcote viaduct. These effects will only be apparent with maturity of planting at year 15 and beyond to year 60.
- 5.3.80 The change in extent of landscape mitigation planting and habitat creation will result in a local reduction in tree cover, however within the extensive scale of the LCA the amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

### **Visual assessment**

- 5.3.81 The main ES (Volume 2, CFA15, Section 9.5) reported significant effects on the four viewpoints located in close proximity to the area of the AP4 amendment.
- 5.3.82 Viewpoint 208.2.001: view looking west from Culworth Mill at Trafford Bridge was assessed as being affected by the SES3 scheme and will also be affected by this amendment. The main ES reported a moderate adverse significant effect during year 1 due to views of Edgcote viaduct and passing trains. By year 15 and beyond to year 60, as a result of the maturing of intervening landscape mitigation planting, effects will reduce to minor adverse, which is non-significant.
- 5.3.83 As the mitigation planting will no longer be included at Culworth Mill as part of the AP4 revised scheme, this will reduce the level of screening afforded to views of the Edgcote viaduct during year 15 and year 60. The reduced screening will however be balanced by the growth of roadside hedgerow and trees recently planted along Welsh Road in the foreground of the view, which will contribute a similar level of screening for viewpoint 208.2.001 compared to that of the original scheme. The relocation of ecological mitigation near Trafford Bridge will give rise to a different non-significant effect during year 15 and year 60 arising from change in the extent and appearance of screening vegetation within the extent of view. However, this will not change the level of significance of the effects reported in the main ES.
- 5.3.84 Viewpoint 208.4.001: view looking west from Welsh Road, north of Trafford Bridge was assessed as being affected by the SES3 scheme and will also be affected by this amendment. The main ES reported a moderate adverse significant effect in year 1, remaining a moderate adverse significant effect in year 15 and year 60 due to views of Edgcote viaduct and passing trains.
- 5.3.85 As the mitigation planting will no longer be included at Culworth Mill as part of the AP4 revised scheme, this will reduce the extent of tree cover within the view southwards along Welsh Road during year 15 and year 60, but will not change visibility of the viaduct, rail infrastructure or trains. The relocation of ecological mitigation near Trafford Bridge will not therefore give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

- 5.3.86 Viewpoint 209.2.003: view looking east from Edgcote House was assessed as being affected by the original scheme and will also be affected by the SES<sub>3</sub> amendment. The main ES reported a moderate adverse significant effect in year 1 due to views of trains and overhead line equipment. By year 15 and beyond to year 60, as a result of the maturing of intervening landscape mitigation planting, effects will reduce to minor adverse, which is non-significant.
- 5.3.87 The reduction in extent of the landscape mitigation planting to the west of Edgcote viaduct will potentially result in increased glimpsed views in year 15 and year 60 of the northern end of Edgcote viaduct and passing trains. This effect will however be localised and limited by existing intervening tree cover. The reduction in extent of tree cover to the west of Edgcote viaduct will give rise to a different minor adverse, non-significant effect during year 15 and year 60 arising from change in the level of screening afforded by landscape mitigation planting. However this will not change the level of significance of the effects reported in the main ES.
- 5.3.88 Viewpoint 209.3.003: view looking east from Battlefields Trail PRoW (Footpath AE/005), north-east of Edgcote House was assessed as being affected by the original scheme and will also be affected by this amendment. The main ES reported a major adverse significant effect in year 1, remaining a major adverse significant effect in year 15 and year 60 due to views of Edgcote viaduct and passing trains.
- 5.3.89 The reduction in the extent of the landscape mitigation planting to the west of Edgcote viaduct will increase visibility of Edgcote viaduct and passing trains in year 15 and year 60 when landscape mitigation planting will have matured to a point where it contributes to the screening of views. The reduced extent of tree cover to the west of Edgcote viaduct will give rise to a different significant effect in year 15 and year 60 arising from a change in the level of screening afforded by landscape mitigation planting. However this will not change the level of significance of the effects reported in the main ES. The AP<sub>4</sub> amendment will not give rise to a new or different significant effect during year 1 as landscape mitigation planting will not yet have reached a height where it is a notable feature of the view and will not change the level of significance of the effects reported in the main ES.

#### *Mitigation and residual effects*

- 5.3.90 No additional mitigation measures (i.e. in addition to those identified in the main ES) are proposed.
- 5.3.91 The relocation of ecological mitigation near Trafford Bridge will give rise to a different significant residual effect in year 15 and year 60 on viewpoint 209.3.003: view looking east from Battlefields Trail PRoW (Footpath AE/005), north-east of Edgcote House. However this will not change the level of the significance of the residual effects reported in the main ES.

#### *Cumulative effects*

- 5.3.92 There are no new or different likely significant cumulative effects for landscape and visual as a result of the AP<sub>4</sub> amendments interacting with one another, or any relevant committed development.

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

- 5.3.93 A moderate adverse significant residual effect was reported in the main ES for the area of buried archaeology and paleo-environment near Trafford Bridge (asset reference GLB131) due to the permanent removal of any associated buried archaeology. As the land is no longer required within this asset for the AP4 revised scheme, this residual moderate adverse significant effect will no longer occur.
- 5.3.94 A major adverse significant residual effect on the Trafford Bridge to Trafford House landscape component (asset reference GLB226) was reported in the main ES due to the removal of associated buried remains and the permanent impact on setting of the asset and its connection with the wider historic landscape from the construction of the Edgcote viaduct. Land is no longer required within this asset for the AP4 revised scheme, and any associated buried archaeology will no longer be removed, however the impact on setting will remain. Therefore the AP4 amendment will give rise to a different major adverse residual significant effect on Trafford Bridge to Trafford House landscape component (asset reference GLB226).
- 5.3.95 The AP4 amendment will not result in any new or different residual significant effects or change the significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA15) for any other topic.

## 5.4 Additional land required for junction improvements at the A361 and Welsh Road (AP4-015-004)

- 5.4.1 The Bill does not provide for highway improvements at the junction of the A361 and Welsh Road, located approximately 1.3km north-east of the edge of Chipping Warden.
- 5.4.2 Since submission of the Bill, further consultation has been undertaken with the local highways authority, Northamptonshire County Council. A permanent staggered T-junction will be provided at the junction of the A361 and Welsh Road, with priority for the A361, to improve road traffic safety during construction. Lighting will be provided at the junction. A land drainage area, approximately 550m<sup>2</sup> in size, will be situated on the southern side of the A361, east of Welsh Road. Hedgerow and landscape mitigation planting will be provided along the approaches to the upgraded junction (refer to maps CT-05-075-R1 and CT-06-075-R1 in the SES3 and AP4 ES Volume 2, CFA15 Map Book).
- 5.4.3 The estimated duration of construction of the junction improvements at the A361 and Welsh Road is six months. Approximately 5ha of additional land is permanently required, of which approximately 1.7ha is road, approximately 2.3ha is arable farmland and approximately 1ha of semi-improved grassland. The additional land needed to meet this requirement is not included within the Bill, hence the need for this amendment.
- 5.4.4 The junction improvements are not considered to make changes that require a reassessment of the environmental effects or proposed mitigation as set out in the main ES with respect to: air quality; community; landscape and visual assessment; socio-economics; sound, noise and vibration; and water resources and flood risk assessment. However, there were changes where reassessment was considered to be

required in respect of: agriculture, forestry and soils; cultural heritage; ecology; land quality; and traffic and transport.

## **Agriculture, forestry and soils**

### *Introduction*

- 5.4.5 This section of the report describes the environmental baseline in relation to agriculture, forestry and soils that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the amendment, compared to those of the SES3 scheme, taking into account an amendment from the SES and AP2 ES (the provision of a Chipping Warden bypass (AP2-015-009)) and other AP4 amendments (the relocation of ecological mitigation near Trafford Bridge (AP4-015-003) and the temporary stockpiling at Chipping Warden (disused) Airfield (AP4-015-005)).

### *Scope, assumptions and limitations*

- 5.4.6 The assessment scope, key assumptions and limitations for agriculture, forestry and soils 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.
- 5.4.7 The area of agricultural land affected by the amendment is small and will not alter the significance of effect, or result in a different significant effect, on BMV agricultural land or forestry land within the Greatworth to Lower Boddington area. The route-wide effects on BMV land and forestry land are reported in Volume 3.

### *Existing baseline*

- 5.4.8 The AP4 amendment will affect one agricultural holding, Warden Farms (holding reference no. CFA15/16), which is an 80gha arable holding.

### *Future baseline*

#### **Construction (2017)**

- 5.4.9 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 3.3).
- 5.4.10 Most existing Environmental Stewardship agreements will expire in 2015 and will be replaced by a new environmental land management scheme (Countryside Stewardship) which, together with the new greening measures introduced by Common Agricultural Policy reform, will affect the detailed management of individual farm holdings, but are not expected to change fundamentally the baseline circumstances described.

#### **Operation (2026)**

- 5.4.11 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 3.3).

### *Effects arising during construction*

- 5.4.12 The change in the area of agricultural land required is permanent; there will be no new temporary effects arising from this amendment.

- 5.4.13 The change of impact on Warden Farms will be marginal, with the total area of agricultural land required for this amendment being approximately 3.3ha, therefore permanently changing the requirement in the AP2 revised scheme from approximately 13.6ha to approximately 16.9ha for the AP4 revised scheme. This is less than 5% of the holding and the overall effect of the amendment on Warden Farms is assessed as negligible.
- 5.4.14 The AP4 amendment for junction improvements at the A361 and Welsh Road 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, which was negligible.

#### *Effects arising from operation*

- 5.4.15 The AP4 amendment for the junction improvements at the A361 and Welsh Road 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*

- 5.4.16 No additional mitigation measures, in addition to those identified in the main ES are required.
- 5.4.17 There are no residual significant effects associated with this amendment.

#### *Cumulative effects*

- 5.4.18 Warden Farms is affected by this and other amendments in AP4 and AP2, as set out in Table 6 (refer to Section 5.3 above) (under the amendment for the relocation of ecological mitigation near Trafford Bridge (AP4-015-003)). A moderate, and therefore significant, adverse temporary effect was reported due to severance during the construction of the Chipping Warden tunnel and this impact is not altered. The overall permanent effect remains assessed as negligible (due to the area of land required) and does not give rise to a new or different likely significant cumulative effect for agriculture, forestry and soils as a result of the AP4 amendments interacting with one another, AP2 amendments or any relevant committed development.

### **Cultural heritage**

#### *Introduction*

- 5.4.19 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 amendment, compared to those of the SES3 scheme.
- 5.4.20 There are no AP1 amendments or AP2 amendments that are relevant to the assessment.

#### *Scope, assumptions and limitations*

- 5.4.21 The assessment scope, key assumptions and limitations for cultural heritage are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/01) and the SMR Addendum (Volume 5: Appendix CT-001-000/02) of the main ES.

### *Existing baseline*

- 5.4.22 The cultural heritage baseline for the assessment takes into account information collected in support of the main ES, which included walkover survey, geophysical survey, remote sensing data, and data from national and local registers. A full list is provided in Volume 2, Section 6.3 of the main ES. In addition, the baseline was updated with the results of additional survey work in the SES and AP<sub>2</sub> ES (Volume 2, CFA<sub>15</sub>, Section 3.2).
- 5.4.23 The A<sub>361</sub> and Welsh Road junction is between two historic routes. Banbury to Daventry Road (asset reference GLB<sub>160</sub>), a major medieval route from the south-west to the Midlands, is an asset of low heritage value. Welsh Lane (asset reference GLB<sub>115</sub>) may date from the Roman period, and was used as a medieval and post medieval drovers' route from north Wales to London. Welsh Lane is of moderate heritage value.
- 5.4.24 The area of land required for the junction improvements partially encroaches on Chipping Warden (disused) Airfield (asset reference GLB<sub>162</sub>). An additional 0.6ha of land is therefore required within the asset. This is a World War II airfield with some surviving hangars, although most associated features have been lost or buried. This is an asset of moderate heritage value.
- 5.4.25 Approximately 35m to the north of the land required for the junction improvements is Redhill Wood (asset reference GLB<sub>161</sub>), an area of ancient woodland. The setting of the ancient woodland does not contribute to its high heritage value.

### *Future baseline*

#### **Construction (2017)**

- 5.4.26 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA<sub>15</sub>, Section 6.3) as updated by Part 1 of the SES and AP<sub>2</sub> ES.

#### **Operation (2026)**

- 5.4.27 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA<sub>15</sub>, Section 6.3) as updated by Part 1 of the SES and AP<sub>2</sub> ES.

### *Effects arising during construction*

- 5.4.28 The junction improvements at the A<sub>361</sub> and Welsh Road will not alter the effect reported in the main ES on the historic routes, namely Banbury to Daventry Road (asset reference GLB<sub>160</sub>) and Welsh Lane (asset reference GLB<sub>115</sub>) as the routes will still be legible in the landscape. Consequently the neutral effect reported on both Banbury to Daventry Road (asset reference GLB<sub>160</sub>) and Welsh Lane (asset reference GLB<sub>115</sub>) in the main ES remains. Similarly, the non-significant adverse effect on Redhill Wood (asset reference GLB<sub>161</sub>) remains as reported in the main ES.
- 5.4.29 The junction improvements will require an additional 0.6ha within the Chipping Warden (disused) Airfield (asset reference GLB<sub>162</sub>). This will result in an additional 0.3% of the disused airfield land required for the AP<sub>4</sub> amendment. The additional land required does not have any extant heritage features associated with the disused

airfield. Consequently, the amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

#### *Effects arising from operation*

- 5.4.30 The AP4 amendment for the A361 and Welsh Road junction improvements will not give rise to a new or different significant effect during operation and will not change the level of significance of the effects reported in the main ES.

#### *Mitigation and residual effects*

- 5.4.31 No mitigation measures in addition to those identified in the main ES are required.
- 5.4.32 There are no residual significant effects associated with this amendment.

#### *Cumulative effects*

- 5.4.33 There are no new or different likely significant cumulative effects for cultural heritage as a result of the AP4 amendments interacting with one another, or any relevant committed development.

### **Ecology**

#### *Introduction*

- 5.4.34 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 amendment, compared to those of the SES3 scheme.
- 5.4.35 There are no AP1 amendments or AP2 amendments that are relevant to the assessment.

#### *Scope, assumptions and limitations*

- 5.4.36 Updates to the scope of the assessment for ecology are set out in Volume 1 of the SES3 and AP4 ES. The key assumptions and limitations, and the methodology for determining significance of effects are as set out in Volume 1, the SMR and the SMR Addendum (Volume 5: Appendix CT-001-000/01 and Appendix CT-001-000/02 of the main ES) and in Addendum 4 to the SMR (SES 3 and AP4 ES Volume 5: Appendix CT-001-000/5).
- 5.4.37 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. The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the AP4 revised scheme.

#### *Existing baseline*

- 5.4.38 The ecological baseline of the land required for the amendment has been based on field data collated for the main ES, aerial photography and relevant existing information gathered from national organisations and from regional and local sources

including the Northamptonshire Bat Group and Northamptonshire Biodiversity Records Centre.

- 5.4.39 A summary of the baseline information relevant to the assessment of the AP4 amendment is provided below. This takes account of any relevant 2015 survey information provided in the SES3 and AP4 ES Volume 5: Appendix EC-001-002. For those receptors described in the main ES, further details are provided in Volume 2, CFA15, Section 7.1 of the main ES and in Volume 5, including maps EC-01 to EC-12 of the main ES.

### **Designated sites**

- 5.4.40 There are no statutory designated sites relevant to the assessment.
- 5.4.41 There is one non-statutory designated site relevant to the assessment for this amendment. Redhill Wood LWS is approximately 40m north-east of land required for the junction improvements at the A361 and Welsh Road. The site comprises ancient woodland and is of county/metropolitan value. This site was not described in the main ES due its distance from the HS2 route.
- 5.4.42 Statutory and non-statutory designated sites are described in the main ES, Volume 2, CFA15, Section 7.3 and are shown on Maps EC-01-035b to EC-01-041a, Volume 5, Ecology Map Book.

### **Habitats**

- 5.4.43 Approximately 2km of hedgerow habitat is present within land required for this amendment. It forms part of an established network of hedgerows in this area that is reported in the main ES as being of district/borough value.
- 5.4.44 There is a pond within the field margin of the arable field south of the B4525 that was not identified in the main ES due to its distance from the HS2 route. The main ES reported that other ponds in this area are of up to local/parish value. In line with the main ES, this pond is considered to be of local/parish value.
- 5.4.45 Other habitats within approximately 5ha of land required for this amendment comprise approximately 2.3ha of arable farmland and approximately 1ha of semi-improved grassland that forms the arable field margins and roadside vegetation (approximately 1.7ha is hardstanding). Both arable farmland and semi-improved grassland are of no more than local/parish value.

### **Protected and/or notable species**

- 5.4.46 The main ES assumed that a bat assemblage is present within habitat north of Aston le Walls utilising landscape features such as the Aston le Walls disused railway. This assemblage is considered to be of up to county/metropolitan value and is located approximately 500m north-west of the AP4 amendment. The bats of this assemblage may use the surrounding hedgerow network for commuting between suitable foraging and roost habitat in the area such as Redhill Woodland LWS.
- 5.4.47 As part of a precautionary approach it is assumed that the pond situated within the arable field south of the B4525 supports a population of great crested newt. The hedgerows which line the B4525 provide suitable terrestrial habitat for this species. It is assumed that this population is isolated from other nearby breeding ponds as it is

over 700m from the nearest potentially suitable breeding pond. This assumed population is considered to be of up to county/metropolitan value.

### *Future baseline*

#### **Construction (2017)**

- 5.4.48 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 7.3) as updated by Part 1 of the SES and AP2 ES.

#### **Operation (2026)**

- 5.4.49 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 7.3) as updated by Part 1 of the SES and AP2 ES.

### *Effects arising during construction*

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

- 5.4.50 The assessment assumes implementation of the measures set out within the CoCP (Volume 5: Appendix CT-003-000 of the main ES), which includes translocation of protected species where appropriate.

#### **Designated sites**

- 5.4.51 The AP4 amendment will not give rise to new or different significant effects on designated sites and will not change the level of significance of the effects reported in the main ES.

#### **Habitats**

- 5.4.52 The main ES reports that there are approximately 55km of hedgerows within land required for the construction of the original scheme within CFA15, of which 18km are important hedgerows under the Hedgerows Regulations 1997<sup>14</sup>. The loss of hedgerows in this area was reported to be significant at a district/borough level. The AP4 amendment will result in the removal of approximately an additional 2km of hedgerows that form part of the hedgerow network in the wider landscape. The additional hedgerow loss will give rise to a different significant effect, but does not change the level of significance of the effects reported on the hedgerow network in the main ES.
- 5.4.53 The AP4 amendment will not result in any other new or different effects on habitat receptors of relevance at more than the local/parish level. Additional local/parish level effects (i.e. in addition to those identified in the main ES or in the SES and AP2 ES) arising from the AP4 amendment are listed in the SES3 and AP4 ES Volume 5: Appendix EC-003-002.

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<sup>14</sup> *The Hedgerows Regulations 1997 (1997 No. 1160)*. London, Her Majesty's Stationery Office.

### **Protected and/or notable species**

- 5.4.54 The main ES reports that there will be no significant effects on the bat assemblage to the north of Aston le Walls as a result of the original scheme. This amendment will result in the loss of approximately 2km of hedgerow, which may result in the fragmentation of foraging habitat and commuting routes for this bat assemblage. However, there is unlikely to be any adverse effects on the conservation status of this assemblage due to the abundance of alternative commuting and foraging habitat in this area. Therefore, these changes will not give rise to any new or different significant effects, or change the level of significance of the effects reported in the main ES.
- 5.4.55 The AP4 amendment will result in the loss of a pond that potentially contains a population of great crested newt. The amendment will give rise to a new significant effect on the conservation status of great crested newt that is significant at up to county/metropolitan level.
- 5.4.56 The AP4 amendment will not result in any further new or different effects on species receptors of relevance at more than the local/parish level. Additional local/parish level effects (i.e. in addition to those identified in the main ES) arising from AP4 amendments are listed in the SES3 and AP4 ES Volume 5: Appendix EC-003-002.

### *Cumulative effects*

- 5.4.57 There are no new or different likely significant cumulative effects for ecology as a result of the AP4 amendments interacting with one another, or any relevant committed development.

### *Mitigation and residual effects*

#### **Other mitigation measures**

- 5.4.58 The planting of new hedgerows on completion of the works will address the new and different significant effects arising as a consequence of the AP4 amendment, and reduce effects to a level where they are not significant. The hedgerow planting will be undertaken in accordance with the ecological principles of mitigation (main ES Volume 5: CT-001-000/2).
- 5.4.59 Replanting of the hedgerows will also reinstate habitat that may be utilised by the population of brown long-eared bat at Greatworth and the assumed great crested newt population in the pond adjacent to the land required for the AP4 amendment.
- 5.4.60 On a precautionary basis the AP4 amendment is assumed to result in the loss of a single great crested newt breeding pond and associated terrestrial habitat. The assumed breeding pond is isolated from the closest receptor site for great crested newt included in the original scheme which is located to the west of Aston le Walls. Therefore, if great crested newt is confirmed to be present in this location, HS2 Ltd will work with landowners to provide suitable mitigation to ensure that the favourable conservation status of the population is maintained. This would include provision of a replacement pond and terrestrial habitat in accordance with the ecological principles of mitigation identified within Volume 5: Appendix CT-001-000/2 of the main ES.

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

- 5.4.61 The loss of an additional pond that is yet to be surveyed is on a precautionary basis assumed to result in a new residual adverse effect on the local great crested newt population that is significant at the county/metropolitan level. However, if great crested newt is confirmed to be present at this location then HS2 Ltd will work with landowners to provide suitable mitigation to ensure that there is no significant residual effect on the population concerned.
- 5.4.62 With the implementation of the mitigation/compensation measures proposed, all other ecological effects arising from the AP4 revised scheme will be reduced to a level where they are not significant.

### *Effects arising from operation*

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

- 5.4.63 No avoidance and mitigation measures additional to those reported in the main ES as updated by Part 1 of the SES and AP2 ES are required.

#### **Designated sites**

- 5.4.64 The AP4 amendment will not give rise to new or different significant effects on designated sites during operation and will not change the level of significance of the effects reported in the main ES.

#### **Habitats**

- 5.4.65 The AP4 amendment will not give rise to new or different significant effects on habitats during operation and will not change the level of significance of the effects reported in the main ES.

#### **Protected and/or notable species**

- 5.4.66 The main ES identified no operational effects on the bat assemblage north of Aston le Walls. Lighting of the new junction may require some bats to use alternative habitat for movement throughout their home range during operation of the AP4 revised scheme, but there is an abundance of alternative commuting routes and foraging habitats in the area surrounding the land required for the AP4 amendment. Therefore, these changes will not give rise to any new or different significant effects to the bat assemblage north of Aston le Walls, or change the level of significance of the effects reported in the main ES.

### *Cumulative effects*

- 5.4.67 There are no new or different likely significant cumulative effects for ecology during operation as a result of the AP4 amendments interacting with one another, or any relevant committed development.

### *Mitigation and residual effects*

#### **Other mitigation measures**

- 5.4.68 No additional mitigation measures, in addition to those identified in the main ES and Part 1 of the SES and AP2 ES are required.

5.4.69 There is no change to the likely residual adverse effect as reported in the main ES.

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

5.4.70 No new or different residual effects on ecological receptors occur during operation as a consequence of the AP4 amendment. The significant residual effects of the AP4 revised scheme in this area are therefore unchanged from those reported in the main ES.

## **Land quality**

### *Introduction*

5.4.71 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 amendment, compared to those of the SES3 scheme.

5.4.72 There are no AP1 amendments or AP2 amendments that are relevant to the assessment.

### *Scope, assumptions and limitations*

5.4.73 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.

### *Existing baseline*

5.4.74 The land quality baseline for the assessment takes into account baseline information collected in support of the main ES, which included field survey data 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 in Volume 2, CFA15, Section 8.

5.4.75 Whilst there is not likely to be any significant land quality effects as a result of direct historical RAF occupation of the disused Chipping Warden airbase, there is a possibility that the land may be affected by unexploded ordnance associated with military use of the airfield and the potential presence of historical contaminants in the area of excavation.

5.4.76 The potentially contaminative impacts on the land from former activities on the disused airfield may include:

- leakage of aviation fuels, lubricants and other fluids;
- disposal of ash and cinders from the site boiler house or other 'burning grounds';
- residues of luminising paints from aircraft or luminous dials, which are slightly radioactive;
- the possible presence of unexploded ordnance from wartime activities; and
- the burial of aircraft or fragments arising from crashes on the site, primarily

from wartime activities.

### *Future baseline*

- 5.4.77 The potential for the baseline to change in the lead up to construction of the amendment is limited to the extent to which any new development necessitates remediation or mitigation measures to control potential contamination releases. Any new development in the study area on potentially contaminated land will need to be suitable for its intended use as set out in the National Planning Policy Framework (NPPF). To meet this requirement new development sites may require remediation to be undertaken. This will mean that some areas described as having potentially contaminative current and/or historic land use, may no longer be of significance at the time of construction

### *Effects arising during construction*

- 5.4.78 In the event that contamination or unexploded ordnance is encountered in the area of the works, construction of the amendment will give rise to a moderate adverse impact. This would require remediation of contamination or removal and making safe of unexploded ordnance. These works would ensure that the area becomes suitable for use as part of the public highway, and are similar to any other such works needed on the wider area of the disused airfield as a result of the railway construction. The moderate adverse impact will give rise to a new minimum level of significance during construction, which will be mitigated by site and contaminant-specific remediation.

### *Effects arising during operation*

- 5.4.79 The amendment for the A361 and Welsh Road junction improvements 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*

- 5.4.80 No additional mitigation measures (i.e. in addition to those identified in the main ES) are required.
- 5.4.81 There are no residual significant effects associated with this amendment as measures will be implemented as set out in the draft CoCP as part of the main ES (Volume 5: Appendix CT-003-000).

### *Cumulative effects*

- 5.4.82 There are no new or different likely significant cumulative effects for land quality as a result of the AP4 amendments interacting with one another.

## **Traffic and transport**

### *Introduction*

- 5.4.83 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 AP4 amendment, compared to those of the SES3 scheme taking into account any relevant AP2 amendments.

### *Scope, assumptions and limitations*

- 5.4.84 The assessment scope, key assumptions and limitations for traffic and transport 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.

### *Existing baseline*

- 5.4.85 The environmental baseline for traffic and transport is as set out in the main ES (Volume 2, CFA15, Section 12).
- 5.4.86 Supplementary traffic data has been collected at the A361 and Welsh Road junction, to support the assessment of the AP4 amendment at the junction (see Section 3.3.3).

### *Future baseline*

#### **Construction**

- 5.4.87 The future baseline for construction is as set out in the main ES (Volume 2, CFA 15, Section 12), updated by the supplementary traffic survey information in Section 3 of this report.

#### **Operation (2026 and 2041)**

- 5.4.88 The future baselines for operation in 2026 and 2041 are set out in the main ES (Volume 2, CFA15, Section 12), updated by the supplementary traffic survey information in Part 1 of this report.

### *Effects arising from construction*

- 5.4.89 The SES and AP2 ES (Volume 2, CFA15, Section 3.4) reported a minor adverse effect at this junction due to congestion and delays arising from the combination of construction traffic and traffic diverted from Culworth Road, which will be closed as part of the original scheme. A revised junction assessment has been carried out using supplementary traffic data, as reported within Section 3.3.3 of this report. The SES3 assessment identified that the junction will operate within capacity during construction, with the existing layout, and therefore a minor adverse significant effect will not occur.
- 5.4.90 The junction is also forecast to operate within capacity with the AP4 amendment to upgrade the existing crossroad junction to a staggered T-junction, with priority for the A361 and there are no significant effects in relation to congestion and delays.
- 5.4.91 The AP4 amendment will provide improvements through a permanent staggered T-junction, with lighting, which is considered to provide a level of benefit with regard to safety in comparison to the existing layout. However, no significant effects relating to accident or safety risk were identified at this junction within the main ES and this remains the case.
- 5.4.92 The AP4 amendment will therefore not give rise to a new or different significant accident and safety risk effect and will not change the level of significance of the effects reported in the SES and AP2 ES, or the SES3 scheme reported in Part 1 of this report.

### *Effects arising from operation*

- 5.4.93 Traffic diverted from the closure of Culworth Road will result in increased traffic on Welsh Road. This was reported in the main ES to result in a moderate adverse significant effect in relation to traffic severance for non-motorised users of Welsh Road, between Culworth Road and the A361. This effect remains unchanged by the AP<sub>4</sub> amendment. However, the amendment will provide permanent improvements through a staggered T-junction design, with lighting, which is considered to provide a level of benefit with regard to safety in comparison to the existing layout. The AP<sub>4</sub> amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES and Part 1 of the SES and AP<sub>2</sub> ES.

### *Mitigation and residual effects*

- 5.4.94 No additional mitigation measures, in addition to those identified in the main ES are proposed.
- 5.4.95 There are no new or different likely residual effects for traffic and transport as a result of the amendment compared to those reported in Section 3 of this report.

### *Cumulative effects*

- 5.4.96 The assessment has taken into account cumulative effects, including planned development by taking account of background traffic growth, as well as traffic and transport impacts of works being undertaken in neighbouring areas.
- 5.4.97 There are no new or different likely significant cumulative effects for traffic and transport as a result of the AP<sub>4</sub> amendments interacting with one another, or any relevant AP<sub>2</sub> amendments.

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

- 5.4.98 In relation to ecology for the A361 and Welsh Road junction improvements, the loss of an additional pond that is yet to be surveyed is on a precautionary basis assumed to result in a residual construction effect on the local great crested newt population that is significant at the county/metropolitan level. However, if great crested newt is confirmed to be present at this location, then HS<sub>2</sub> Ltd will work with landowners to provide suitable mitigation to ensure that there is no residual significant effect on the population concerned.
- 5.4.99 The AP<sub>4</sub> amendment will not result in any new or different residual significant effects or change the significance of the environmental effects or proposed mitigation for any other topics as set out in the main ES (Volume 2, CFA15) or the SES and AP<sub>2</sub> ES (Volume 2, CFA15).

## **5.5 Additional land required for temporary stockpiling at Chipping Warden (disused) Airfield (AP<sub>4</sub>-015-005)**

- 5.5.1 The Bill provides for land on the Chipping Warden (disused) Airfield to be utilised during construction at the Chipping Warden tunnel north portal satellite compound. This is for the temporary stockpiling of excavated material generated during the

construction of the Chipping Warden green tunnel (refer to map CT-05-076 in the main ES Volume 2, CFA15 Map Book).

- 5.5.2 Since submission of the Bill, it has been identified that an area of the proposed land required for the Chipping Warden tunnel north portal satellite compound, specifically the areas of hardstanding along the disused airfield runways which are currently used for vehicle parking, would affect business operations during the construction phase. To avoid stockpiling on the hardstanding areas and affecting business operations, an alternative area of land has been identified for the temporary stockpiling. The additional area of land is part of Warden Farms and is located adjacent to and north of the buildings on the Appletree Industrial Estate. To provide access between the construction compound and this new stockpiling area, an additional strip of land between these areas will be required to construct an access track. Trees along the southern and eastern boundaries of the additional stockpiling area and along the access track will not be affected by the amendment (refer to map CT-05-076 in the SES3 and AP4 ES Volume 2, CFA15 Map Book).
- 5.5.3 Approximately 6.1ha of additional land is temporarily required. The additional land needed to meet this requirement is not included within the Bill, hence the need for this amendment. Approximately 5.9ha of land identified in the main ES for stockpiling will no longer be needed by the AP4 revised scheme.
- 5.5.4 The additional land required for the temporary stockpile is not considered to make changes that require a reassessment of the environmental effects or proposed mitigation as set out in the main ES with respect to: air quality; community; ecology; 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 in respect of: agriculture, forestry and soils; cultural heritage; land quality; and landscape and visual assessment.

## **Agriculture, forestry and soils**

### *Introduction*

- 5.5.5 This section of the report describes the environmental baseline in relation to agriculture, forestry and soils that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the amendment, compared to those of the SES3 scheme taking into account an amendment from the SES and AP2 ES (the provision of a Chipping Warden bypass (AP2-015-009)) and amendments within this SES3 and AP4 ES (the relocation of ecological mitigation near Trafford Bridge (AP4-015-003) and the junction improvements at the A361 and Welsh Road (AP4-015-004)).

### *Scope, assumptions and limitations*

- 5.5.6 The assessment scope, key assumptions and limitations for agriculture, forestry and soils 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.
- 5.5.7 The area of agricultural land affected by the AP4 amendment is small and will not alter the significance of effect, or result in a different significant effect, on BMV agricultural land or forestry land within the Greatworth to Lower Boddington area. The route-wide effects on BMV land and forestry land are reported in Volume 3.

### *Existing baseline*

- 5.5.8 The AP4 amendment will affect one agricultural holding, Warden Farms (holding reference no. CFA15/16), which is an 809ha arable holding.

### *Future baseline*

#### **Construction (2017)**

- 5.5.9 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 3.3).
- 5.5.10 Most existing Environmental Stewardship agreements will expire in 2015 and will be replaced by a new environmental land management scheme (Countryside Stewardship) which, together with the new greening measures introduced by Common Agricultural Policy reform, will affect the detailed management of individual farm holdings, but are not expected to change fundamentally the baseline circumstances described.

#### **Operation (2026)**

- 5.5.11 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 3.3).

### *Effects arising during construction*

- 5.5.12 The change in the area of agricultural land required is temporary; there will be no permanent effects arising from this amendment.
- 5.5.13 The change of effect for Warden Farms will be marginal with the total area of land required on a temporary basis changing from approximately 59.4ha for the AP2 revised scheme to approximately 65.5ha. Although the area of land required temporarily remains less than 10% of the holding and is a low impact, the overall effect of the AP4 revised scheme on Warden Farms during construction remains as moderate adverse due to severance, which is significant, as reported in Part 2 of the SES and AP2 ES.
- 5.5.14 The AP4 amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

### *Effects arising from operation*

- 5.5.15 The AP4 amendment for temporary stockpiling at Chipping Warden (disused) Airfield 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*

- 5.5.16 No additional mitigation measures (i.e. in addition to those identified in the main ES) are required.
- 5.5.17 There are no new or different likely residual significant effects associated with this amendment.

### *Cumulative effects*

- 5.5.18 Warden Farms is affected by this and other amendments in AP4 and AP2, as set out in Table 6 (refer to Section 5.3 above). (under the amendment for the relocation of ecological mitigation near Trafford Bridge (AP4-015-003)). A moderate and therefore significant, adverse temporary effect was reported due to severance during the construction of the Chipping Warden tunnel and this impact is not altered. The overall permanent effect remains assessed as negligible (due to the area of land required) and does not give rise to a new or different likely significant cumulative effect for agriculture, forestry and soils as a result of the AP4 amendments interacting with one another, the AP2 amendments or any relevant committed development.

### **Cultural heritage**

#### *Introduction*

- 5.5.19 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 amendment, compared to those of the SES3 scheme.
- 5.5.20 There are no AP1 amendments or AP2 amendments that are relevant to the assessment.

#### *Scope, assumptions and limitations*

- 5.5.21 The assessment scope, key assumptions and limitations for cultural heritage are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/01) and the SMR Addendum (Volume 5: Appendix CT-001-000/02) of the main ES.

#### *Existing baseline*

- 5.5.22 The cultural heritage baseline for the assessment takes into account information collected in support of the main ES, which included walkover survey, geophysical survey, remote sensing data, and data from national and local registers. A full list is provided in Volume 2, Section 6.3 of the main ES. In addition, the baseline was updated with the results of additional survey work in the SES and AP2 ES (Volume 2, CFA15, Section 3.2).
- 5.5.23 A total of 6.1ha of land is required for the stockpiling within Chipping Warden (disused) Airfield (asset reference GLB162). However, a total of 5.9ha of land at a separate location within the asset is no longer required for the AP4 revised scheme as part of the amendment. This is a World War II airfield with some surviving hangars, although most associated features have been lost or buried. This is an asset of moderate heritage value.
- 5.5.24 The amendment also extends into an area of potential prehistoric activity (asset reference GLB165). A total of 0.2ha of land required for the amendment is within this asset. However, a total of 1.3ha of land within the asset is no longer required for the AP4 revised scheme as part of the amendment. This is an asset of moderate heritage value.

### *Future baseline*

#### **Construction (2017)**

- 5.5.25 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 6.3) as updated by Part 1 of the SES and AP2 ES.

#### **Operation (2026)**

- 5.5.26 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 6.3) as updated by Part 1 of the SES and AP2 ES.

### *Effects arising during construction*

- 5.5.27 The AP4 amendment for stockpiling at Chipping Warden (disused) Airfield will result in a change to the impact of the AP4 revised scheme on the area of prehistoric activity (asset reference GLB165), as it will no longer require 1.3ha of land which was required by the original scheme. However, a separate area of 0.2ha will be required for the AP4 amendment. Coupled with the area required for the original scheme, the extent of the area impacted will still noticeably change the value of the asset with a resulting different moderate adverse significant effect. However, this will not change the level of significance of the effects reported in the main ES.
- 5.5.28 The AP4 amendment will require a net total of 0.3ha of additional land within the disused airfield from that reported in the main ES. This represents a 0.2% increase in the total area of the asset and is considered negligible. The new land required does not have any additional sensitive features associated with the disused airfield when compared to the previous site of the stockpile as identified by the original scheme. As such, the AP4 amendment will not change the medium adverse impact and the moderate adverse significant effect reported in the main ES.

### *Effects arising from operation*

- 5.5.29 The permanent construction effects remain as reported in the main ES. The relocation of the stockpile area will not give rise to a new or different significant effect on cultural heritage during operation and will not change the level of significance of the effects reported in the main ES.

### *Mitigation and residual effects*

- 5.5.30 No additional mitigation measures (i.e. in addition to those identified in the main ES and subsequent SES reports) are required.
- 5.5.31 The proposed relocation of the stockpile area will give rise to a different likely residual significant effect as less land within the area of potential prehistoric activity (asset reference GLB165) will be disturbed, resulting in less of any archaeological remains being permanently removed. However, this will not change the significant moderate adverse residual effect reported in the main ES.

### *Cumulative effects*

- 5.5.32 Part 2 of the SES and AP<sub>2</sub> ES reported an additional area of 1% to be removed from Chipping Warden (disused) Airfield (asset reference GLB<sub>162</sub>) for the Chipping Warden bypass (AP<sub>2</sub>-015-009). This resulted in the total amount of land required by the SES and AP<sub>2</sub> revised scheme from Chipping Warden (disused) Airfield (asset reference GLB<sub>162</sub>) as 51%. This increase in land required for the AP<sub>2</sub> revised scheme did not cause any new or different significant effects nor did it change the level of effect reported in the main ES. As there is only negligible change in the amount of land required for this amendment (0.3ha from a total area of 205ha), reflecting the change in location of the stockpile area within the asset, the cumulative effect of the relocated stockpile and the provision of Chipping Warden bypass in the AP<sub>2</sub> revised scheme will not result in a new or different cumulative significant effect to that reported in the main ES.

### **Land quality**

#### *Introduction*

- 5.5.33 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 amendment, compared to those of the SES<sub>3</sub> scheme.
- 5.5.34 There are no AP<sub>1</sub> amendments or AP<sub>2</sub> amendments that are relevant to the assessment.

#### *Scope, assumptions and limitations*

- 5.5.35 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.

#### *Existing baseline*

- 5.5.36 The land quality baseline for the assessment takes into account baseline information collected in support of the main ES, which included field survey data 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 in Volume 2, CFA<sub>15</sub>, Section 8.
- 5.5.37 The area of additional temporary stockpiling is proposed to be located on land within the footprint of Chipping Warden (disused) Airfield (a former RAF base), and the area is underlain by a likely thin layer of made ground and then the Whitby Mudstone Formation.
- 5.5.38 The Whitby Mudstone directly under the disused airfield is unlikely to contain large quantities of groundwater as it is classified by the Environment Agency as unproductive strata and is not in a groundwater source protection zone. No areas of landfill are known to exist within the vicinity of the disused airfield. The potentially contaminative impacts on the land from former activities on the disused airfield may include:
- leakage of aviation fuels, lubricants and other fluids;

- disposal of ash and cinders from the site boiler house or other 'burning grounds';
- residues of luminising paints from aircraft or luminous dials, which are slightly radioactive;
- the possible presence of unexploded ordnance from wartime activities; and
- the burial of aircraft or fragments arising from crashes on the site, primarily from wartime activities.

### *Future baseline*

- 5.5.39 The potential for the baseline to change in the lead up to the construction of the amendment is limited to the extent to which any new development necessitates remediation or mitigation measures to control potential contamination releases. Any new development in the study area on potentially contaminated land will need to be suitable for its intended use as set out in the NPPF. To meet this requirement new development sites may require remediation to be undertaken. This will mean that some areas described as having potentially contaminative current and/or historical land use, may no longer be of significance at the time of construction.

### *Effects arising from construction*

- 5.5.40 An impact from stockpiling is associated with the potential for mixing of stockpiled material with underlying original ground which might be contaminated. If careful segregation is not achieved, then the re-use of stockpiled material may result in the spread of contamination to other parts of the AP4 revised scheme.
- 5.5.41 With the control defined within the CoCP to prevent cross-contamination of ground from stockpiled materials, the AP4 amendment for the stockpiling at Chipping Warden (disused) Airfield will not give rise to a new or different effect or change the level of significance of the effects reported in the main ES.

### *Effects arising during operation*

- 5.5.42 The AP4 amendment for the stockpiling at Chipping Warden (disused) Airfield will not give rise to a new or different significant effect on land quality during operation and will not change the level of significance of the effects reported in the main ES.

### *Mitigation and residual effects*

- 5.5.43 No additional mitigation measures (i.e. in addition to those identified in the main ES and subsequent SES and AP ES reports) are required.
- 5.5.44 There are no new or different likely significant residual effects as a result of this amendment as measures will be implemented as set out in the draft CoCP as part of the main ES (Volume 5: Appendix CT-003-000).

### *Cumulative effects*

- 5.5.45 There are no new or different likely significant cumulative effects for land quality as a result of the AP4 amendments interacting with one another.

## Landscape and visual assessment

### *Introduction*

- 5.5.46 This section of the report describes the environmental baseline in relation to landscape and visual that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the amendment, compared to those of the SES3 scheme taking into account the AP2 amendment for the provision of a Chipping Warden bypass (AP2-015-009).

### *Scope, assumptions and limitations*

- 5.5.47 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*

- 5.5.48 The area of land required for the AP4 amendment is located within the Middleton Cheney and Woodford Halse Undulating Hills and Valleys LCA, as described in the main ES (Volume 2, CFA15, Section 9.3).
- 5.5.49 The Middleton Cheney and Woodford Halse Undulating Hills and Valleys LCA was assessed as being affected by the original scheme. The LCA consists of broad, sweeping undulations characterised by arable and pastoral farmland. Fields and roads are bounded by hedgerows with trees.
- 5.5.50 Viewpoints located in close proximity to the area of the AP4 amendment and which are described in the main ES (Volume 2, CFA15, Section 9.3) are:
- Viewpoint 213.4.002: view looking east from Appletree Lane south-west of Aston le Walls;
  - Viewpoint 213.6.001: view looking north-east from Appleton Industrial Estate; and
  - Viewpoint 214.4.001: view looking south-west from Appletree Lane, south of Aston le Walls.

### *Future baseline*

#### **Construction (2017)**

- 5.5.51 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 9.3).

#### **Operation (2026)**

- 5.5.52 The future baseline for operation remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 9.3).

### *Effects arising during construction*

#### **Landscape assessment**

- 5.5.53 The Middleton Cheney and Woodford Halse Undulating Hills and Valleys LCA was assessed as being affected by the original scheme and will also be affected by this amendment. The Middleton Cheney and Woodford Halse Undulating Hills and Valleys LCA is of good condition, medium tranquillity and local value, therefore it is considered to be of medium sensitivity to change. The main ES reported a moderate adverse significant effect on the Middleton Cheney and Woodford Halse Undulating Hills and Valleys LCA during construction as a result of disruption to valley and scarp slope landform, removal of trees, hedgerows and agricultural land and extensive earthwork operations. Also the introduction of vehicles and lighting, would reduce tranquillity locally for the duration of the work.
- 5.5.54 The land required for temporary stockpiling will be extended southwards, however within the extensive scale of the SES3 scheme Chipping Warden earthworks stockpiling the AP4 amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.

#### **Visual assessment**

- 5.5.55 The main ES (Volume 2, CFA15, Section 9.4) reported significant effects on the following viewpoints three located in close proximity to the area of the AP4 amendment.
- 5.5.56 Viewpoint 213.4.002: view looking east from Appletree Lane south-west of Aston le Walls was assessed as being affected by the SES3 scheme and will also be affected by this amendment. The main ES reported a major adverse significant effect during construction due to the removal of intervening vegetation during construction and the open view of the Chipping Warden green tunnel, the Appletree Lane reinstatement and the reinstatement of the footpath AA8.
- 5.5.57 The AP4 amendment associated with a southward increase in the extent of temporary stockpiling at Chipping Warden (disused) Airfield will be visible in open views, but will be barely perceptible beyond similar construction activity and stockpiling in the foreground. The amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.
- Viewpoint 213.6.001: view looking north-east from Appleton Industrial Estate was assessed as being affected by the SES3 scheme and will also be affected by this amendment. The main ES reported a moderate adverse significant effect during construction due to views of the construction of the Chipping Warden green tunnel, the Appleton Lane reinstatement and the reinstatement of Footpath AA8, though partially screened by intervening vegetation.
- 5.5.58 The temporary stockpiling will be in close proximity to the Appleton Industrial estate. The existing intervening vegetation and buildings will, however, partially screen views of the temporary stockpile area. The AP4 amendment will give rise to a different effect arising from stockpiling being brought closer to the viewpoint. However this will not change the level of significance of the effects reported in the main ES.

5.5.59 Viewpoint 214.4.001: view looking south-west from Appletree Lane, south of Aston le Walls was assessed as being affected by the SES3 scheme and will also be affected by this amendment. The main ES reported a major adverse significant effect due to the removal of intervening vegetation during construction and the open view of the construction of the Chipping Warden green tunnel, the Appletree Lane reinstatement and the reinstatement of Footpath AA8.

5.5.60 The temporary stockpiling area will potentially be visible in open views, but will be barely perceptible beyond similar construction activity and stockpiling in the foreground, which is likely to screen views of the AP4 amendment. The amendment associated with the temporary stockpiling at Chipping Warden (disused) Airfield 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 from operation*

5.5.61 The AP4 amendment only associates with the construction stage stockpiling of material arising from construction of the Chipping Warden green tunnel and will not therefore form part of the operational scheme. As a result, the AP4 amendment will not give rise to a new or different significant effect on landscape and visual receptors during operation and will not change the level of significance of the effects reported in the main ES.

#### *Mitigation and residual effects*

5.5.62 No additional mitigation measures, in addition to those identified in the main ES and the SES and AP2 ES are required.

5.5.63 The AP4 amendment will give rise to a different residual significant effect on viewpoint 213.6.001: view looking north-east from Appleton Industrial Estate during construction, arising from an increase in the extent of stockpiling within the extent of views. However this will not change the moderate adverse residual significant effect reported in the main ES.

#### *Cumulative effects*

5.5.64 This amendment associated with the temporary stockpiling at Chipping Warden (disused) Airfield will interact with the AP2 amendment to provide a Chipping Warden bypass (AP2-015-009).

5.5.65 The AP2 amendment (AP2-015-009) will introduce additional construction activity associated with removal of existing vegetation, earthworks grading and highway construction along the route of Chipping Warden bypass and associated junctions. The SES and AP2 ES reported new and different significant effects on landscape and visual receptors, but no change in the level of significance of the effects on receptors identified in the main ES. Additional significant visual effects were however identified in relation to additional visual receptors with views of the amendment to provide a Chipping Warden bypass (AP2-015-009).

5.5.66 Both the AP4 amendment associated with stockpiling at Chipping Warden (disused) Airfield and the provision of a Chipping Warden bypass (AP2-015-009) will give rise to different construction landscape and visual cumulative effects compared to those assessed for their separate component changes. Cumulative effects will primarily arise

from the combined influence of construction activity on Viewpoint 213.6.001: view looking north-east from Appleton Industrial Estate. However, this will not change the level of significance of the effects reported in the main ES or the SES and AP<sub>2</sub> ES.

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

- 5.5.67 The AP<sub>4</sub> amendment associated with the temporary stockpiling at Chipping Warden (disused) Airfield will give rise to a different residual significant effect on the Middleton Cheney and Woodford Halse Undulating Hills and Valleys LCA as a result of an increase in the extent of stockpiling. However, this will not change the moderate adverse significant residual effect reported in the main ES.
- 5.5.68 The AP<sub>4</sub> amendment will give rise to a different residual significant effect on viewpoint 213.6.001: view looking north-east from Appleton Industrial Estate during construction, arising from an increase in the extent of stockpiling within the extent of views. However this will not change the significant moderate adverse residual effect reported in the main ES.
- 5.5.69 Both the AP<sub>4</sub> amendment associated with stockpiling at Chipping Warden (disused) Airfield and the provision of a Chipping Warden bypass (AP<sub>2</sub>-015-009) will give rise to different construction landscape and visual cumulative effects compared to those assessed for their separate component changes. Cumulative effects will primarily arise from the combined influence of construction activity on Viewpoint 213.6.001: view looking north-east from Appleton Industrial Estate. However, this will not change the level of significance of the residual effects reported in the main ES or the SES and AP<sub>2</sub> ES.
- 5.5.70 The AP<sub>4</sub> amendment will not result in any new or different residual significant effects or change the significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA<sub>15</sub>) or the SES and AP<sub>2</sub> ES (Volume 2, CFA<sub>15</sub>) for any other topic.

## **5.6 Additional land required for land drainage, balancing pond changes and improved access at Old House Farm (AP<sub>4</sub>-015-006)**

- 5.6.1 The Bill provides for permanent landscape earthworks to the east and west of the HS<sub>2</sub> route from Highfurlong Brook to the sewage works on Banbury Road to integrate the cutting/embankment into the landscape and provide noise mitigation for properties to the east and visual screening to the west. A land drainage area will be provided north of Highfurlong Brook to the east of the HS<sub>2</sub> route and a balancing pond north of Highfurlong Brook to the west of the HS<sub>2</sub> route. A new HS<sub>2</sub> access road will be provided off Claydon Road (also known as Hill Road) on the western side of the HS<sub>2</sub> route extending to the southern side of the balancing pond. Both railway drainage structures were positioned adjacent and parallel to the floodplain of Highfurlong Brook. The drainage structures sit adjacent to the landscape earthworks formed with a large plateau and 1 in 8 slopes (refer to maps CT-05-077 and CT-06-077 in the main ES Volume 2, CFA<sub>15</sub> Map Book).

- 5.6.2 The SES design change associated with the Lower Boddington earthworks (SES-015-001) is reported in Part 1 of the SES and AP2 ES (Volume 2, CFA15, Section 2.2). The change involves re-grading the permanent landscape mitigation earthworks between Highfurlong Brook and Cedars Farm as a result of revisions to quantities of excavated materials and to better integrate the earthworks into the surrounding landscape. The earthworks will be carried out on the same footprint as the original scheme, but will have a shallower gradient of approximately 1 in 20 (refer to maps CT-05-077 and CT-06-077 in the SES and AP2 ES Volume 2, CFA15 Map Book).
- 5.6.3 Since submission of the Bill and the SES and AP2 ES, the need to permanently reposition the land drainage area and balancing pond has been identified to minimise the land affected by construction and therefore reduce the impact on agricultural operations. Both structures will be repositioned to sit within the far edge of the landscape earthworks, wrapping around the respective south-eastern and south-western extents, on either side of the HS2 route. The location of the outfall from the drainage structures in to Highfurlong Brook will also be repositioned. The access road will be repositioned to provide access to the eastern side of the repositioned balancing pond and will be approximately 100m longer than proposed by the main ES. This access road will have a new junction, from which a track will be extended by approximately 370m to provide a new access for the landowner across the HS2 route beneath the viaduct (refer to maps CT-05-077 and CT-06-077 in the SES3 and AP4 ES Volume 2, CFA15 Map Book).
- 5.6.4 There will be a reduction of approximately 4.1ha of land required, compared to the SES3 scheme, as the land required for the land drainage area and balancing pond will be within Bill limits and the outfalls will no longer be required. However, two small sections of additional land will be permanently required adjacent to Highfurlong Brook to accommodate the amended outfall locations. Additional land will also be required for the relocation of replacement floodplain storage and to accommodate a small section of the new access track beneath the viaduct. In total, approximately 0.4ha of additional land will be required. The additional land permanently needed to meet this requirement is not included within the Bill, hence the need for this amendment. There will be an overall reduction by 3.7ha of land required for this amendment when compared to the original scheme.
- 5.6.5 The change to land drainage, the balancing pond changes and improved access at Old House Farm is not considered to make changes that require a reassessment of the environmental effects or proposed mitigation as set out in the main ES and the SES and AP2 ES with respect to: air quality; community; 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 in respect of: agriculture, forestry and soils; cultural heritage; and landscape and visual assessment.

## **Agriculture, forestry and soils**

### *Introduction*

- 5.6.6 This section of the report describes the environmental baseline in relation to agriculture, forestry and soils that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the amendment,

compared to those of the SES<sub>3</sub> scheme taking into account the SES design change associated with the Lower Boddington earthworks (SES-015-001) as reported in the SES and AP<sub>2</sub> ES.

- 5.6.7 There are no AP<sub>1</sub> amendments or AP<sub>2</sub> amendments that are relevant to the assessment.

#### *Scope, assumptions and limitations*

- 5.6.8 The assessment scope, key assumptions and limitations for agriculture, forestry and soils 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.

- 5.6.9 The area of agricultural land affected by the AP<sub>4</sub> amendment is small and will not alter the significance of effect, or result in a different significant effect, on BMV agricultural land or forestry land within the Greatworth to Lower Boddington area. The route-wide effects on BMV land and forestry land are reported in Volume 3.

#### *Existing baseline*

- 5.6.10 One agricultural holding will be affected by the AP<sub>4</sub> amendment. Old House Farm (holding reference no. CFA15/22) extends to 506ha and is engaged in beef cattle and arable production.

#### *Future baseline*

##### **Construction (2017)**

- 5.6.11 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 3.3).
- 5.6.12 Most existing Environmental Stewardship agreements will expire in 2015 and will be replaced by a new environmental land management scheme (Countryside Stewardship) which, together with the new greening measures introduced by Common Agricultural Policy reform, will affect the detailed management of individual farm holdings, but are not expected to change fundamentally the baseline circumstances described.

##### **Operation (2026)**

- 5.6.13 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 3.3).

#### *Effects arising during construction*

- 5.6.14 The change in the area of agricultural land required is permanent; there will be no temporary effects arising from this amendment.
- 5.6.15 Part 1 of the SES and AP<sub>2</sub> ES reported a negligible effect on Old House Farm provided that a grain store that was to be demolished by the original scheme remained intact. Overall, approximately 3.7ha less agricultural land is required for the AP<sub>4</sub> amendment

compared to the original scheme<sup>15</sup>. For Old House Farm, the total area of land required on a permanent basis will be reduced from 10.1ha, as reported in the main ES, to 6.4ha for the AP<sub>4</sub> revised scheme. This is less than 5% of the holding and the overall effect of the AP<sub>4</sub> revised scheme on the Old House Farm is assessed as negligible and not significant.

- 5.6.16 The AP<sub>4</sub> amendment for changes to land drainage, balancing pond changes and improved access at Old House Farm will not change the level of significance of the effects reported in the SES and AP<sub>2</sub> ES.

#### *Effects arising from operation*

- 5.6.17 The AP<sub>4</sub> amendment for changes to land drainage, balancing pond changes and improved access at Old House Farm 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 SES and AP<sub>2</sub> ES.

#### *Mitigation and residual effects*

- 5.6.18 No additional mitigation measures, in addition to those identified in the main ES and Part 1 of the SES and AP<sub>2</sub> ES are required.
- 5.6.19 There are no residual significant effects associated with this amendment.

#### *Cumulative effects*

- 5.6.20 There are no new or different likely significant cumulative effects for agriculture, forestry and soils as a result of the AP<sub>4</sub> amendments interacting with one another, or any relevant committed development.

### **Cultural heritage**

#### *Introduction*

- 5.6.21 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 amendment, compared to those of the SES<sub>3</sub> scheme taking into account the SES design change associated with the Lower Boddington earthworks (SES-015-001) as reported in the SES and AP<sub>2</sub> ES.
- 5.6.22 There are no AP<sub>1</sub> amendments or AP<sub>2</sub> amendments that are relevant to the assessment.

#### *Scope, assumptions and limitations*

- 5.6.23 The assessment scope, key assumptions and limitations for cultural heritage are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/01) and the SMR Addendum (Volume 5: Appendix CT-001-000/02) of the main ES.

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<sup>15</sup> The Lower Boddington earthworks (SES<sub>015-001</sub>) in the SES and AP<sub>2</sub> ES did not require any additional land or result in any reduction of land required by the original scheme.

### *Existing baseline*

- 5.6.24 The cultural heritage baseline for the assessment takes into account information collected in support of the main ES, which included walkover survey, geophysical survey, remote sensing data, and data from national and local registers. A full list is provided in Volume 2, Section 6.3 of the main ES. In addition, the baseline was updated with the results of additional survey work in Part 1 of the SES and AP2 ES (Volume 2, CFA15, Section 3.2).
- 5.6.25 The changes to land drainage, balancing pond changes and improved access at Old House Farm will result in two areas of land, totalling approximately 4.1ha, being no longer required for the AP4 revised scheme. The area of land no longer required, which is approximately 200m east of the HS2 route does not encroach on any heritage assets. The relocated balancing ponds will be within land already required for the SES3 scheme. The land approximately 170m to the west of the HS2 route is within the Lower Boddington historic landscape (asset reference GLB228), an asset of moderate heritage value; and immediately south-east of an area of ridge and furrow (asset reference GLB189), an asset of low value.
- 5.6.26 The approximate 0.4ha of additional land required for the outfall locations, replacement floodplain storage and new access track partially encroaches on the Lower Boddington historic landscape (asset reference GLB228). This is an asset of moderate value.

### *Future baseline*

#### **Construction (2017)**

- 5.6.27 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 6.3) as updated by Part 1 of the SES and AP2 ES.

#### **Operation (2026)**

- 5.6.28 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 6.3) as updated by Part 1 of the SES and AP2 ES.

### *Effects arising during construction*

- 5.6.29 Of the 4.1ha of land no longer required for this amendment due to the relocation of the balancing ponds, approximately 1.5ha of this land is within the Lower Boddington historic landscape (asset reference GLB228), and will therefore no longer be affected by the AP4 revised scheme.
- 5.6.30 However, approximately 0.4ha of new land within the heritage asset will be required for the replacement floodplain storage and outfall. This will result in a total of approximately 1.1ha of land no longer required within the historic landscape, which equates to 2% of the total land within the Lower Boddington historic landscape (asset reference GLB228) no longer required for the AP4 revised scheme. As it is a different element of this asset, it will give rise to a different significant effect, however the AP4 amendment is not considered to result in a change to the medium impact and

moderate adverse significant effect reported in the main ES and Part 1 of the SES and AP<sub>2</sub> ES.

- 5.6.31 There will be no change to the impacts and effects reported for any other heritage assets in the main ES and the SES and AP<sub>2</sub> ES.

#### *Effects arising from operation*

- 5.6.32 The permanent construction effects remain as reported in the main ES. The relocation of the balancing ponds and associated works will not give rise to a new or different significant effect on cultural heritage during operation and will not change the level of significance of the effects reported in the main ES and Part 1 of the SES and AP<sub>2</sub> ES.

#### *Mitigation and residual effects*

- 5.6.33 No additional mitigation measures, in addition to those identified in the main ES are required.
- 5.6.34 The proposed changes to land drainage, balancing ponds and improved access at Old House Farm will give rise to a different significant residual effect for the Lower Boddington historic landscape (asset reference GLB228) due to the reduction of land required within the asset. However, this will not change the moderate adverse level of significance of the residual effect reported in the main ES and Part 1 of the SES and AP<sub>2</sub> ES.

#### *Cumulative effects*

- 5.6.35 There are no new or different likely significant cumulative effects for cultural heritage as a result of the AP<sub>4</sub> amendments interacting with one another, or any relevant committed development.

### **Landscape and visual assessment**

#### *Introduction*

- 5.6.36 This section of the report describes the environmental baseline in relation to landscape and visual that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the amendment, compared to those of the SES<sub>3</sub> scheme.
- 5.6.37 There are no AP<sub>1</sub> amendments or AP<sub>2</sub> amendments that are relevant to the assessment.

#### *Scope, assumptions and limitations*

- 5.6.38 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 AP<sub>1</sub> ES and Volume 1 of the SES and AP<sub>2</sub> ES.

### *Existing baseline*

- 5.6.39 The area of land required for the AP4 amendment is located within the Boddington Broad Unwooded Vale LCA, as described in the main ES (Volume 2, CFA15, Section 9.3).
- 5.6.40 Boddington Broad Unwooded Vale LCA was assessed as being affected by the original scheme. The LCA consists of a broad, flat landscape characterised by arable and pastoral land typically of medium to large scale fields and limited woodland cover.
- 5.6.41 Viewpoint 216.7.001: view looking south-west from Washbrook Farm Eventing Centre is located in close proximity to the area of the amendment and is described in the main ES (Volume 2, CFA15, Section 9.3).

### *Future baseline*

#### **Construction (2017)**

- 5.6.42 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 9.3).

#### **Operation (2026)**

- 5.6.43 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 9.3).

### *Effects arising during construction*

- 5.6.44 The AP4 amendment will be relatively localised and barely perceptible within the wider extent of construction associated with the main ES and SES and AP2 ES scheme landscape mitigation earthworks to the south of Lower Boddington. The AP4 amendment for land drainage, balancing pond changes and improved access at Old House Farm 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 from operation*

#### **Landscape assessment**

- 5.6.45 The Boddington Broad Unwooded Vale LCA was assessed as being affected by the SES3 scheme and will also be affected by this amendment. The Boddington Broad Unwooded Vale LCA is of local value, therefore it is considered to be of medium sensitivity to change. The main ES reported a moderate adverse significant effect on the Boddington Broad Unwooded Vale LCA, during year 1 of operation due to the presence of rail infrastructure, landform, bridges and trains, reducing to a minor adverse non-significant effect for year 15 and for year 60.
- 5.6.46 The change in location of balancing ponds will reduce the area of existing agricultural land affected by the SES3 scheme and change the landform profile of landscape earthworks. The proposed access track will be extended from the western to the eastern side of the HS2 route via an underpass below the Highfurlong Brook viaduct and will comprise a relatively discrete component within the wider extent of changes.
- 5.6.47 The AP4 amendment change in location of balancing ponds and amended access will not give rise to a new or different significant landscape effect on the Boddington

Broad Unwooded Vale LCA and will not change the level of significance of the effects reported in the main ES and the SES and AP<sub>2</sub> ES.

### **Visual assessment**

- 5.6.48 The main ES (Volume 2, CFA15, Section 9.5) reported significant effects on viewpoint 216.7.001: view looking south-west from Washbrook Farm Eventing Centre. This viewpoint was assessed as being affected by the SES<sub>3</sub> scheme and will also be affected by this amendment. The main ES reported a moderate adverse significant effect in year 1 due to filtered views of Highfurlong Brook viaduct, overhead line equipment and passing trains and a remaining moderate adverse significant effect in year 15 and year 60.
- 5.6.49 Views of the reconfigured extent of landform and ponds, experienced in the wider context of the main ES and the SES and AP<sub>2</sub> ES landscape mitigation earthworks, will be possible at year 1, year 15 and year 60, partially screened by intervening existing copses, hedgerows and hedgerow trees. The AP<sub>4</sub> amendment will not however introduce any additional elements to those included in the SES<sub>3</sub> scheme.
- 5.6.50 The amendment for land drainage, balancing pond changes and improved access at Old House Farm 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*

- 5.6.51 No additional mitigation measures (i.e. in addition to those identified in the main ES) are required.
- 5.6.52 The AP<sub>4</sub> amendment for land drainage, a balancing pond changes and improved access at Old House Farm will not give rise to new or different significant landscape residual effects and will not change the level of significance of the effects reported in the main ES.
- 5.6.53 The land required for the land drainage, the change in location of balancing ponds and amended access at Old House Farm will not give rise to a new or different visual significant residual effect during year 1, year 15 and year 60 of operation on viewpoint 216.7.001: view looking south-west from Washbrook Farm Eventing Centre and will not change the level of significance of the residual effects reported in the main ES.

### *Cumulative effects*

- 5.6.54 There are no new or different likely significant cumulative effects for landscape and visual as a result of the AP<sub>4</sub> amendments interacting with one another, or any relevant committed development.

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

- 5.6.55 The proposed changes to land drainage, balancing ponds and improved access at Old House Farm will give rise to a different significant residual cultural heritage effect for the Lower Boddington historic landscape (asset reference GLB228) due to the reduction of land required within the asset. However, this will not change the

moderate adverse level of significance of the residual effect reported in the main ES and Part 1 of the SES and AP2 ES.

- 5.6.56 The AP4 amendment will not result in any new or different residual significant effects or change the significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA15) for any other topic.

## **5.7 Additional land required for the provision of an accommodation overbridge at Cedars Farm (AP4-015-007)**

- 5.7.1 The Bill provides for a permanent new private access track to Cedars Farm from Claydon Road (also known as Boddington Road) on the western side of the HS2 route, north-west of Lower Boddington. The HS2 route would sever the landholding and access would be maintained between the two land parcels via the public highway network. This diversion is approximately 3km in length along the realigned Claydon Road (also known as Boddington Road) and Banbury Road (refer to maps CT-05-078 and CT-06-078 in the main ES, Volume 2, CFA15 Map Book).
- 5.7.2 Since submission of the Bill, the need to provide a permanent new private accommodation overbridge across the HS2 route has been identified to maintain direct connectivity between the two land parcels within the Cedars Farm holding. The accommodation overbridge will be located in the same position as the existing farm access track from Banbury Road and will reduce disruption to farming operations. The upgrade to the existing access track and diversion proposed in the original scheme will not be provided under the AP4 revised scheme. Additional landscape mitigation and hedgerow planting will be carried out along the HS2 route to the south and north of the accommodation overbridge approaches (refer to maps CT-05-078 and CT-06-078 in the SES3 and AP4 ES Volume 2, CFA15 Map Book).
- 5.7.3 The accommodation overbridge carriageway width will be approximately 3.5m, with verges of 0.5m on each side. The accommodation overbridge will sit approximately 12.7m above the existing ground level. Engineering earthworks will be carried out at the approaches to the accommodation overbridge. Areas of landscape mitigation woodland will be planted to either side of the overbridge path to the west of the HS2 route to integrate the accommodation overbridge structure into the landscape. The length of the paths leading up to the accommodation overbridge will be approximately 165m on the eastern side and 195m on the west. Along with the 35m length of the accommodation overbridge itself, this will have a total length of approximately 395m.
- 5.7.4 Approximately 2.6ha of land required temporarily by the original scheme, to upgrade the access track, will no longer be required by this AP4 revised scheme. However, approximately 0.1ha of additional land is temporarily required for the construction of the western approach to the accommodation overbridge. There will be an overall reduction by 2.5ha of land required. The additional land needed to meet this requirement is not included within the Bill, hence the need for this amendment.
- 5.7.5 The provision of an accommodation overbridge at Cedars Farm is not considered to make changes that require a reassessment of the environmental effects or proposed mitigation as set out in the main ES with respect to: air quality; community; cultural heritage; ecology; land quality; socio-economics; traffic and transport; and water

resources and flood risk assessment. However, there were changes where reassessment was considered to be required in respect of: agriculture, forestry and soils; landscape and visual assessment; and sound, noise and vibration.

## **Agriculture, forestry and soils**

### *Introduction*

5.7.6 This section of the report describes the environmental baseline in relation to agriculture, forestry and soils that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the amendment, compared to those of the SES3 scheme.

5.7.7 There are no AP1 amendments or AP2 amendments that are relevant to this assessment.

### *Scope, assumptions and limitations*

5.7.8 The assessment scope, key assumptions and limitations for agriculture, forestry and soils 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.

5.7.9 The area of agricultural land affected by the amendment is small and will not alter the significance of effect, or result in a different significant effect, on BMV agricultural land or forestry land within the Greatworth to Lower Boddington area. The route-wide effects on BMV land and forestry land are reported in Volume 3.

### *Existing baseline*

5.7.10 The AP4 amendment will affect one holding, Cedars Farm (holding reference no. CFA15/23), which is a 304ha sheep, beef cattle and arable holding.

### *Future baseline*

#### **Construction (2017)**

5.7.11 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 3.3).

5.7.12 Most existing Environmental Stewardship agreements will expire in 2015 and will be replaced by a new environmental land management scheme (Countryside Stewardship) which, together with the new greening measures introduced by Common Agricultural Policy reform, will affect the detailed management of individual farm holdings, but are not expected to change fundamentally the baseline circumstances described.

#### **Operation (2026)**

5.7.13 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 3.3).

### *Effects arising during construction*

5.7.14 A further 0.1ha of land will be permanently required from Cedars Farm. This increases the total area removed to 8.7ha, which represents 3% of the holding. The requirement

for 8.6ha for the construction of the SES3 scheme was assessed as a negligible impact and the addition of this small area of land does not alter that assessment.

- 5.7.15 The provision of an accommodation overbridge at Cedars Farm will remove a significant effect by reducing the severance impact on the holding. In the original scheme the farm was severed by the HS2 route and the access provision to the severed land required use of the public highway. The impact of severance was assessed as medium adverse and resulted in an overall assessment on the holding of moderate adverse in the main ES, which was significant. The AP4 amendment removes the need to access the public highway to cross the HS2 route, and reduces the severance impact to low, resulting in a minor adverse effect on Cedars Farm, which is not a significant effect. The significant effect reported in the main ES is therefore removed as a result of this amendment.

#### *Effects arising from operation*

- 5.7.16 The AP4 amendment to provide an accommodation overbridge at Cedars Farm 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*

- 5.7.17 No additional mitigation measures, in addition to those identified in the main ES are required.
- 5.7.18 The AP4 amendment removes a significant adverse severance effect reported in the main ES.

#### *Cumulative effects*

- 5.7.19 There are no new or different likely significant cumulative effects for agriculture, forestry and soils as a result of the AP4 amendments interacting with one another, or any relevant committed development.

### **Landscape and visual assessment**

#### *Introduction*

- 5.7.20 This section of the report describes the environmental baseline in relation to landscape and visual that is relevant to the assessment. It then identifies any new or different likely significant environmental effects as a result of the amendment, compared to those of the SES3 scheme taking into account the SES design change associated with the Lower Boddington earthworks (SES-015-001) from Part 1 of the SES and AP2 ES and the AP2 amendment for the reconfiguration of the Warwick Road and Banbury Road junction (AP2-015-008).

#### *Scope, assumptions and limitations*

- 5.7.21 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 and Volume 1 of the SES and AP2 ES.

### *Existing baseline*

- 5.7.22 The area of land required for the AP4 amendment is located within the Boddington Broad Unwooded Vale LCA as described in the main ES (Volume 2, CFA15, Section 9.3).
- 5.7.23 The Boddington Broad Unwooded Vale LCA was assessed as being affected by the original scheme and will also be affected by this amendment. The LCA consists of a broad, flat landscape characterised by arable and pastoral land typically of medium to large scale fields and limited woodland cover. The Boddington Broad Unwooded Vale LCA is of good condition, medium tranquillity and of local value, therefore it is considered to be of medium sensitivity to change.
- 5.7.24 Viewpoints located in close proximity to the area of the AP4 amendment and which are described in the main ES (Volume 2, CFA15, Section 9.3) are:
- Viewpoint 217.3.002: view looking north-west from the PRoW network north-east of Springfield House (viewpoint located on PRoW AC/001);
  - Viewpoint 219.2.001: view looking north-east from Cedars Farm, west of Lower Boddington;
  - Viewpoint 220.3.001: view looking south-west from Church Road on the southern edge of Upper Boddington (viewpoint located 50m west of PRoW (Footpath AC/011)); and
  - Viewpoint 221.4.001: view looking north-east from Boddington Road, north of Three Shires Farm.

### *Future baseline*

#### **Construction (2017)**

- 5.7.25 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 9.3) as updated by Part 1 of the SES and AP2 ES.

#### **Operation (2026)**

- 5.7.26 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 9.3) as updated by Part 1 of the SES and AP2 ES.

### *Effects arising during construction*

#### **Landscape assessment**

- 5.7.27 The Boddington Broad Unwooded Vale LCA was assessed as being affected by the SES3 scheme and will also be affected by this amendment. The main ES reported a moderate significant adverse effect on the Boddington Broad Unwooded Vale LCA during construction due to the removal of trees and hedgerows, loss of agricultural land and the introduction of construction plant into the rural landscape.
- 5.7.28 The AP4 amendment to provide an overbridge across the HS2 route will remove the need to upgrade the existing Cedars Farm access track to Claydon Road (also known

as Boddington Road) and thereby reducing the extent of construction effects to the west of Cedars Farm.

- 5.7.29 Construction of the accommodation overbridge at Cedars Farm and earthworks will increase construction activity and use of plant, however this will not alter the impact on tranquillity as the construction of the overbridge will be experienced in the context of more extensive construction activity associated with the scheme.
- 5.7.30 The AP4 amendment to provide an accommodation overbridge at Cedars Farm will result in a change in the extent and nature of construction operations, but within the extensive scale of landscape earthworks, 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 or the SES and AP2 ES.

### **Visual assessment**

- 5.7.31 The main ES (Volume 2, CFA15, Section 9.4) reported significant effects on the following four viewpoints located in close proximity to the area of the AP4 amendment.
- 5.7.32 Viewpoint 217.3.002: view looking north-west from the PRoW network north-east of Springfield House (viewpoint located on PRoW AC/001) was assessed as being affected by the SES scheme, Lower Boddington earthworks (SES-015-001), and will also be affected by this amendment. The main ES reported a major adverse significant effect during construction due to the removal of existing vegetation, extensive earthworks grading and construction work associated with the Claydon Road overbridge.
- 5.7.33 Construction of the accommodation overbridge at Cedars Farm will be visible within the middle ground of views, though partially screened by intervening hedgerows and hedgerow trees, temporary stockpile material and landscape earthworks. This will give rise to a different significant effect primarily arising from the use of cranes in the construction of the accommodation overbridge. However, this will not change the level of significance of the effects reported in the main ES.
- 5.7.34 Viewpoint 219.2.001: view looking north-east from Cedars Farm, west of Lower Boddington was assessed as being affected by the SES scheme and will also be affected by this amendment. The main ES and the SES and AP2 ES reported a major adverse significant effect during construction due to the close proximity of Cedars Farm access road and the removal of roadside and field boundary vegetation.
- 5.7.35 Construction of the accommodation overbridge at Cedars Farm will be visible in the foreground of the view within the context of extensive earthworks grading and temporary material stockpiling. This will give rise to a different significant effect arising from the use of cranes in the construction of the accommodation overbridge and a change in the profile of landform earthworks. However, this will not change the level of significance of the effects reported in the SES and AP2 ES.
- 5.7.36 Viewpoint 220.3.001: view looking south-west from Church Road on the southern edge of Upper Boddington (viewpoint located 50m west of PRoW (Footpath AC/011)) was assessed as being affected by the SES scheme and will also be affected by this amendment. The main ES and the SES and AP2 ES reported a major adverse significant effect during construction due to the construction of Banbury Road

overbridge, Banbury Road overbridge satellite compound and the Claydon Road (also known as Boddington Road) diversion.

- 5.7.37 Construction of the Cedars Farm accommodation overbridge will be visible within the wider extent of the Lower Boddington earthworks (SES-015-001) and will give rise to a different significant effect, primarily arising from the use of cranes in the construction of the accommodation overbridge. However, this amendment will not change the level of significance of the effects reported in the SES and AP2 ES.
- 5.7.38 Viewpoint 221.4.001: view looking north-east from Boddington Road, north of Three Shires Farm was assessed as being affected by the SES scheme and will also be affected by this amendment. The main ES reported a major adverse significant effect during construction due to the removal of intervening vegetation, views of the construction of Banbury Road overbridge, the Claydon Road (also known as Boddington Road) diversion, Banbury Road green overbridge satellite compound and Cedars Farm private access road.
- 5.7.39 As the existing Cedars Farm access track will no longer be upgraded as part of the AP4 revised scheme construction activity in the foreground will be reduced. Construction of the Cedars Farm accommodation overbridge will be visible in the middle ground of view within the wider extent of temporary stockpile material and landscape earthworks, filtered by intervening hedgerows and hedgerow trees. This will give rise to a different significant effect arising from removal of the upgrade of the access track from the AP4 revised scheme and the use of cranes in the construction of the accommodation overbridge. However, this will not change the level of significance of the effects reported in the SES and AP2 ES.

### *Effects arising from operation*

#### **Landscape assessment**

- 5.7.40 The Boddington Broad Unwooded Vale LCA was assessed as being affected by the SES scheme and will also be affected by this amendment. The Boddington Broad Unwooded Vale LCA is of local value, therefore it is considered to be of medium sensitivity to change. The main ES and the SES and AP2 ES reported a moderate adverse significant effect on the Boddington Broad Unwooded Vale LCA, during year 1 of operation due to the presence of rail infrastructure, landform, bridges and trains, reducing to a minor adverse non-significant effect for year 15 and for year 60.
- 5.7.41 The AP4 amendment will introduce an additional permanent accommodation overbridge structure into the landscape to the west of Lower Boddington. The provision of the accommodation overbridge at Cedars Farm will however be located in the context of the Claydon Road overbridge approximately 750m to the south-east, as proposed in the original scheme. The proposed amended access track to Cedars Farm from Banbury Road will occupy a smaller footprint than the upgraded access as proposed by the original scheme, reducing the impact on existing agricultural fields. The effect of the AP4 amendment will be most apparent at year 1 when the landscape mitigation planting is immature, but reducing in effect by year 15 and beyond to year 60 with maturity of vegetation which will assist with integration of the AP4 amendment accommodation overbridge and access track into its setting.

- 5.7.42 The provision of an accommodation overbridge Cedars Farm will give rise to a different significant landscape effect on the Boddington Broad Unwooded Vale LCA as a result of the presence of a new, permanent accommodation overbridge structure. However, this will not change the level of significance of the effects reported in the SES and AP<sub>2</sub> ES.

### **Visual assessment**

- 5.7.43 The main ES (Volume 2, CFA15, Section 9.5) reported significant effects on the following four viewpoints located in close proximity to the area of the AP<sub>4</sub> amendment.
- 5.7.44 Viewpoint 217.3.002: view looking north-west from the PRoW network north-east of Springfield House (viewpoint located on PRoW AC/001) was assessed as being affected by the SES scheme and will also be affected by this amendment. The main ES reported a moderate adverse significant effect in year 1, remaining a moderate adverse significant effect in year 15 and year 60 due to views of landscape earthworks and views of the Claydon Road overbridge.
- 5.7.45 The Cedars Farm accommodation overbridge will be visible in the middle ground of the view though partially screened by intervening landscape earthworks. By year 15 and beyond to year 60 of operation, views of the Cedars Farm accommodation overbridge will be screened by intervening middle ground landscape mitigation hedgerows, hedgerow trees and woodland. This will give rise to a different significant effect during year 1 arising from the presence of a new, permanent accommodation overbridge structure. During year 15 and year 60 the AP<sub>4</sub> amendment will not give rise to a new or different significant effect due to the screening effect of landscape mitigation planting. Throughout all stages of operation the AP<sub>4</sub> amendment will not change the level of significance of the effects reported in the SES and AP<sub>2</sub> ES.
- 5.7.46 Viewpoint 219.2.001: view looking north-east from Cedars Farm, west of Lower Boddington, was assessed as being affected by the SES scheme and will also be affected by this amendment. The main ES and the SES and AP<sub>2</sub> ES reported a major adverse significant effect during year 1 of operation due to the change in view brought about by landscape earthworks and visibility of overhead line equipment, and a moderate adverse significant effect in year 15 and year 60 due to the partial screening effect of intervening mitigation hedgerows, hedgerow trees and woodland.
- 5.7.47 The AP<sub>4</sub> amendment to provide an accommodation overbridge at Cedars Farm will be an apparent feature in the middle ground of the view in year 1. By year 15 and beyond to year 60 of operation views of the Cedars Farm accommodation overbridge will be largely screened by intervening middle ground landscape mitigation hedgerows, hedgerow trees and woodland. This will give rise to a different significant effect arising from the presence of a new, permanent accommodation overbridge structure. However this amendment will not change the level of significance of the effects reported in the SES and AP<sub>2</sub> ES.
- 5.7.48 Viewpoint 220.3.001: view looking south-west from Church Road on the southern edge of Upper Boddington (viewpoint located 50m west of PRoW (Footpath AC/011) was assessed as being affected by the SES scheme and will also be affected by this amendment. An updated photomontage illustrating the amendment from Viewpoint 220.3.001 during operation year 1 (winter) is included in the photomontage shown in

Map LV-01-106 (SES<sub>3</sub> and AP<sub>4</sub> ES Volume 2, CFA<sub>15</sub> Map Book). The main ES and the SES and AP<sub>2</sub> ES reported a moderate adverse significant effect during year 1, remaining a moderate adverse significant effect in year 15 and year 60 due to the elevated nature of views across the extent of the route of HS<sub>2</sub>, including views of Banbury Road overbridge.

- 5-7.49 The provision of an accommodation overbridge at Cedars Farm will be visible within the middle ground of the view, partially screened by intervening hedgerows and hedgerow trees and set within an expansive landscape setting. By year 15 and beyond to year 60 of operation, views of the Cedars Farm accommodation overbridge will be further screened by landscape mitigation hedgerows located along the crest of the landscape earthworks parallel to the HS<sub>2</sub> route and along field boundaries to the east of the HS<sub>2</sub> route. This will give rise to a different significant effect arising from the presence of a new, permanent accommodation overbridge structure. However this will not change the level of significance of the effects reported in the SES and AP<sub>2</sub> ES.
- 5-7.50 Viewpoint 221.4.001: view looking north-east from Boddington Road, north of Three Shires Farm was assessed as being affected by the SES scheme and will also be affected by this amendment. The main ES and the SES and the AP<sub>2</sub> ES reported a moderate adverse significant effect during year 1, remaining as a moderate adverse significant effect in year 15 and year 60 due to due to the change in view brought about by landscape earthworks, views of Banbury road overbridge and visibility of overhead line equipment.
- 5-7.51 As the upgrade to the existing Cedars Farm access track to Claydon Road (also known as Boddington Road) will no longer be carried out as a result of the AP<sub>4</sub> amendment, the foreground of the view will be unaltered. In year 1, views of the accommodation overbridge at Cedars Farm in the middle ground will be partially screened by existing hedgerows and hedgerow trees and by landscape earthworks in the middle ground. By year 15 and beyond to year 60 the Cedars Farm accommodation overbridge will be screened by intervening middle ground landscape mitigation hedgerows, hedgerow trees and woodland.
- 5-7.52 The accommodation overbridge at Cedars Farm, the overbridge embankments and the removal of the upgrade to the existing Cedars Farm access track to Claydon Road (also known as Boddington Road) from the scheme will give rise to a different significant effect during year 1 arising primarily from the presence of a new, permanent accommodation overbridge structure. During year 15 and year 60 the amendment will not give rise to a new or different significant effect due to the screening effect of landscape mitigation planting. Throughout all stages of operation the AP<sub>4</sub> amendment will not change the level of significance of the effects reported in the SES and AP<sub>2</sub> ES.

### *Mitigation and residual effects*

- 5-7.53 Mitigation measures for the AP<sub>4</sub> revised scheme include three areas of woodland planting on the western side of the HS<sub>2</sub> route. Hedgerow planting will also be introduced along the crest of the landscape earthworks and along original hedgerow boundaries affected by the landscape earthworks to the west and east of the HS<sub>2</sub> route. The addition of woodland planting will contribute to screening and integration of the accommodation overbridge at Cedars Farm into the landscape, whilst the

hedgerows will contribute to low level screening and establish continuity with adjacent field boundary hedgerows.

- 5-7-54 The landscape mitigation is shown on map CT-06-078 (SES<sub>3</sub> and AP<sub>4</sub> ES Volume 2, CFA<sub>15</sub> Map Book). The influence of the mitigation measures on the assessment of landscape and visual effects arising from operation has been included in the assessment.
- 5-7-55 The provision of an accommodation overbridge at Cedars Farm will give rise to different significant residual effects on the following viewpoints arising from the construction and permanent presence of the accommodation overbridge structure within the extent of views:
- Viewpoint 217.3.002: view looking north-west from the PRoW network north-east of Springfield House (viewpoint located on PRoW AC/001) – residual major adverse significant construction effect and moderate adverse significant year 1 operation effects;
  - Viewpoint 219.2.001: view looking north-east from Cedars Farm, west of Lower Boddington – residual major adverse significant construction effect and moderate adverse significant year 1, year 15 and year 60 operation effects;
  - Viewpoint 220.3.001: view looking south-west from Church Road on the southern edge of Upper Boddington (viewpoint located 50m west of PRoW (Footpath AC/011) – residual major adverse significant construction effect and moderate adverse significant year 1, year 15 and year 60 operation effects; and
  - Viewpoint 221.4.001: view looking north-east from Boddington Road, north of Three Shires farm) – residual major adverse significant construction effect and moderate adverse significant year 1 operation effects.
- 5-7-56 However the different significant visual effects arising will not change the level of significance of the residual effects for these viewpoints reported in the SES and AP<sub>2</sub> ES.
- 5-7-57 The provision of an accommodation overbridge at Cedars Farm will not give rise to a new or different residual significant effect on the following viewpoints where the accommodation overbridge structure will be screened from view by landscape mitigation planting:
- Viewpoint 217.3.002: view looking north-west from the PRoW network north-east of Springfield House (viewpoint located on PRoW AC/001) – residual moderate adverse significant year 15 and year 60 operation effects; and
  - Viewpoint 221.4.001: view looking north-east from Boddington Road, north of Three Shires farm) – residual moderate adverse significant year 15 and year 60 operation effects.

### *Cumulative effects*

- 5-7-58 The AP<sub>4</sub> amendment to provide an accommodation overbridge at Cedars Farm (AP<sub>4</sub>-015-005) will interact with reconfiguration of the Warwick Road and Banbury Road junction (AP<sub>2</sub>-015-008).

- 5.7.59 The AP<sub>2</sub> amendment comprises realignment of Stoneton Lane to cross over the HS<sub>2</sub> route and reconfiguration of the Banbury Road and Warwick Road junction. The SES and AP<sub>2</sub> ES reported no new or different significant effects on landscape and visual receptors or change in the level of significance of the effects reported in the main ES arising from the reconfiguration of the Warwick Road and Banbury Road junction (AP<sub>2</sub>-015-008). This has subsequently been corrected in Table 3 of the SES<sub>3</sub> in Part 1 of this report, to relate that the amendment in AP<sub>2</sub> will result in different significant effects on landscape and visual receptors, but will not change the level of significance of the effects reported in the main ES.
- 5.7.60 The association between this amendment to provide an accommodation overbridge at Cedars Farm (AP<sub>4</sub>-015-007) and the reconfiguration of the Warwick Road and Banbury Road junction (AP<sub>2</sub>-015-008) will give rise to different operational significant landscape and visual cumulative effects. Cumulative effects will primarily arise from the combined operational influence of the accommodation overbridge at Cedars Farm, Banbury Road overbridge and Stoneton Lane green overbridge structures occurring within a 1.8km extent of the HS<sub>2</sub> route and the effect this will have on landscape character and views. However, taking account of the AP<sub>2</sub> correction, this will not change the level of significance of the effects reported in the SES and AP<sub>2</sub> ES.

## Sound, noise and vibration

### *Introduction*

- 5.7.61 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 AP<sub>4</sub> amendment, compared to those of the SES<sub>3</sub> scheme.
- 5.7.62 There are no AP<sub>1</sub> amendments or AP<sub>2</sub> amendments that are relevant to the assessment.

### *Scope, assumptions and limitations*

- 5.7.63 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.
- 5.7.64 Local assumptions and limitations for sound, noise and vibration are set out in the main ES (Volume 2, CFA15, Section 11).

### *Existing baseline*

- 5.7.65 The baseline sound, noise and vibration information for CFA15 is described in the main ES (Volume 2, CFA15, Section 11.2). Baseline sound levels representative of the assessment locations affected by this amendment have been used in the construction and operational sound, noise and vibration assessments.

### *Future baseline*

#### **Construction (2017)**

- 5.7.66 The future baseline for construction in 2017, remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 11.2).

### **Operation (2026)**

- 5.7.67 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA15, Section 11.2).

#### *Effects arising during construction*

- 5.7.68 The closest noise-sensitive receptors to the AP<sub>4</sub> amendment are the residential properties at Cedars Farm to the south-west and residential properties on Banbury Road to the north (represented by assessment locations 256919 and 256905 respectively, see main ES Volume 5, Sound, noise and vibration map book – Country South, SV-03 039 maps). In the main ES, no likely significant effects from construction noise were identified at these receptors.
- 5.7.69 The AP<sub>4</sub> amendment will involve additional works associated with the construction of the Cedars Farm accommodation overbridge.
- 5.7.70 An assessment has been undertaken to determine whether construction noise and vibration associated with the AP<sub>4</sub> amendment would result in a likely significant effect, using the significance criteria detailed in the main ES (Volume 5: Appendix SV-001-000).
- 5.7.71 The works associated with the provision of an accommodation overbridge at Cedars Farm are not predicted to lead to a substantial change in noise levels at the sensitive receptors from those reported in the main ES. Consequently, the AP<sub>4</sub> amendment will not give rise to a new or different significant effect and will not change the level of significance of the effect reported in the main ES.

#### *Effects arising during operation*

- 5.7.72 The AP<sub>4</sub> amendment occurs only in the construction phase, and therefore will not give rise to a new or different significant operational noise or vibration effect and will not change the level of significance of the effects reported in the main ES.

#### *Mitigation and residual effects*

- 5.7.73 No additional mitigation (i.e. in addition to those identified in the main ES and subsequent SES reports) are required.
- 5.7.74 There are no residual significant effects associated with this amendment.

#### *Cumulative effects*

- 5.7.75 There are no new or different likely significant cumulative effects for sound, noise and vibration as a result of the AP<sub>4</sub> amendments interacting with one another, or any relevant committed development.

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

- 5.7.76 In the original scheme, Cedars Farm was severed by the HS2 route and the access provision to the severed land required use of the public highway to maintain agricultural operations. The impact of severance was assessed as medium adverse and resulted in an overall assessment of moderate adverse in the main ES, which was

significant. The AP4 amendment removes the need to access the public highway to cross the HS2 route. A minor adverse effect on Cedars Farm holding is predicted with the AP4 amendment, this is not a significant effect. The moderate adverse significant residual effect reported in the main ES will not occur with this amendment.

5.7.77

The provision of an accommodation overbridge at Cedars Farm will give rise to different significant residual effects on the following viewpoints arising from the construction and permanent presence of the accommodation overbridge structure within the extent of views:

- Viewpoint 217.3.002: view looking north-west from the PRoW network north-east of Springfield House (viewpoint located on PRoW AC/001) – residual major adverse significant construction effect and moderate adverse significant year 1 operation effects;
- Viewpoint 219.2.001: view looking north-east from Cedars Farm, west of Lower Boddington – residual major adverse significant construction effect and moderate adverse significant year 1, year 15 and year 60 operation effects;
- Viewpoint 220.3.001: view looking south-west from Church Road on the southern edge of Upper Boddington (viewpoint located 50m west of PRoW (Footpath AC/011)) – residual major adverse significant construction effect and moderate adverse significant year 1, year 15 and year 60 operation effects; and
- Viewpoint 221.4.001: view looking north-east from Boddington Road, north of Three Shires farm) – residual major adverse significant construction effect and moderate adverse significant year 1 operation effects.

5.7.78

However these different significant visual effects do not change the level of significance of the residual effects for these viewpoints reported in the SES and AP2 ES.

5.7.79

The association between this AP4 amendment to provide an accommodation overbridge at Cedars Farm (AP4-015-007) and the reconfiguration of the Warwick Road and Banbury Road junction (AP2-015-008) will give rise to different operational significant landscape and visual cumulative effects. Cumulative effects will primarily arise from the combined operational influence of the accommodation overbridge at Cedars Farm, Banbury Road overbridge and Stoneton Lane green overbridge structures occurring within a 1.8km extent of the HS2 route and the effect this will have on landscape character and views. However, taking account of the AP2 amendment, this will not change the level of significance of the cumulative effects reported in the SES and AP2 ES.

5.7.80

The AP4 amendment will not result in any new or different residual significant effects or change the significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA15) or the SES and AP2 ES (Volume 2, CFA15) for any other topic.

## **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 above and there are no further combined effects to report.

**High Speed Two (HS2) Limited**

One Canada Square  
London E14 5AB

**T** 020 7944 4908

**E** [hs2enquiries@hs2.org.uk](mailto:hs2enquiries@hs2.org.uk)

Z21