

# HIGH SPEED RAIL (LONDON - WEST MIDLANDS)

## Supplementary Environmental Statement 3 and Additional Provision 4 Environmental Statement

Volume 2 | Community forum area reports

CFA13 Calvert, Steeple Claydon, Twyford and Chetwode

October 2015

SES3 and AP4 ES 3.2.1.13



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Department  
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# 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 Two (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;

- 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; and
- glossary of terms and list of abbreviations. This contains any new or different terms and abbreviations used throughout the SES and AP ES reports, additional to those included in the main ES.

# Structure of this report

This volume of the 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; and
- changes to the design or to construction assumptions which do not require changes to the Bill.

Part 1 of each CFA report includes, where relevant:

- a description of the changes or updates within the CFA that have triggered the need for reassessment;
- an assessment of the environmental effects of the changes for relevant environmental topics considering the:
  - scope, assumptions and limitations of the 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; and
- 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; and

- a summary of any new or different likely residual significant effects as a result of each proposed amendment.

# 1 Introduction

- 1.1.1 The Bill for high speed rail between London and the West Midlands was submitted to Parliament together with the main ES in November 2013. The AP1 ES, which was submitted in September 2014, contained generally minor amendments to the design of the original scheme (i.e. the scheme submitted in November 2013) in CFAs 7 – 26. The SES and AP2 ES, which was submitted in July 2015, updated the main ES and contained a number of further amendments to the design of the original scheme in CFAs 4 – 26. The SES2 and AP3 ES, which was submitted in September 2015, contained further updates to the main ES and reported the assessment of a number of amendments to the design of the original scheme in CFAs 1 – 5.
- 1.1.2 Since the submission of the main ES and subsequent SES and AP documents, updates to environmental baseline information and changes to scheme design or assumptions have occurred, which may lead to new or different significant effects. These effects, depending on the type of change, are reported in the SES3 (Part 1) or AP4 ES (Part 2) of this document, 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 HS2.
- 1.1.4 In order to differentiate between the original scheme and the subsequent changes, the terms set out in Table 1 are used:

Table 1: Scheme definitions

Scheme name	Definition	Relevant CFAs
the original scheme	the Bill scheme submitted to Parliament in November 2013, which was assessed in the main ES	1 – 26
the AP1 revised scheme	the original scheme as amended by the AP submitted in September 2014	7 – 26
the SES scheme	the original scheme with the design changes described in the SES submitted in July 2015	4 – 26
the AP2 revised scheme	the SES scheme as amended by the AP2 submitted in July 2015	4 – 26
the SES2 scheme	the original scheme as updated by the SES scheme, with the design changes described in the SES2 submitted in September 2015	1 – 5 (i.e. this applies in the London area only)
the AP3 revised scheme	the SES2 scheme as amended by the AP3 submitted in September 2015	1 – 5 (i.e. this applies in the London area only)
the SES3 scheme	the SES2 scheme with the design changes described in the SES3 submitted in October 2015	4 – 26
the AP4 revised scheme	the SES3 scheme as amended by the AP4 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; and
  - changes to the design or to construction assumptions which do not require changes to the Bill.
- 1.1.6 One design change is assessed within the SES<sub>3</sub> for this CFA, for the provision of a training area and larger car park at Calvert Infrastructure Maintenance depot (IMD).
- 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.
- 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 changes to the configuration of Calvert waste transfer sidings that will incorporate a new overbridge, additional land for balancing ponds and an amendment to a Bill plan.
- 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> amendments 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 SES3 and AP4 ES, Volume 5: Appendix EC-001-002 and 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 Calvert, Steeple Claydon, Twyford and Chetwode area to update and supplement the information reported in the main ES. The impacts of traffic associated with construction of the scheme have been reassessed in the context of this supplementary data. The assessment of the additional baseline data is reported in Section 3.
- 2.1.4 Details of this survey data are included in SES3 and AP4 ES, Volume 5: Appendix TR-001-000.

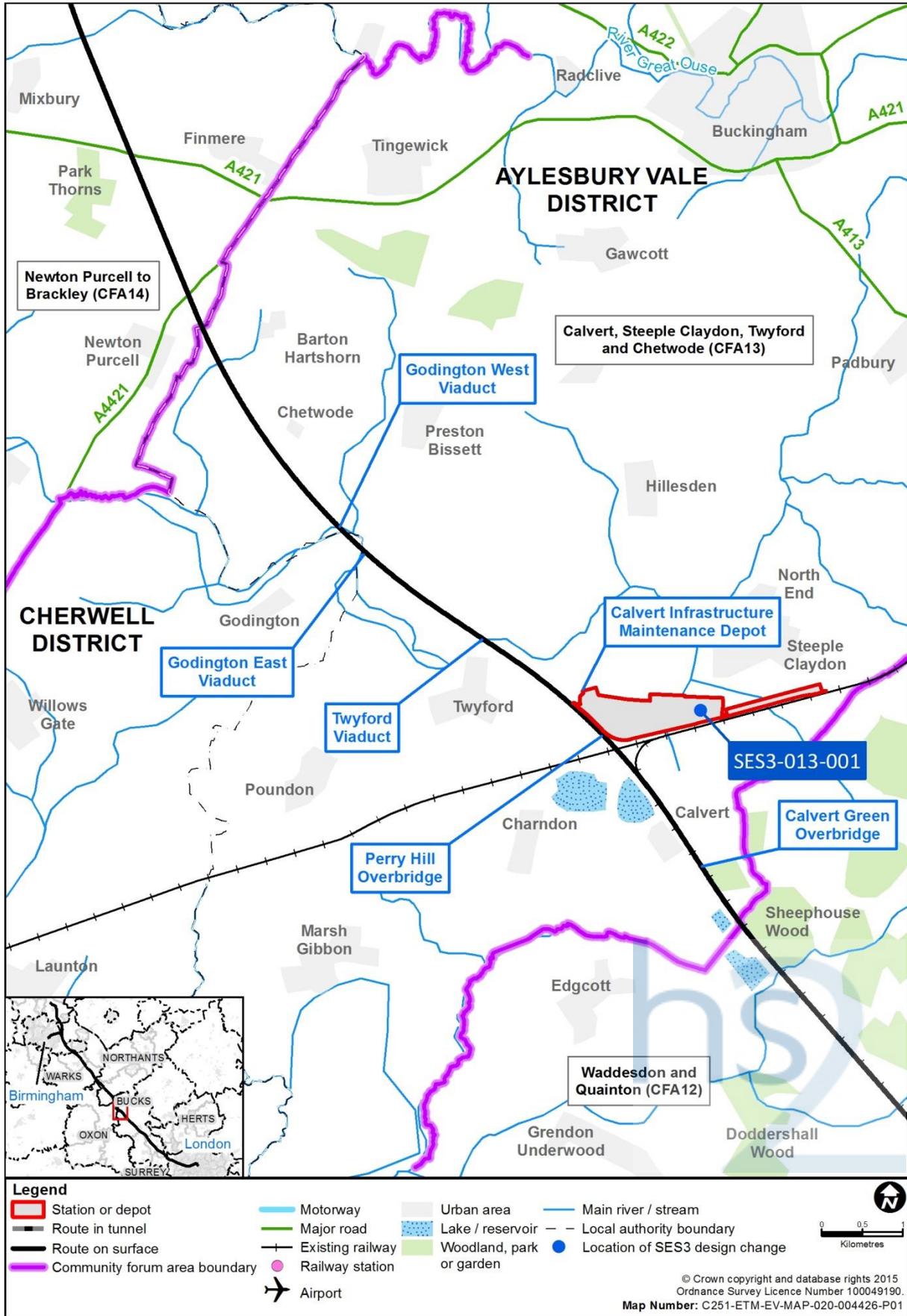
### 2.2 Changes to the design or to construction assumptions not requiring a change to the Bill

- 2.2.1 Table 2 provides a summary of the changes to the design or to construction assumptions not requiring a change to the Bill which will result in new or different significant effects in the Calvert, Steeple Claydon, Twyford and Chetwode area (CFA13). 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 CFA13

Name of design change or construction assumption	Description of the SES scheme	Description of the SES3 scheme
Provision of training area and larger car park at Calvert IMD.  SES3-013-001	Calvert IMD includes a car park for staff parking.	The size of the car park will be increased and an outdoor training area provided to support training of maintenance staff. The overall size of the Calvert IMD will increase slightly and the temporary and permanent earthwork bunds will be realigned. The permanent diversion of Footpath SCL/6 will be realigned with the realigned bund.

Figure 1: Locations of design changes not requiring a change to the Bill in CFA13



## Description of changes to the design or construction assumptions

### *Provision of training centre and larger car park at Calvert Infrastructure Maintenance Depot (SES3-013-001)*

- 2.2.2 The Bill provides for a 165-space car park at Calvert IMD with a bund which will be constructed to the north of the depot (refer to maps CT-05-055, CT-05-056, CT-06-055, and CT-06-056 in the main ES, Volume 2, CFA13 Map Book).
- 2.2.3 Since submission of the Bill, a review of the operation of Calvert IMD identified a need to increase the size of its car park by 135 spaces to a total of 300 spaces. The extra spaces will accommodate parking for the expected workforce, which is unchanged from that forecast in the main ES. The extra area for the car park will require the operational area of Calvert IMD to increase by approximately 0.6ha. The need for an outdoor training area was also identified to support the training of maintenance staff. It will require an area of approximately 1ha, but there will be no need to increase the operational area of depot. The operational area of Calvert IMD in the original scheme was approximately 35ha – the amendment will increase its size by 0.6ha, which will be a less than 2% increase. The permanent land requirement for the amendment will not increase because the additional operational area will be created by an adjustment of the bund to the north of the depot (refer to maps CT-05-055, CT-05-055-R1, CT-05-056, CT-06-055, CT-06-055-R1, CT-06-056 in the SES3 and AP4 ES, Volume 2, CFA13 Map Book).
- 2.2.4 The design change will allow the temporary and permanent earthwork bunds to be realigned. The permanent diversion of Footpath SCL/6 will also be adjusted to suit the realigned permanent bund. There will be no change in length of the footpath between the original scheme and the SES3 scheme.
- 2.2.5 There will be no change to the construction duration of Calvert IMD as outlined in the main ES. The land required for this design change is within the original limits of the Bill and therefore no amendment to the Bill is required.
- 2.2.6 The provision of a training centre and larger car park at Calvert IMD 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 any environmental topic.

## 2.3 Topics included in the SES3 assessment

- 2.3.1 The changes described above in Sections 2.1 to 2.2 result in new or different significant effects in respect of traffic and transport.

## 3 Assessment of changes

### 3.1 Traffic and transport

#### Introduction

- 3.1.1 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 the SES scheme.

#### Scope, assumptions and limitations

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

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

- 3.1.3 Supplementary traffic data has been collected at the following highway junctions and sections of highway, that are the subject of revised assessments:

- A<sub>421</sub>/A<sub>413</sub>;
- A<sub>421</sub>/A<sub>413</sub> London Road;
- A<sub>421</sub>/Gawcott Road;
- A<sub>421</sub> Tingewick Bypass/Barton Road;
- A<sub>421</sub>/A<sub>4421</sub>/Sandpit Hill;
- A<sub>41</sub>, between The Broadway (Grendon Underwood) in the Waddesdon and Quainton area (CFA<sub>12</sub>) and A<sub>4421</sub> (Bicester);
- A<sub>421</sub> Tingewick Bypass, between A<sub>4421</sub> and Gawcott Road/Buckingham Road;
- School Hill/Perry Hill;
- A<sub>4421</sub> Charbridge Lane, between A<sub>41</sub> and A<sub>4421</sub> Buckingham Road; and
- A<sub>41</sub> Boundary Way, between A<sub>4421</sub> Charbridge Lane and B<sub>4030</sub> Oxford Road.

- 3.1.4 These traffic surveys are reported in the SES<sub>3</sub> and AP<sub>4</sub> ES, Volume 5: Appendix TR-001-000.

#### Environmental baseline

##### *Existing baseline*

- 3.1.5 The existing baseline for traffic and transport is as set out in Volume 2, CFA<sub>13</sub>, Section 12 of the main ES, updated by the additional traffic surveys.

### *Future baseline*

#### **Construction**

- 3.1.6 The future baseline for construction is as set out in the main ES (Volume 2, CFA<sub>13</sub>, Section 12), updated by the additional traffic surveys.

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

- 3.1.7 The future baselines for operation are as set out in the main ES (Volume 2, CFA<sub>13</sub>, Section 12), updated by the additional traffic surveys.

### **Effects arising during construction**

#### *Avoidance and mitigation measures*

- 3.1.8 No avoidance and mitigation measures, other than those set out in Volume 2, CFA<sub>13</sub>, Section 12 of the main ES are proposed.

#### *Assessment of impacts and effects*

#### **Temporary effects**

- 3.1.9 The supplementary traffic data has the potential to change the assessment of the impacts of HS<sub>2</sub> construction traffic on the local network in relation to congestion and delays at junctions and to traffic related severance for non-motorised users.
- 3.1.10 The revised assessment has identified one new moderate adverse significant effect in relation to congestion and delays to vehicle users at the junction of A<sub>421</sub>/A<sub>413</sub> London Road (a non-significant impact as reported in Part 1 of the SES and AP<sub>2</sub> ES).
- 3.1.11 In addition, the revised assessment has identified the removal of significant effects in relation to congestion and delays to vehicle users:
- A<sub>421</sub>/Gawcott Road – removal of the minor adverse significant effect reported in the main ES;
  - A<sub>421</sub> Tingewick Bypass/Barton Road – removal of the minor adverse significant effect reported in the main ES;
  - A<sub>421</sub>/A<sub>4421</sub>/Sandpit Hill – removal of the minor adverse significant effect reported in Part 1 of the SES and AP<sub>2</sub> ES; and
  - School Hill/Perry Hill – removal of the moderate adverse significant effect reported in the main ES.
- 3.1.12 The revised assessment of the A<sub>421</sub>/A<sub>413</sub> junction has not resulted in a new or different likely significant effect compared to Part 1 of the SES and AP<sub>2</sub> ES.
- 3.1.13 The revised assessment has identified new or different likely significant effects in relation to traffic related severance for non-motorised users at the following locations:
- A<sub>41</sub>, between The Broadway (Grendon Underwood), in the Waddesdon and Quainton area (CFA<sub>12</sub>), and A<sub>4421</sub> (Bicester) – a major adverse significant effect (a moderate adverse effect reported in Part 1 of the SES and AP<sub>2</sub> ES). Note that this change in effect is also reported in CFA<sub>12</sub>;

- A<sub>4421</sub> Charbridge Lane, between A<sub>41</sub> and A<sub>4421</sub> Buckingham Road – a moderate adverse significant effect (this section of road has not previously been assessed); and
- A<sub>41</sub> Boundary Way, between A<sub>4421</sub> Charbridge Lane and B<sub>4030</sub> Oxford Road – a moderate adverse significant effect (this section of road has not previously been assessed).

### **Permanent effects**

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

### *Other mitigation measures*

- 3.1.15 No changes to mitigation measures reported in Volume 2, CFA<sub>13</sub>, Section 12 of the main ES are proposed.

### *Cumulative effects*

- 3.1.16 The above 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.
- 3.1.17 There are no new or different likely significant cumulative effects for traffic and transport as a result of the SES<sub>3</sub> scheme interacting with any AP<sub>1</sub> or AP<sub>2</sub> amendments.

### *Summary of likely residual effects*

- 3.1.18 The revised assessment has identified a new moderate residual adverse significant effect at the A<sub>421</sub> with A<sub>413</sub> London Road junction, in relation to junction congestion and delay to vehicle users. It has also identified the removal of the residual adverse significant effects at the A<sub>421</sub> with Gawcott Road, A<sub>421</sub> Tingewick Bypass with Barton Road and A<sub>421</sub> with A<sub>4421</sub> and Sandpit Hill junctions (all minor adverse significant effects as reported in Part 1 of the SES and AP<sub>2</sub> ES), and the School Hill/Perry Hill junction (a moderate adverse significant effect reported in the main ES).
- 3.1.19 In addition, the revised assessment has identified new moderate residual adverse significant effects at the A<sub>4421</sub> Charbridge Lane (between A<sub>41</sub> and A<sub>4421</sub> Buckingham Road) and the A<sub>41</sub> Boundary Way (between A<sub>4421</sub> Charbridge Lane and B<sub>4030</sub> Oxford Road) in relation to traffic related severance for non-motorised users. There will be a major residual adverse significant effect at the A<sub>41</sub>, between The Broadway (Grendon Underwood), in the Waddesdon and Quainton area (CFA<sub>12</sub>), and A<sub>4421</sub> (Bicester) in relation to traffic related severance for non-motorised users (a moderate adverse effect reported in Part 1 of the SES and AP<sub>2</sub> ES).
- 3.1.20 The significant effects that result from construction of the SES<sub>3</sub> scheme are shown in the Volume 5, Traffic and transport, CFA<sub>13</sub>, Map Book of the SES<sub>3</sub> and AP<sub>4</sub> ES.

### **Effects arising from operation**

- 3.1.21 There will be no new or different significant operation effects for traffic and transport as a result of the SES<sub>3</sub> assessment, in comparison with those reported in the main ES or SES.

# Part 2: Additional Provision 4 Environmental Statement

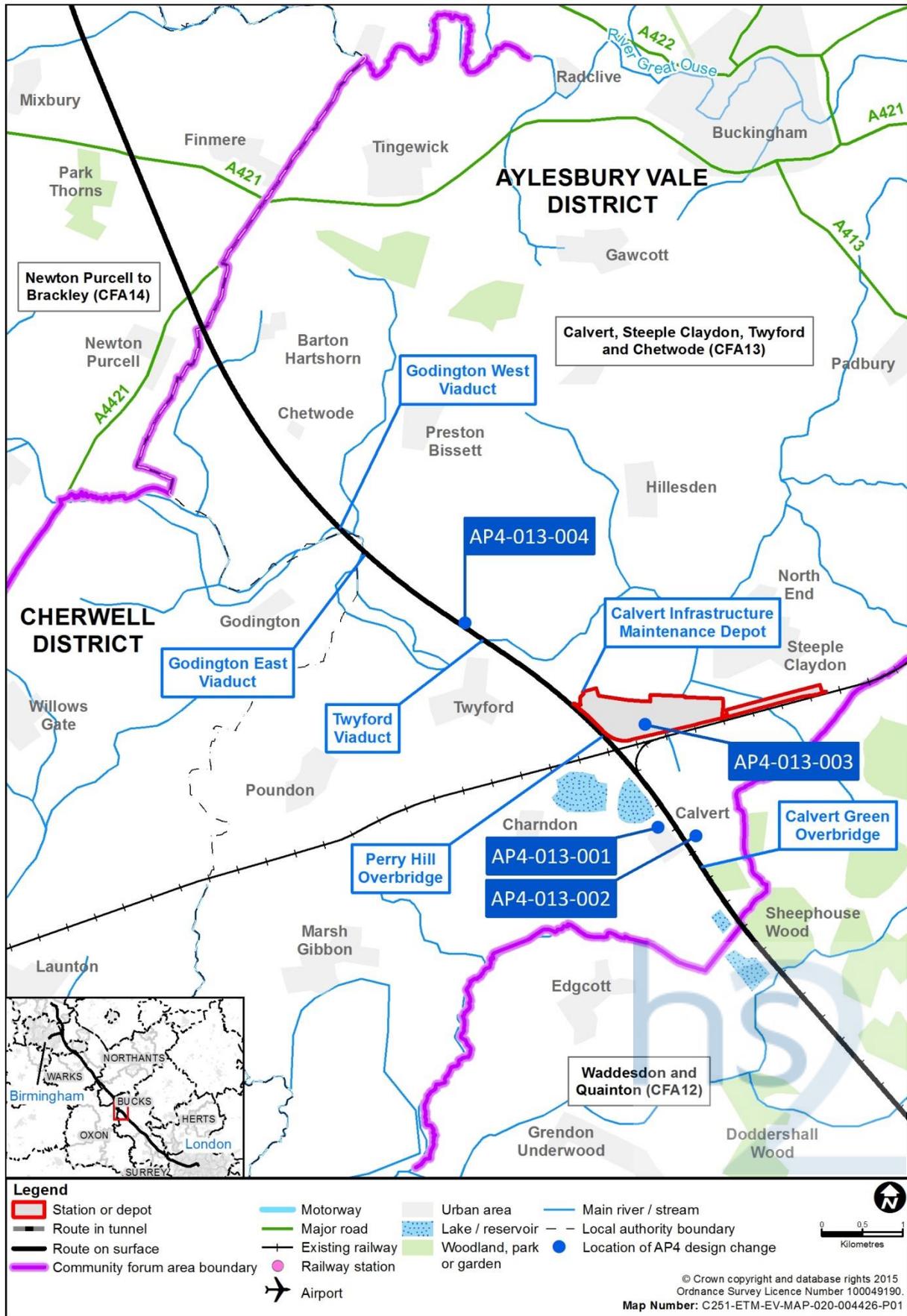
## 4 Summary of amendments

- 4.1.1 Table 3 provides a summary of the amendments in the Calvert, Steeple Claydon, Twyford and Chetwode CFA (CFA13). Figure 2 shows the locations.

Table 3: Summary of amendments in CFA13

Name of amendment	Description of the SES <sub>3</sub> scheme and AP <sub>2</sub> revised scheme	Description of the AP <sub>4</sub> revised scheme
<p>Permanent provision of access to pumping station at Calvert</p> <p>AP<sub>4</sub>-013-001</p>	<p>A track provides access to a pumping station at Calvert. The access track was identified in the main ES but not shown on map CT-06-055). The Bill plan did not label the access track correctly.</p>	<p>Addition of the missing label on the Bill plan will ensure powers are obtained to construct the access track to the pumping station at Calvert. No additional land is required.</p>
<p>Additional land required for an overbridge and reconfiguration works at Calvert Landfill waste transfer sidings</p> <p>AP<sub>4</sub>-013-002</p>	<p>Two existing Calvert Landfill waste transfer sidings and gantries are relocated to the east side of the realigned Aylesbury Link railway line. The sidings will provide train stabling and offloading facilities for Calvert Landfill site. Vehicle access between the sidings and the landfill is via the proposed Calvert green overbridge.</p> <p>In the AP<sub>2</sub> revised scheme, amendment AP<sub>2</sub>-013-001 provides a permanent diversion of Bridleway SCL/18 in the vicinity of the existing waste offloading facility.</p>	<p>The length of the sidings will be extended further north. A new overbridge (Calvert sidings overbridge) will be constructed to serve landfill traffic and the alignment of access roads to the east and west of the sidings will be amended. Calvert green overbridge will no longer carry landfill traffic; it will be moved slightly further south and will be narrower.</p> <p>Part of the AP<sub>4</sub> amendment seeks to remove a section of the SCL/18 Bridleway diverted by AP<sub>2</sub>-013-001, specifically in the area west of the proposed overbridges and adjacent to Brackley Lane and Calvert sports ground. The AP<sub>4</sub> amendment does not seek any further changes to the AP<sub>2</sub> amendment.</p> <p>The AP<sub>4</sub> amendment will permanently require land outside Bill limits.</p>
<p>Additional land required for two new balancing ponds at Calvert IMD</p> <p>AP<sub>4</sub>-013-003</p>	<p>Drainage of the Calvert IMD discharges to three balancing ponds.</p>	<p>Two additional balancing ponds will be constructed west of Addison Road. Outfall drainage will be required for the ponds, as will vehicle access for maintenance. The amendment will permanently require land outside the limits of the Bill.</p>
<p>Additional land required for the relocation of a balancing pond at Twyford viaduct</p> <p>AP<sub>4</sub>-013-004</p>	<p>A balancing pond is located north of the Twyford viaduct and east of the route.</p>	<p>The balancing pond will be constructed in a revised location 200m north of the location proposed in the main ES. An access track for maintenance will be constructed south of the pond. The amendment will permanently require land outside the limits of the Bill.</p>

Figure 2: Locations of amendments in CFA13



## **5 Assessment of amendments**

### **5.1 Permanent provision of access to pumping station at Calvert (AP4-013-001)**

- 5.1.1 The Bill provides for an access track from Brackley Lane to a pumping station at Calvert (refer to maps CT-05-055 and CT-06-055 in the main ES, Volume 2, CFA13 Map Book).
- 5.1.2 Since submission of the Bill, a correction has been made to a Bill plan involving the addition of a label, which will ensure powers are obtained to construct and use the access track. A correction has also been made to the map CT-06-055, as the access track was omitted from the map in main ES (refer to maps CT-06-055 in the SES3 and AP4 ES, Volume 2, CFA13 Map Book).
- 5.1.3 The corrections to the Bill plan and map CT-06-055 are not considered to make changes that require reassessment of environmental effects or changes to proposed mitigation, as set out in the main ES with respect to any environmental topic.

### **5.2 Additional land required for an overbridge and reconfiguration works at Calvert Landfill waste transfer sidings (AP4-013-002)**

- 5.2.1 The Bill provides for the relocation of two existing Calvert Landfill waste transfer sidings and gantries to a position east of the realigned Aylesbury Link railway line. The track layout comprised two 440m sidings and an additional 70m at each end of the sidings for shunting. The sidings would provide train stabling and waste offloading facilities for Calvert Landfill site, consisting of a rail-mounted gantry crane over both sidings capable of travelling their full length. The Calvert green overbridge would be provided across the route to provide access for the Calvert landfill site. The overbridge would also provide ecological connectivity. Bridleway SCL/18/1, which runs broadly parallel to the route, would be subject to a temporary diversion during construction. A section of the bridleway would be stopped up and permanently diverted (refer to maps CT-05-054, CT-05-055, CT-06-054 and CT-06-55 in the main ES, Volume 2, CFA13 Map Book).
- 5.2.2 There is one AP2 amendment which will be revised by the AP4 amendment. Amendment AP2-013-001 provides a permanent diversion of Bridleway SCL/18 in the vicinity of the existing waste offloading facility and the AP4 amendment seeks to remove a section of it.
- 5.2.3 Since the submission of the Bill, the arrangement of the sidings has been amended to improve their operation and capacity. Ecological review of the proposals identified that higher numbers of heavy goods vehicles (HGVs) than previously anticipated may be crossing the Calvert green overbridge during night-time hours, leading to a potential detrimental effect on its intended ecological function. The amendment provides an additional overbridge, the Calvert sidings overbridge, for use by landfill traffic. Calvert green overbridge will be retained but will no longer be used by landfill traffic.

- 5.2.4 The total length of the sidings will be extended northwards by approximately 1km compared to the original scheme. They will include two waste sidings, track for shunting north of the waste sidings and a siding for disabled trains. Offloading facilities will employ a semi-static gantry, which will be able to travel 72m along the sidings in order to offload containers from railway wagons. There will also be a static grab (similar to an excavator) for offloading open wagons.
- 5.2.5 Calvert green overbridge will be retained, but it will be moved approximately 30m further south. Its width will be reduced from 35m proposed in the original scheme to 30m in the AP4 revised scheme due to the removal of the access road. The width of vegetation on the green overbridge will remain as proposed in the original scheme, i.e. approximately 30m. The green bridge will not be used by any vehicle traffic (in particular the potential high volume of HGV traffic during night-time working at the sidings), thereby avoiding disturbance of wildlife that might utilise it. The Calvert sidings overbridge will be constructed approximately 150m north of Calvert green overbridge. Calvert sidings overbridge will serve landfill traffic and will necessitate the construction of an access road on either side of the bridge. The amendment will result in the loss of approximately 300m<sup>2</sup> of ancient woodland.
- 5.2.6 Noise-fence barriers are envisaged along the western side of the route, the western side of the sidings, along sections of the access road and on the northern side of the Calvert sidings overbridge. A noise-fence barrier is not considered necessary on the southern side of the Calvert sidings overbridge, however, a barrier, approximately 4m high, will be constructed here to prevent light spillage affecting Calvert green overbridge. This barrier will be extended along the access road to provide light screening for wildlife habitats to the east and west of the route.
- 5.2.7 The AP2 amendment (AP2-013-001) sought to amend the bridleway and footpath configuration in the area, in order to improve safety for the public. The amendment proposed a downgrading of the SCL/18 bridleway to a footpath and permanently diverting its route to run adjacent to Brackley Lane and then running adjacent to the HS2 route. The amendment also upgraded the remaining footpaths in the area – GUN/24/1, GUN/23/1, CAG/1/1, EDG/12/1, CAG/4/3 and CAG/5/1 to bridleways. These two changes, together, ensured equestrian users were kept away from the HS2 route and the Calvert Landfill site haul road. The change would result in three new, permanent, minor adverse residual significant effects that were not reported in the main ES. However, the amendment will provide a more suitable bridleway route for horse riders during operation and will increase the total length of bridleways in the locality.
- 5.2.8 Part of the AP4 amendment seeks to remove a section of the diverted SCL/18 route, specifically in the area west of the proposed overbridges and adjacent to Brackley Lane and Calvert Sports Ground. The proposed diversion for AP4 will now run wholly along Brackley Lane. The amendment does not seek any further changes to the AP2 amendment (AP2-013-001). For users on foot, the permanent realignment of SCL/18 will add 30m to its length, compared to the original scheme, but will be 90m shorter compared to the AP2 revised scheme (AP2-013-001). For horse riders, the permanent realignment due to this amendment will be shorter than the original scheme and the AP2 revised scheme.

- 5.2.9 An additional balancing pond will also be constructed north of the Calvert sidings overbridge.
- 5.2.10 Refer to maps CT-05-054, CT-05-055, CT-06-054 and CT-06-55 in the SES<sub>3</sub> and AP<sub>4</sub> ES, Volume 2, CFA<sub>13</sub> Map Book for all the above changes proposed in the AP<sub>4</sub> revised scheme.
- 5.2.11 The construction sequence for the sidings remains as described in the main ES (refer to Volume 2, CFA<sub>13</sub>, Section 2 of the main ES). The estimated duration of construction of the amendment is one year and six months. Approximately 2.5ha of additional land is required permanently for the works, which is outside of the limits of the Bill. However, there is 0.7ha that is no longer required by the AP<sub>4</sub> revised scheme, so the net requirement as a result of the amendment will be 1.8ha, compared to the original scheme.
- 5.2.12 The amendment of Calvert Landfill waste transfer sidings is not considered to make changes that require a reassessment of the environmental effects or proposed mitigation for the revised AP<sub>2</sub> amendment (AP<sub>2</sub>-013-001) for any environmental topic. The AP<sub>4</sub> amendment does not change the three permanent minor adverse significant effects on public rights of way (PRoW) for equestrians that will be caused by the AP<sub>2</sub> amendment.
- 5.2.13 The amendment of Calvert Landfill waste transfer sidings 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, traffic and transport and water resources and flood risk. However, reassessment was considered to be required in respect of: agriculture, forestry and soils, cultural heritage, ecology, landscape and visual assessment, and sound, noise and vibration.

## **Agriculture, forestry and soils**

### *Introduction*

- 5.2.14 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.

### *Scope, assumptions and limitations*

- 5.2.15 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.
- 5.2.16 The additional area of agricultural land affected by the amendment is 1.8ha and will not alter the significance of effect, or result in any different effect, on best and most versatile (BMV) agricultural land or forestry land within the Calvert, Steeple Claydon, Twyford and Chetwode area (CFA<sub>13</sub>). The route-wide effects on BMV land and forestry land are reported in Volume 3.

### *Existing baseline*

- 5.2.17 One holding will be affected, Claydon Estate (main ES, Volume 2, CFA13, Section 3.3), which is a 1,400ha estate with arable, beef cattle and sheep.

### *Future baseline*

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

- 5.2.18 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA13, Section 3.3).
- 5.2.19 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. These are not expected to change fundamentally the baseline circumstances described.

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

- 5.2.20 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA13, Section 3.3).

### *Effects arising during construction*

- 5.2.21 The change in the area of agricultural land required is permanent; there will be no temporary effects arising from this amendment.
- 5.2.22 A further net 1.8ha of land will be required from Claydon Estate. This increases the total area removed to 55.1ha which represents 4% of the holding. The original requirement for 53.3ha for the construction of the original scheme was assessed as a negligible impact albeit the overall effect was assessed as minor adverse (non-significant) due to severance; the addition of a small area of land for this amendment does not alter that assessment. The additional overbridge and alternative configuration of the sidings do not give rise to a different significant effect or change the level of significance of the effects reported in the main ES.

### *Effects arising from operation*

- 5.2.23 There are no new or different significant operational effects for agriculture, forestry and soils as a result of the amendment in comparison with those described in the main ES.

### *Mitigation and residual effects*

- 5.2.24 No mitigation measures are required for this amendment.
- 5.2.25 The residual effect of this amendment will be to marginally increase the land required from a single landholding but the effect is not significant.

### *Cumulative effects*

- 5.2.26 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 with any AP<sub>1</sub> or AP<sub>2</sub> amendments or any relevant committed development.

## **Cultural heritage**

### *Introduction*

- 5.2.27 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.

### *Scope, assumptions and limitations*

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

### *Existing baseline*

- 5.2.29 The cultural heritage baseline for the assessment takes into account information collected in support of the main ES, which included walk-over 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 with revisions provided in Volume 2, section 3.1.4 of the SES and AP<sub>2</sub> ES.
- 5.2.30 The land required for the Calvert sidings overbridge and alternative configuration at Calvert Landfill waste transfer sidings is partially within an area of ancient woodland (asset reference CAL<sub>130</sub><sup>1</sup>), which is of high heritage value. This woodland was bisected when the disused Great Central Main Line (GCML) railway was constructed and now consists of two separate parcels of woodland. The setting of the woodland does not contribute to its heritage value.
- 5.2.31 Decoypond ancient woodland (asset reference CAL<sub>001</sub>) lies adjacent to the new land required for the amendment. It has high heritage value owing to the survival of the Decoypond itself (asset reference CAL<sub>002</sub>).

### *Future baseline*

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

- 5.2.32 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 5: Appendix CT-004-000).

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

- 5.2.33 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA<sub>13</sub>, Section 6.3).

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<sup>1</sup> Asset reference: a unique code for each cultural heritage asset identified within the study area; further detail on these assets can be found in the gazetteer in Volume 2, section 3.1 of the SES and AP<sub>2</sub> ES.

### *Effects arising during construction*

- 5.2.34 The additional overbridge and alternative configuration of the waste transfer sidings will result in 300m<sup>2</sup> of ancient woodland (asset reference CAL<sub>130</sub>) being removed. The total area of the ancient woodland is approximately 1.2ha.
- 5.2.35 The effect of the SES scheme on the ancient woodland was assessed in Volume 2, section 3.1 of the SES and AP<sub>2</sub> ES, which reported that a total area of 0.7ha or 60% of the total woodland would be removed. This was reported as a high adverse impact resulting in a major adverse significant effect. The additional removal of approximately 3% of ancient woodland due to this amendment is negligible in terms of the additional impact it will have on the heritage value of the woodland, and the significant effect reported in Part 1 of the SES and AP<sub>2</sub> ES remains unchanged.
- 5.2.36 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, and the SES and AP<sub>2</sub> ES.

### *Effects arising from operation*

- 5.2.37 The additional overbridge and reconfigured waste transfer sidings will not give rise to any new or different operational effects 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.

### *Mitigation and residual effects*

- 5.2.38 There will be no change to the mitigation and residual effects reported in Volume 2 of the main ES, and the SES and AP<sub>2</sub> ES.

### *Cumulative effects*

- 5.2.39 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 with any AP<sub>1</sub> or AP<sub>2</sub> amendments or any relevant committed development.

## **Ecology**

### *Introduction*

- 5.2.40 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 SES<sub>3</sub> scheme.

### *Scope, assumptions and limitations*

- 5.2.41 Updates to the scope of the assessment for ecology are set out in Volume 1 of the SES<sub>3</sub> and AP<sub>4</sub> 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 CT-001-000/02 of the main ES) and in Addendum 4 to the SMR (SES<sub>3</sub> and AP<sub>4</sub> ES, Volume 5: Appendix CT-001-000/5).
- 5.2.42 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 AP<sub>4</sub> revised scheme.

### *Existing baseline*

- 5.2.43 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: Buckinghamshire and Milton Keynes Environmental Records Centre, Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust, North Bucks Bat Group, Bernwood Forest Bechstein's Project, and the Upper Thames (Berkshire, Bucks and Oxon) Branch of Butterfly Conservation.
- 5.2.44 A summary of the baseline information relevant to the assessment of the amendment is provided below. This takes account of any relevant new or updated baseline information provided in Volume 5: Appendix EC-001-002 of the SES and AP<sub>2</sub> ES and Volume 5: Appendix EC-001-002 of the SES<sub>3</sub> and AP<sub>4</sub> ES. For those receptors described in the main ES, further details are provided in Volume 2, CFA<sub>13</sub>, Section 7.3 of the main ES and in Volume 5, including maps EC-01 to EC-12 of the main ES.

### **Designated sites**

- 5.2.45 There are no statutory designated sites of relevance to the assessment of the amendment.
- 5.2.46 There are four non-statutory sites designated for nature conservation within 500m of the land required for the amendment. All are of county/metropolitan value, as stated in the main ES:
- Decoypond Wood Local Wildlife Site (LWS) (8.6ha) is adjacent to the land required for the amendment. It is designated for ancient semi-natural woodland comprising a mix of wet ash and hazel coppice with oak, birch and field maple;
  - Shrubs Wood LWS (8.3ha) is approximately 465m east of the land required for the amendment and was not reported in the main ES due to its distance from the scheme. It is designated for ancient, semi-natural woodland comprising a mix of ash, oak and hazel coppice;
  - Calvert Railway Station LWS (2.2ha) is approximately 100m west of the land required for the amendment. It is designated for wet grassland and scattered scrub which supports plant species rare in Buckinghamshire including sneezewort, betony and carnation sedge. The site is also designated for its invertebrate assemblage including butterflies and dragonflies; and
  - Calvert Jubilee Nature Reserve LWS (39.3ha) is approximately 420m north-west of the land required for the amendment. The site is important for its overwintering bird assemblage, which includes tufted duck, teal, pochard and water rail. It is also designated for its invertebrate assemblage (including green hairstreak, dingy skipper and grizzled skipper).

- 5.2.47 In addition to the ancient woodland in the designated sites at Decoypond Wood and Shrubs Wood, there are three unnamed areas of ancient woodland (together comprising approximately 2.6ha) within 500m of the land required for this amendment. A 1.4ha parcel located on the western side of the Aylesbury Link railway line opposite Decoypond Wood LWS, which is within land required for the original scheme. Additionally, two separate parcels with a combined area of 1.2ha are located to the south of Calvert on both sides of the Aylesbury Link railway line that are within land required for both the original scheme and the amendment.

### **Habitats**

- 5.2.48 Two areas of ancient woodland are within or adjacent to land required for the SES<sub>3</sub> scheme, and total 1.2ha. West of the route, the additional land required for the amendment lies partially within an area of unnamed ancient woodland that is also directly affected by the SES<sub>3</sub> scheme. To the east of the route, the land required for the Calvert sidings overbridge is adjacent to an area of unnamed ancient woodland. This parcel is also subject to direct losses as a result of the SES<sub>3</sub> scheme. Both areas are habitats of principal importance that form part of a wider resource of ancient woodland in the vicinity of the route in this area that includes ancient woodland at Decoypond Wood LWS, Shrubs Wood and the 1.4ha parcel opposite Decoypond Wood LWS. These last three ancient woodlands are all outside of the additional land required for the amendment. Overall, the ancient woodland resource in this area is considered to be of county/metropolitan value, as reported in Part 1 of the SES and AP<sub>2</sub> ES.
- 5.2.49 Land required for the approach embankment to Calvert sidings overbridge on the eastern side of the scheme includes approximately 100m of native hedgerow that is a habitat of principal importance<sup>2</sup>. It forms part of a wider network of hedgerows that is of district/borough value as reported in the main ES.
- 5.2.50 The majority of the land required for the Calvert sidings overbridge comprises approximately 0.6ha of coniferous plantation. This habitat was not described in the main ES, and is unlikely to exceed local/parish value. Other habitats present include improved grassland, amenity grassland, bare ground and scattered trees. None of these habitats are of greater than local/parish value.

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

- 5.2.51 The main ES reports a population of Bechstein's bat associated with woodland and intervening habitat, east and west of the route. In relation to this amendment, Bechstein's bats cross the scheme at the western boundary of Sheepphouse Wood and north of the Calvert Landfill site (in close proximity to the proposed locations for School Hill green overbridge and Calvert green overbridges), as reported in the SES and AP<sub>2</sub> ES. It also reports the presence of a roost for a male Bechstein's bat in a willow tree adjacent to the Calvert Landfill site, 60m west of the land required for the amendment. Habitat adjacent to the existing Aylesbury Link railway line is used as a flightline for Bechstein's bat between Sheepphouse Wood and Calvert Jubilee. As reported in the main ES, the local population of Bechstein's bat is of national value.

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<sup>2</sup> Natural Environment and Rural Communities Act 2006 (Chapter 16). London, Her Majesty's Stationery Office.

- 5.2.52 In addition to Bechstein's bat, the main ES reported the presence of an assemblage of bats associated with woodland habitat that is of regional value. The assemblage comprises Brandt's, brown long-eared, Daubenton's, Natterer's and whiskered bat. This assemblage uses the Aylesbury Link railway line and nearby woodland habitat from Edgcott Road to Calvert Jubilee Nature Reserve.
- 5.2.53 The main ES identified a population of Nathusius' pipistrelle associated with Calvert Jubilee Nature Reserve LWS. Low levels of Nathusius' pipistrelle activity were recorded at the site that are indicative of occasional foraging. It is assumed that this species uses the Aylesbury Link railway line as a commuting route. As reported in the main ES, the population is of county/metropolitan value.
- 5.2.54 The main ES identified populations of common and soprano pipistrelle bats associated with the Aylesbury Link railway line from Station Road, Quainton in CFA12, to Calvert Jubilee Nature Reserve. It is likely that the railway line forms a continuous flightline for these species. A maternity colony of common pipistrelle, which will be removed as part of the original scheme for construction of the Calvert cutting, is present in the area of unnamed ancient woodland to the east of the scheme approximately 380m north of Decoypond Wood. As reported in the main ES, these populations are each of county/metropolitan value.
- 5.2.55 The main ES reported the presence of a medium size population of great crested newt associated with ponds north of the Calvert Landfill site that is of county/metropolitan value. An unsurveyed water body within 10m of the amendment on the margin of the coniferous plantation on the eastern side of the route represents potentially suitable breeding habitat that could be used by this metapopulation.
- 5.2.56 The main ES reports the presence of an assemblage of reptiles associated with the Calvert landfill site, Calvert Jubilee Nature Reserve and nearby parts of the Aylesbury Link railway line that is of county/metropolitan value. Four species: common lizard, slow-worm, adder and grass snake are present; the latter species present in high population densities.
- 5.2.57 Colonies of black hairstreak at Calvert Jubilee Nature Reserve and to the north of Decoypond Wood are part of a local concentration of colonies associated with the ancient woodlands largely located to the south of the waste transfer sidings in CFA12. These colonies are of regional value as reported in the main ES. The nearest colony is present in hedgerows on the eastern side of the scheme approximately 150m south of the amendment.
- 5.2.58 Locations of species records for CFA13 are shown in the main ES on Maps EC-04 to EC-12, Volume 5, Ecology Map Book.

### *Future baseline*

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

- 5.2.59 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA13, Section 7.3).

## Operation (2026)

- 5.2.60 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA13, Section 7.3).

### *Effects arising during construction*

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

- 5.2.61 Section 7.4 of the main ES includes avoidance and mitigation measures that are relevant to this assessment. In summary they are:
- the overbridges (all in CFA13) at Footpath SCL/13, the waste transfer siding at Calvert, School Hill, Perry Hill, West Street and School End will provide physical structures over the railway and will limit severance between existing habitats used as flightlines by assemblages of bats even though not specifically designed for this purpose;
  - in CFA12 (Volume 2: CFA12, Section 3.2), overbridges at Bridleway QUA/28A, Edgcott Road, Bridleway QUA/36, Bridleway GUN/28, and Footpath QUA/26; and Adam's accommodation and Footpath CAG/2 underbridges will provide potential crossing points for commuting bats even though not specifically designed for this purpose;
  - ensuring the scheme avoids habitat loss from Sheepphouse Wood Site of Special Scientific Interest (SSSI); and
  - minimising habitat loss from the Mega Ditch<sup>3</sup> in CFA12, which provides a sheltered and unlit corridor for commuting and foraging bats.

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

#### **Designated sites**

- 5.2.63 There is no land required within any of the designated sites as set out under the baseline for this amendment. Therefore, the 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**

- 5.2.64 The SES and AP2 ES reported that approximately 2.1 ha of ancient woodland in CFA13 will be removed by the construction of engineering earthworks associated with the eastern bank of the Calvert cutting, including losses from the two unnamed woodland parcels south of Calvert. The total loss would be a permanent adverse effect that is significant at the county/metropolitan level. The amendment will result in an additional 300m<sup>2</sup> of ancient woodland being removed from unnamed woodland parcels south of Calvert, west of the route. Construction of the overbridge will also isolate the remaining 0.2ha of the unnamed parcel to the east of the route at the same

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<sup>3</sup> Deepened and widened diversion of the Muxwell Brook close to Sheepphouse Wood and adjacent to parts of the Bridleway GUN/25, containing scattered scrub and wetland vegetation.

location, removing its connectivity to the remaining areas of woodland therefore reducing its functionality. The amendment will therefore result in a different significant effect on ancient woodland. However, this 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.

5.2.65 The main ES reported that 19 important hedgerows (4.5km) are in land required for the construction of the original scheme and 16 other important hedgerows (4.4km) would be partially intersected. The loss and fragmentation of hedgerows during construction was reported as having an adverse effect on the conservation status of the hedgerows, significant at the district/borough level. The construction of the eastern approach embankment to the Calvert sidings overbridge involves the loss of an additional 100m of hedgerow that qualifies as a habitat of principal importance. The amendment will result in a different significant effect on the conservation status of hedgerows. However, this will not change the level of significance of the effects reported in the main ES.

5.2.66 It is unlikely that the amendment will result in any other new or different effects on habitat receptors of relevance at more than the local/parish level. Local/parish level effects which are in addition to those identified in the main ES and the SES and AP<sub>2</sub> ES are listed in Volume 5: Appendix EC-003-002 of the SES<sub>3</sub> and AP<sub>4</sub> ES.

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

5.2.67 The main ES reported that, prior to mitigation, habitat loss and fragmentation resulting in the disruption of flightlines between roosts and foraging areas would have an adverse effect on the conservation status of Bechstein's bat that is significant at the national level and at the regional level for the assemblage of other woodland bat species. The main ES also reported that clearance of habitat along the Aylesbury Link railway line would disrupt flightlines used by a population of Nathusius' pipistrelle bats and populations of common and soprano pipistrelle bat and that this would result in an adverse effect on their conservation status that is significant at the county/metropolitan level.

5.2.68 The amendment will result in the loss of approximately 300m<sup>2</sup> of ancient woodland and 0.6ha of coniferous woodland that is suitable habitat for foraging and roosting bats. Moreover, the areas affected by the amendment are not important for the connectivity of identified bat flightlines, and form an insignificant proportion of available woodland and other suitable foraging habitat available to bats. The amendment will therefore not give rise to new or different significant effects from habitat loss and fragmentation on bat populations in this area, and will not change the level of significance of effects reported in the main ES, or the SES and AP<sub>2</sub> ES.

5.2.69 The main ES did not report significant adverse effects on the metapopulation (CFA<sub>13</sub> - AMP<sub>1</sub>) of great crested newt associated with land north of Calvert Landfill site. An unsurveyed water body that potentially provides breeding habitat for this metapopulation is situated within 10m of the land required for this amendment, to the east of the route. The construction of Calvert sidings overbridge will remove approximately 0.6ha of coniferous plantation adjacent to the water body. Loss of suitable terrestrial habitat of this extent is likely to reduce the viability of this water body as potential breeding habitat, particularly in conjunction with the removal of other suitable habitat within 250m of the pond for the construction of the Calvert

cutting. The amendment is therefore assumed to result in an adverse effect on the conservation status of great crested newt that is significant at up to county/metropolitan level. This is a new significant effect.

- 5.2.70 The main ES reports that loss and fragmentation of habitat suitable for black hairstreak will have an adverse effect on the conservation status of the colonies present in the vicinity of the scheme that is significant at the district/borough level. The AP4 revised scheme requires the removal of an additional 100m of hedgerow within 150m of a known colony. Removal of hedgerows could result in additional habitat fragmentation and loss of breeding habitat for black hairstreak. The proposed change will result in a different significant effect on the conservation status of black hairstreak. However, this will not change the level of significance of the effects reported in the main ES.
- 5.2.71 It is unlikely that the amendment will result in any other 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, and the SES and AP2 ES) arising from the AP4 revised scheme are listed in the SES3 and AP4 ES Volume 5: Appendix EC-003-002.

### *Cumulative effects*

- 5.2.72 There are no new or different likely significant cumulative effects for ecology as a result of the AP4 amendments interacting with one another, with any AP1 amendments or AP2 amendments, or any relevant committed development.

### *Mitigation and residual effects*

#### **Other mitigation measures**

- 5.2.73 As reported in the main ES, ancient woodland is irreplaceable. The main ES reports that the loss of ancient woodland will be compensated for through the provision of woodland planting in CFA12 and CFA13 with a total extent of greater than 30ha. Ancient woodland soil with its associated seed bank will be salvaged and translocated to an approximately 5.7ha receptor site adjacent to the northern and eastern edges of the site that will link it to Sheephouse Wood SSSI. Other measures such as planting native tree and shrub species of local provenance and translocation of coppice stools and dead wood may also be used as appropriate. These measures will also be applied where appropriate to the additional 300m<sup>2</sup> of ancient woodland that will be lost as a result of the amendment. This will help maintain the conservation status of remaining ancient semi-natural woodland as well as increasing the connectivity of fragmented ancient woodland parcels. The main ES states that while not fully replicating what is lost, the large increase in woodland extent will maintain the conservation status of woodland in the area.
- 5.2.74 As reported in the main ES, the loss and fragmentation of important hedgerow will include planting over 15km of new hedgerows that will maintain the conservation status of important hedges. The amendment results in the loss of an additional 100m of hedgerow; however, the mitigation measures proposed in the main ES are sufficient to mitigate the different effect on hedgerows.

- 5.2.75 The amendment requires the movement of Calvert green overbridge approximately 30m south of the location proposed in the main ES, but it will remain directly connected to existing and proposed flightlines for bats that are provided as mitigation for the original scheme as described in Volume 2, CFA13, Section 7.4 of the main ES and shown on CT-06-054 (main ES, Volume 2, CFA13 Map Book). The layout of the planting on the overbridge will also remain as stated in the main ES, and planting on both sides of the overbridge will link to the embankment approaches. The mitigation measures as set out in the main ES and as part of this amendment will therefore remain sufficient to mitigate the significant adverse effect on Bechstein's bats, the woodland bat assemblage associated with the Aylesbury Link railway line, populations of Nathusius' pipistrelle, and common and soprano pipistrelle which may use the Calvert green overbridge as a crossing point.
- 5.2.76 The main ES specifies that compensatory habitat to address impacts on great crested newt metapopulations at Calvert Jubilee LWS and Calvert Brick Pits LWS, and those potentially present to the south of School Hill and near Rose Hill Farm south of Steeple Claydon will be provided within approximately 4.4ha of linear planting linking Decoypond Wood and Sheephouse Wood. The planting will be located east of the waterbody that is adjacent to the land required for the amendment. The amendment results in the loss of an additional 0.6ha of terrestrial habitat associated with land north of Calvert Landfill site, which is a new significant effect. The extent of planting and mitigation measures proposed in the main ES will be sufficient to mitigate the new significant adverse effect on the metapopulation of great crested newts.
- 5.2.77 The main ES reports that loss of habitat supporting colonies of black hairstreak is mitigated by the creation of the woodland habitat noted above, as well as the provision of four green overbridges in CFA13 designed principally to reinstate flightlines for bats but also to be planted with blackthorn to provide habitat connectivity for black hairstreak. The 30ha of woodland habitat creation proposed in the main ES will provide sufficient woodland edge habitat to compensate for the loss of 100m of hedgerow potentially suitable for black hairstreak.

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

- 5.2.78 As ancient woodland is an irreplaceable resource, Part 1 of the SES and AP2 ES reports an adverse residual effect resulting from the loss of 2.1ha of ancient woodland near Decoypond Wood and south of Calvert that is significant at the county/metropolitan level. The amendment requires the additional loss of 300m<sup>2</sup> and isolation of a further 0.2ha of ancient woodland south of Calvert which will result in a different adverse residual effect on the conservation status of ancient woodland, but will not change the level of significance.

### *Effects arising from operation*

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

- 5.2.79 Section 7.4 of the main ES includes avoidance and mitigation measures that are relevant to this assessment. In summary they are:
- in CFA13, the overbridges at Footpath SCL/13, Calvert waste transfer siding, School Hill, Perry Hill, West Street and School End will provide physical structures over the railway and will limit severance between existing habitats

used as flightlines by assemblages of bats even though not specifically designed for this purpose; and

- in CFA12 (Volume 2: CFA12 Section 3.2), the overbridges at Bridleway QUA/28A, Edgcott Road, Bridleway QUA/36, Bridleway GUN/28, and Footpath QUA/26; and Adam's accommodation and Footpath CAG/2 underbridges will provide potential crossing points for commuting bats, even though not specifically designed for this purpose.

### **Designated sites**

- 5.2.80 The 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**

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

### **Species**

- 5.2.82 As well as functioning as a crossing point for Bechstein's bats and other woodland bat species, the original scheme included an access road to the landfill site across Calvert green overbridge. Since submission of the bill, the expected frequency of the vehicle movements across the bridge to access the landfill facility has increased, which, coupled with vehicle headlights and lighting of the bridge, would reduce its effectiveness as a crossing point for bats. A principal reason for the amendment is to provide two overbridges with distinct functions; Calvert sidings overbridge will accommodate landfill traffic and Calvert green overbridge, approximately 150m further south, will be for wildlife including bats. The removal of the access road from the green overbridge will effectively avoid landfill traffic disturbing bats using the green bridge as a crossing point. The amendment will result in a different significant effect on Bechstein's bat and other woodland bat species to that reported in the main ES. However, prior to additional mitigation will not change the level of the significance of the effects reported in the main ES.

### *Cumulative effects*

- 5.2.83 There are no new or different likely significant cumulative effects for ecology as a result of the AP4 amendments interacting with one another, with any AP1 amendments, AP2 amendments or any relevant committed development.

### *Mitigation and residual effects*

#### **Other mitigation measures**

- 5.2.84 A noise-fence barrier on the northern side of Calvert sidings overbridge will provide the additional benefit of screening light from waste transfer lorries using the waste sidings at night from the adjacent habitats. The barrier will screen light spillage on the linear planting between Decoypond Wood and School Hill green overbridge, which has been designed to replicate the flightline for bats along the Aylesbury Link railway line that will be removed by the construction of the Calvert cutting as part of the

original scheme. Light barriers, approximately 4m in height, will also be constructed along the access road to the Calvert sidings overbridge on both sides of the route. The barriers will prevent light spillage and avoid disturbance affecting wildlife in existing and created habitats on both sides of the route. Alongside the mitigation measures relating to bat populations in this area set out in the main ES and Part 1 of the SES and AP2 ES, these measures will ensure that the any adverse effects on bats as consequence of the operation of the scheme will be reduced to the local/parish level or below. There will be no significant effect on the conservation status of the species concerned.

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

- 5.2.85 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 main ES.

## **Landscape and visual assessment**

### *Introduction*

- 5.2.86 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.

### *Scope, assumptions and limitations*

- 5.2.87 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. Updates to the methodology for the landscape and visual assessment are also described in Volume 1 of the AP1 ES and Volume 1 of the SES and AP2 ES.

### *Existing baseline*

- 5.2.88 The area of land required for the amendment is located within the Twyford Vale Landscape Character Area (LCA), the Claydon Bowl LCA and the Calvert Clay Pits LCA, as described in the main ES (Volume 2, CFA13, Section 9.3).

- 5.2.89 Viewpoints located in close proximity to the area of the amendment and which are described in the main ES (Volume 2, CFA13, Section 9.3) are:

- Viewpoint 152.3.001: view west from PRoW (Footpath SCL/12) near Great Pond Farm; and
- Viewpoint 152.4.001: view south-west from School Hill, east of Calvert.

- 5.2.90 The amendment will introduce a new viewpoint into the area. Viewpoint 149.3.001: View looking north from the Calvert waste disposal facility (Footpath SCL/13) is representative of views from PRoW Footpath SCL/13 on the north-eastern edge of Calvert and views from the proposed diverted route of Bridleway SCL/18/1. The foreground of the view comprises an access track, industrial buildings and fencing associated with the Calvert waste transfer sidings and adjacent landfill site. Views of the existing railway line serving the waste transfer sidings and the sidings themselves

are screened by the intervening middle ground vegetation cover. Due to the recreational nature of the viewpoint, the receptors are considered to have a high sensitivity to change (see Volume 5: Appendix LV-001-013 of the SES3 and AP4 ES for a baseline viewpoint description).

### *Future baseline*

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

- 5.2.91 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA13, Section 9.3).

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

- 5.2.92 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA13, Section 9.3).

### *Effects arising during construction*

#### **Landscape assessment**

- 5.2.93 The Twyford Vale LCA was assessed as being affected by the original scheme and will also be affected by this amendment. The Twyford Vale LCA is of district value and has high levels of tranquillity, and is therefore considered to be of high sensitivity to change. The main ES reported a major adverse significant effect on the Twyford Vale LCA during construction due to the removal of hedgerows and agricultural land and the introduction of large-scale construction activities. The amendment will result in a localised widening of the Aylesbury Link railway line corridor to accommodate an extension of the waste transfer sidings. The trackbed and embankment will be widened to accommodate a change from two-track to three-track use, but will not result in a perceptible change in the effects compared to the original scheme. The extension of the waste transfer sidings 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.
- 5.2.94 The Claydon Bowl LCA was assessed as being affected by the original scheme and will also be affected by this amendment. The Claydon Bowl LCA is of national value and has high levels of tranquillity, and is therefore considered to have a high sensitivity to change. The main ES reported a major adverse significant effect on the Claydon Bowl LCA during construction due to the removal of trees and hedgerows, loss of agricultural land, creation of engineered earthworks and the introduction of construction plant into the rural landscape.
- 5.2.95 The amendment will result in a localised increase in construction footprint to accommodate the construction of the Calvert sidings overbridge and associated access road. This will involve the removal of mature hedgerows with hedgerow trees and the partial removal of the southern extents of a plantation woodland east of the route. The amendment will locally extend the influence of construction work eastwards into agricultural land in the vicinity of the Calvert sidings overbridge. The construction of Calvert sidings overbridge will result in additional elevated earthworks and use of cranes and a slight increase in the construction footprint in its vicinity. Other changes to the waste transfer sidings layout and the location of School Hill green overbridge satellite compound will not result in a perceptible change. The

construction of Calvert sidings overbridge will give rise to a different significant effect on the Claydon Bowl LCA as a result of additional elevated earthworks and the use of cranes. However, given the overall extensive nature of construction works in this area, this will not change the level of significance of the effects on the LCA reported in the main ES.

- 5.2.96 The Calvert Clay Pits LCA was assessed as being affected by the original scheme and will be also affected by this amendment. The Calvert Clay Pits LCA is of local value, therefore it is considered to have a low sensitivity to change. The main ES reported a minor adverse non-significant effect due to construction activities associated with the Calvert cutting, School Hill green overbridge, Grendon Underwood embankment and, in CFA12, Sheephouse Wood mitigation structure. The amendment will result in an increase in construction footprint to accommodate construction of the Calvert sidings overbridge and associated road access. This will require the removal of mature trees and locally extend the influence of construction work in the vicinity of Calvert sidings overbridge to the west of the route.
- 5.2.97 The amendment will change the alignment of the Calvert sidings access road on the western approach to the Calvert sidings overbridge with an associated localised increase in construction footprint and further partial loss of mature trees that currently contribute to screening of the existing waste transfer sidings. The construction of Calvert sidings overbridge will result in additional elevated earthworks and use of cranes.
- 5.2.98 The amendment will result in a slight southward change in the location and a width reduction for the Calvert green overbridge. The diversion of Bridleway SCL/18 will follow a more westerly alignment than that of the original scheme, placing it further away from the main area of construction work. Whilst the amendment will result in localised change in the extent and nature of construction activity, the overall effect within the scale of the LCA will be barely perceptible. The construction of the additional Calvert sidings overbridge will not give rise to a new or different significant effect on the Calvert Clay Pits LCA, and this will not change the level of significance of the effects reported in the main ES.

### **Visual assessment**

- 5.2.99 Viewpoint 152.3.001: view west from PRoW (Footpath SCL/12) near Great Pond Farm was assessed as being affected by the original scheme and will also be affected by this amendment. The main ES reported a moderate adverse significant effect during construction due to partially filtered views of activities associated with the construction of the Calvert green overbridge, Calvert cutting, the Aylesbury Link realignment and the waste transfer sidings, including use of cranes and piling rigs. The amendment will result in additional views of the partial removal of vegetation to the east of the proposed Calvert sidings overbridge and grading of elevated bridge earthworks in the middle ground. The visibility of cranes in the view will be similar to the effects described for the original scheme, however, construction of the Calvert sidings overbridge will extend the duration when cranes will be visible, although views will be partially filtered by existing vegetation. The construction of the additional Calvert sidings overbridge will give rise to a different significant visual effect arising from additional loss of vegetation and Calvert sidings overbridge earthworks and

bridge construction. However, this will not change the level of significance of the effects reported in the main ES.

- 5.2.100 Viewpoint 152.4.001: view south-west from School Hill, east of Calvert 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 during construction due to the removal of vegetation, construction activity associated with the sustainable placement area, Calvert cutting and Aylesbury Link alignment, tall construction plant associated with the School Hill green overbridge and Calvert cutting, and visibility of the School Hill green overbridge satellite compound. The School Hill green overbridge satellite compound will be visible, with views of cranes associated with the construction of the Calvert sidings overbridge glimpsed beyond intervening existing vegetation. The construction of the extended waste transfer sidings will not be distinguishable in the wider extent of HS2 construction work. The visibility of cranes in the view will not change compared to the SES<sub>3</sub> scheme; however, construction of Calvert sidings overbridge will extend the duration when cranes will be visible. The construction of the Calvert sidings overbridge and extended waste transfer sidings will give rise to a different significant visual effect arising from the construction activity for the additional overbridge. However, this will not change the level of significance of the effects reported in the main ES.
- 5.2.101 The new Viewpoint 149.3.001: view looking north from the Calvert waste disposal facility (Footpath SCL/13) will be affected by this amendment. Calvert sidings overbridge, the associated access roads on embankments and cranes building the bridge will be visible in the foreground and middle ground of the view. Earthworks and cranes associated with construction of the Calvert green overbridge will also be visible in the middle ground. Views of construction will typically be open following the removal of the majority of existing intervening vegetation, although existing buildings in the foreground may screen some activities. Overall, the magnitude of change will be high.
- 5.2.102 The high magnitude of change, assessed alongside the high sensitivity of the receptor, will result in a new major adverse significant effect on Viewpoint 149.3.001.

### *Effects arising from operation*

#### **Landscape assessment**

- 5.2.103 The Twyford Vale LCA was assessed as being affected by the original scheme and will also be affected by this amendment. The main ES reported a major adverse effect on the Twyford Vale LCA during year 1 of operation due to the presence of Calvert IMD and Aylesbury Link realignment and reduction in tranquillity arising from Calvert IMD and passing trains. The main ES reported that the significance of effects will reduce to a moderate adverse significant effect in year 15 and a minor adverse non-significant effect for year 60. The widening of the Aylesbury Link railway line trackbed and embankment will be localised and will not result in a perceptible change in the effects of the original scheme. The extension to the waste transfer sidings will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.
- 5.2.104 The Claydon Bowl LCA 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 on the Claydon Bowl LCA, during year 1 of operation, due to the presence of large-scale infrastructure, engineered landforms, overbridges, lighting around Calvert IMD, and the movement of high speed trains. The main ES reported that the significance of effects will reduce to a moderate adverse significant effect for year 15 and a minor adverse non-significant effect for year 60. The amendment will introduce an additional overbridge and associated realignment of the access road between the waste transfer sidings and the landfill site. Calvert green overbridge will be located slightly further south. Other amendment changes to the waste transfer sidings layout will not be noticeable.

- 5.2.105 The amendment will give rise to a different significant effect on the Claydon Bowl LCA during year 1 and year 15 of operation as a result of the Calvert sidings overbridge. However, this will not change the level of significance of the effects reported in the main ES.
- 5.2.106 The Calvert Clay Pits LCA was assessed as being affected by the original scheme and will also be affected by this amendment. The main ES reported a minor adverse non-significant effect on the Calvert Clay Pits LCA, during year 1 of operation due to impacts on tranquillity to the north of the area caused by passing trains and activity in the nearby Calvert IMD. The main ES reported a reduction in effects to negligible for year 15 and year 60.
- 5.2.107 Whilst the amendment will result in localised change in the operational layout, the overall effect within the scale of the LCA will be barely perceptible. The amendment will not give rise to a new or different significant effect on the Calvert Clay Pits LCA and will not change the level of significance of the effects reported in the main ES.

### **Visual assessment**

- 5.2.108 Viewpoint 152.3.001: view west from PRow (Footpath SCL/12) near Great Pond Farm was assessed as being affected by the original scheme, and will also be affected by this amendment. The main ES reported a moderate adverse significant effect during year 1 of operation due to visibility of Calvert green overbridge, School Hill green overbridge and the waste transfer sidings. Effects will be negligible and therefore non-significant by year 15 and year 60 with the establishment of mitigation planting between Sheephouse Wood and School Hill. The proposed Calvert sidings overbridge, associated noise fence and light screening barriers, and associated access road on embankments will be visible in the middle ground of the view. The Calvert green overbridge and its embankments will be visible behind the Calvert sidings overbridge. The Calvert sidings overbridge and Calvert green overbridge will give rise to a different significant effect arising from the visibility of both overbridge structures during year 1 of operation. However, this will not change the level of significance of the effects reported in the main ES. By year 15 and year 60 the establishment of mitigation planting between Sheephouse Wood and School Hill will screen views of the overbridges so no new or different significant effects will arise.
- 5.2.109 Viewpoint 152.4.001: view south-west from School Hill, east of Calvert, was assessed as being affected by the original scheme but will not be affected by this amendment during operation because the potential for views of the Calvert sidings overbridge and the extended waste transfer sidings will be filtered by intervening landform, trees and hedgerows.

- 5.2.110 The main ES reported a moderate adverse significant effect during year 1 winter and summer of operation due to visibility of the sustainable placement area and School Hill green overbridge. Following the establishment of hedgerows in the middle ground, effects will reduce to minor adverse non-significant by year 15 and negligible non-significant by year 60 of operation.
- 5.2.111 The amendment will not give rise to a new or different significant effect and will not change the level of significance of the effects reported in the main ES.
- 5.2.112 The new Viewpoint 149.3.001: view looking north from the Calvert waste disposal facility (Footpath SCL/13) will be affected by this amendment. Calvert sidings overbridge, noise fence barriers, Calvert waste transfer sidings, access roads and the adjacent Calvert green overbridge will be visible in the foreground and middle ground of view.
- 5.2.113 During winter and summer of year 1 of operation, prior to the establishment of intervening woodland habitat creation planting, there will be a high magnitude of change, which assessed alongside the high sensitivity of the receptor, will result in a new major adverse significant effect. The winter year 1 view of operation of the amendment from this location is illustrated on the photomontage shown on Map LV-01-295 (SES<sub>3</sub> and AP<sub>4</sub> ES, Volume 2, CFA<sub>13</sub> Map Book). By year 15 and beyond to year 60 of operation, the establishment of woodland habitat creation planting located to the south-west of the Calvert sidings overbridge and extending across the Calvert green overbridge will largely screen the amendment. There will remain the potential for glimpsed views of the Calvert sidings overbridge and Calvert green overbridge. The resulting low magnitude of change assessed alongside the high sensitivity of receptor will result in a new minor adverse non-significant effect.

#### *Mitigation and residual effects*

- 5.2.114 Mitigation measures include hedgerow planting along the foot of the Calvert sidings overbridge embankment to the eastern side of the route and an increase in the extent of woodland habitat creation on the western side of the route. These measures will assist in the integration of the Calvert sidings overbridge and noise fence barriers into the surrounding landscape. They will also contribute to screening of the overbridge in views from P<sub>RoW</sub> and residential properties on the northern edge of Calvert to the west of the route. The proposed landscape mitigation is shown on map CT-06-054 (SES<sub>3</sub> and AP<sub>4</sub> ES, Volume 2, CFA<sub>13</sub> Map Book).
- 5.2.115 The influence of the mitigation measures on the assessment of landscape and visual effects arising from operation has been included in the above assessment.
- 5.2.116 The amendment will give rise to a different major adverse significant residual effect on the Claydon Bowl LCA during construction as a result of the construction of the overbridge. However, this will not change the level of significance of the effects reported in the main ES.
- 5.2.117 The amendment will give rise to a different major adverse significant residual effect on the Claydon Bowl LCA at year 1 of operation and a different moderate adverse significant residual effect at year 15 of operation as a result of the permanent presence of the overbridge. However, this will not change the level of significance of the effects reported in the main ES.

- 5.2.118 The amendment will give rise to a different moderate adverse significant residual effect on Viewpoint 152.3.001: view west from PRoW (Footpath SCL/12) near Great Pond Farm, and a different major adverse significant residual effect on Viewpoint 152.4.001: view south-west from School Hill, east of Calvert during construction of the overbridge. However, the different significant visual effects arising will not change the level of significance of the effects reported in the main ES.
- 5.2.119 The amendment will give rise to a different moderate adverse significant residual effect on Viewpoint 152.3.001: view west from PRoW (Footpath SCL/12) near Great Pond Farm during year 1 of operation as a result of the permanent presence of the overbridge. However, the different significant visual effects arising will not change the level of significance of the effects reported in the main ES.
- 5.2.120 The amendment will give rise to a new major adverse significant residual effect on new viewpoint 149.3.001: view looking north from the Calvert waste disposal facility (Footpath SCL/13) during construction, and will give rise to a new major adverse significant residual effect at year 1 of operation as a result of views of the Calvert sidings overbridge, Calvert green overbridge and the Calvert sidings access road. By year 15 and beyond to year 60 of operation, the establishment of woodland planting will screen the amendment and result in minor adverse, non-significant effects.

### *Cumulative effects*

- 5.2.121 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, with any AP<sub>1</sub> or AP<sub>2</sub> amendments or any relevant committed development.

## **Sound, noise and vibration**

### *Introduction*

- 5.2.122 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 amendment, compared to those of the SES<sub>3</sub> scheme.

### *Scope, assumptions and limitations*

- 5.2.123 The assessment scope, key assumptions and limitations for the sound, noise and vibration assessment are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 5.2.124 Local assumptions and limitations for sound, noise and vibration are set out in main ES (Volume 2: CFA<sub>13</sub>)

### *Existing baseline*

- 5.2.125 The baseline sound, noise and vibration information for the Calvert, Steeple Claydon, Twyford and Chetwode area is described in the main ES (Volume 2, CFA<sub>13</sub>, Section 11). 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.

5.2.126 The assessment of construction sound, noise and vibration has required the inclusion of an additional assessment location at Red Kite View, Calvert, in order to assess the worst-case likely noise impact from the amendment. Table 4 sets out the existing baseline sound levels for this additional residential receptor. Explanation of the information within this table is provided in the main ES, Volume 5: Appendix SV-002-013.

Table 4: Existing baseline sound levels

ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding <sup>4</sup>
			For operational sound assessment				For construction sound assessment			
			Daytime LpAeq,16hr	Night-time LpAeq,8hr	Arithmetic average of night-time LpAFmax,5min	Highest night-time LpAFmax,5min	Daytime LpAeq	Evening/Weekend LpAeq	Night-time LpAeq	
720500	Red Kite View	CS0042	52.2	41.7	56.1	63.8	53.5	44.5	41.7	1,A,ii,b

*Future baseline*

**Construction (2017)**

5.2.127 The future baseline for construction in 2017 and the construction traffic baseline remain unchanged from that reported in the main ES (Volume 2, CFA13, Section 11.2). Although there are changes to traffic baseline in CFA13 (see Section 3.1) they are not relevant to construction traffic associated with this amendment.

**Operation (2026)**

5.2.128 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA13, Section 11.2).

*Effects arising during construction*

5.2.129 The closest noise-sensitive receptors to the amendment are the residential properties on Red Kite View (represented by assessment location 720500, see SES3 and AP4 ES Volume 5: Sound, noise and vibration Map Book, SV-03 maps), located to the west of the amendment. These receptors were not assessed in the main ES.

5.2.130 The amendment will involve additional works associated with the construction of Calvert sidings overbridge and a change to some of the works associated with the Calvert waste transfer sidings.

5.2.131 An assessment has been undertaken to determine whether construction noise and vibration associated with the amendment will result in a likely significant effect, using the significance criteria detailed in the main ES (Volume 5: Appendix SV-001-000).

<sup>4</sup> The assessment location coded as 1,(A), ii, b, indicates that: (1) Long-term measurement location; (A) baseline sound levels have been allocated directly; (ii) Measurement location is at a distance from assessment location but noted to have equivalent acoustic climate; (b) Data are considered representative of the prevailing sound climate, but variations in measured levels indicate that there may be a higher degree of uncertainty than for 'a' as defined in Appendix 5, SV-001-000.

5.2.132 Table 5: Assessment of construction noise at residential receptors and non-residential receptors sets out the assessment results for construction noise at residential receptors and non-residential receptors. These are in addition to those identified in the main ES (see Volume 5: Appendix SV-003-013).

Table 5: Assessment of construction noise at residential receptors and non-residential receptors

Assessment location		Impact criteria			Significance criteria									Significant effect	
ID	Area represented	Typical/highest monthly outdoor LpAeq (dB) at the facade (Assessment category A/B/C)			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]		Mitigation effect
Day 0700- 1900	Evening 1900- 2300	Night 2300- 0700													
720500	Red Kite View	57/65 [A]	-	-	Day: Waste transfer siding works	NA <sup>5</sup>	10	R <sup>6</sup>	T <sup>7</sup>	-	-	-	-	-	

5.2.133 The works associated with the amendment are not predicted to lead to a substantial change in noise levels at the sensitive receptors from those reported in the main ES. The additional sensitive receptor used in the assessment of the amendment is not forecast to be affected by the construction activity. Consequently, the amendment will not give rise to a new or different significant effect in comparison with those reported in the main ES.

*Effects arising from operation*

5.2.134 The amendment includes the installation of noise fence barriers along the sidings and the access road to the existing Calvert Landfill site, as shown on SES<sub>3</sub> and AP<sub>4</sub> ES maps series SV-01 and SV-02. This mitigation measure is in addition to that proposed in the main ES, CFA<sub>13</sub>, Volume 2, Section 11.

5.2.135 The main ES identified a likely significant (on a community basis) adverse noise effect at approximately 50 properties in the community at Calvert in the vicinity of Cotswolds Way, Brackley Lane, Sandy Road and Brickhill Way, and their associated shared community open spaces. This significant adverse effect was identified as OSV<sub>13</sub>-Co1<sup>8</sup> on map series SV-01, SV-02 and SV-05, (main ES, Volume 2 and Volume 5, CFA<sub>13</sub> Map Books). The assessment of operational sound, noise and vibration from the Calvert Landfill site was scoped out of the main ES assessment, when considering the existing facility and its operation, the sound associated with the scheme and the envisaged noise mitigation. Further information from the operator has resulted in the requirement to undertake an assessment of the AP<sub>4</sub> amendment.

<sup>5</sup> Generally no adverse effect.

<sup>6</sup> Residential.

<sup>7</sup> Typical building construction.

<sup>8</sup> Operational noise significant effects (assessed on a community basis) are identified with a unique identification number, OSVXX-CXX. Further detail on these effects can be found in Volume 5, Appendix SV-004-013 of the main ES.

- 5.2.136 An assessment has been undertaken to determine whether operational noise levels due to this amendment will result in a likely significant effect. The predicted operational sound and vibration levels as a result of this amendment are presented in the SES<sub>3</sub> and AP<sub>4</sub> ES, Volume 5, Appendix SV-004-013.
- 5.2.137 The railway sidings at Calvert currently unload up to six trains per day, typically between 06:30 and 17:00, although the operator's planning consent permits an increased number of trains to be unloaded between the times of 05:00 and 23:00. The facility was not operating at this higher capacity during the baseline noise measurements. Longer working hours and unloading an increased number of trains would potentially increase the baseline noise levels at the residential properties in Calvert. In order to ensure that the assessment is consistent with the measured baseline noise levels, a qualitative assessment of the changes in road traffic noise levels at the nearest residential properties has been undertaken that would be unaffected by the number of trains being unloaded at the facility and the associated vehicle movements. This is because the operator already has permission to unload more trains per day than were being unloaded during the baseline noise survey, and it is assumed that operating at this higher capacity has already been assessed as part of their planning submission and suitable mitigation applied where required.
- 5.2.138 The amendment will move the routes for landfill traffic compared to those currently used. The amended routes are further away from the properties on Sandstone Close, Grebe Close, Itter Lane and the section of Brickhill Way furthest from Cotswold Way, than those used currently. The properties will also be protected by noise barriers on Calvert sidings overbridge and associated access road as specified in the AP<sub>4</sub> revised scheme. The properties on Cotswold Way and Brackley Lane will be closer to landfill traffic than currently, as a result of the amendment, but will be screened by mitigation in the form of a noise fence barrier 4m above the rail level along the sidings and a noise fence barrier 5m above the rail level along the route.
- 5.2.139 With this proposed mitigation, there are no likely significant adverse operational noise effects as a result of this amendment.
- 5.2.140 The amendment does not alter the predicted operational ground-borne noise or vibration levels presented in the main ES.

#### *Mitigation and residual effects*

- 5.2.141 No other mitigation measures are proposed for this amendment other than those identified in the main ES (Volume 2, CFA13, Section 11).

#### *Cumulative effects*

- 5.2.142 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 with any AP<sub>1</sub> or AP<sub>2</sub> amendments or any relevant committed development.

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

- 5.2.143 With regard to ecology, the Calvert sidings overbridge and alternative configuration of the Calvert sidings will give rise to a different likely residual significant effect due to

the additional loss of 300m<sup>2</sup> and isolation of a further 0.2ha of ancient woodland south of ancient woodland south of Calvert. The effect will remain significant at the county/metropolitan level as reported in the main ES, and SES and AP<sub>2</sub> ES.

5.2.144 The amendment will give rise to new or different likely adverse residual significant effects on landscape and views, as follows:

- Calvert sidings overbridge will give rise to different significant effects on the Claydon Bowl LCA during construction and at year 15 of operation as a result of the construction and permanent presence of the overbridge. However, this will not change the level of significance of the residual effects, which were reported in the main ES as major adverse and moderate adverse, respectively;
- construction activities due to Calvert sidings overbridge will give rise to different significant effects from viewpoint 152.3.001 (view west from Footpath SCL/12 near Great Pond Farm) and viewpoint 152.4.001 (view south-west of School Hill, east of Calvert). In the original scheme these were moderate and major adverse significant effects respectively and the level of significance is not changed by the AP<sub>4</sub> revised scheme; and
- construction activities due to Calvert sidings overbridge will give rise to a new major adverse significant residual effect on new viewpoint 149.3.001: (view looking north from the Calvert waste disposal facility during construction).

5.2.145 There will be no other changes to the significance of the environmental effects or proposed mitigation as set out in the main ES, or the SES and AP<sub>2</sub> ES with respect to this amendment.

### **5.3 Additional land required for two new balancing ponds at Calvert IMD (AP<sub>4</sub>-013-003)**

5.3.1 The Bill provides for the drainage of Calvert IMD as a single area with one culvert that will discharge to a proposed balancing pond west of the depot. The SES scheme added two new balancing ponds, both located east of Addison Road, which are unaffected by this amendment (refer to maps CT-05-055, CT-05-055-R1, CT-05-056, CT-05-056-R1 and equivalent CT-06 maps in the main Volume 2, CFA<sub>13</sub> Map Book).

5.3.2 Since submission of the Bill, further investigation has identified that there may be insufficient fall between Calvert IMD sidings and the proposed balancing pond to its west. Two balancing ponds will be constructed west of Addison Road and north of Calvert IMD. The eastern balancing pond will discharge to existing drainage to its east. The western pond will discharge to a drainage ditch to its west that was proposed as temporary in the original scheme, and will become permanent as a result of this amendment. A track will be constructed from Perry Hill along the north edge of the bund to provide maintenance access to both balancing ponds (refer to maps CT-05-055, CT-05-055-R1, CT-05-056 and CT-05-056-R1 and equivalent CT-06 maps in the SES<sub>3</sub> and AP<sub>4</sub> ES, Volume 2, CFA<sub>13</sub> Map Book).

5.3.3 The estimated duration of construction is three months, which does not extend the construction period of Calvert IMD as reported in the main ES. Approximately 1m<sup>2</sup> of additional land is required permanently for the works that is outside of the limits of the Bill. This area is required as part of permanent drainage adjacent to West Street.

Approximately 1.1ha of land that is within the limits of the Bill and was temporarily required by the SES<sub>3</sub> scheme will be required permanently as a result of this amendment.

- 5.3.4 The two additional balancing ponds and drainage modifications 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, cultural heritage, ecology, land quality, landscape and visual assessment, socio-economics, sound, noise and vibration, and traffic and transport. However, reassessment was considered to be required in respect of agriculture, forestry and soils, and water resources and flood risk assessment.

## **Agriculture, forestry and soils**

### *Introduction*

- 5.3.5 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 SES<sub>3</sub> scheme.

### *Scope, assumptions and limitations*

- 5.3.6 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.
- 5.3.7 The area of agricultural land affected by the amendment is small (1.1ha) and will not alter the significance of effect, or result in a different significant effect, on BMV agricultural land or forestry land within CFA<sub>13</sub>. The route-wide effects on BMV land and forestry land are reported in Volume 3.

### *Existing baseline*

- 5.3.8 One holding will be affected, Elm Tree/Stone Court Farm (CFA<sub>13</sub>/3), which is a 400ha arable holding with various diversified activities including bed and breakfast accommodation.

### *Future baseline*

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

- 5.3.9 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA<sub>13</sub>, Section 3.3).
- 5.3.10 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. These do not change the baseline described.

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

- 5.3.11 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA<sub>13</sub>, Section 3.3).

### *Effects arising during construction*

- 5.3.12 A further 1.1ha of land will be required permanently from Elm Tree/Stone Court Farm, which was required temporarily in the original scheme. This increases the total area permanently removed to 20.9ha which represents 5% of the holding. The requirement for 19.8ha (5% of the holding) for the construction of the original scheme was assessed as a minor adverse effect, which is not significant. The requirement for this additional area of land does not alter that assessment. This amendment does not give rise to a different significant effect or change the level of significance of the effects reported in the main ES.

### *Effects arising from operation*

- 5.3.13 There are no new or different significant operational effects for agriculture, forestry and soils as a result of the amendment in comparison with the main ES.

### *Mitigation and residual effects*

- 5.3.14 No mitigation measures are required for this amendment.
- 5.3.15 The residual effect of this amendment will be to marginally increase the land required from a single landholding but the effect is not significant.

### *Cumulative effects*

- 5.3.16 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 with any AP<sub>1</sub> or AP<sub>2</sub> amendments or with any relevant committed development.

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

### *Introduction*

- 5.3.17 This section of the report describes the environmental baseline in relation to water resources and flood risk assessment 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.

### *Scope, assumptions and limitations*

- 5.3.18 The assessment scope, key assumptions and limitations for the water resources and flood risk 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.
- 5.3.19 It is assumed that discharge rates from the AP<sub>4</sub> revised scheme will be appropriate for the receiving watercourse and the quality of the discharge water will not have a detrimental impact on the watercourse or on ecology in the watercourse.
- 5.3.20 The assessment has taken account of changes in relevant legislation published since the main ES was produced, such as the Water Act 2014 and the Environmental Permitting (England and Wales) Regulations amendment 2014.
- 5.3.21 The assessment reviews the potential impact of the new balancing ponds on flood risk and surface water receptors. The two balancing ponds are located on the Oxford Clay

Formation (unproductive strata), and it is assumed there are no pathways to impact groundwater in deeper aquifers; groundwater is therefore not discussed further in this assessment.

*Existing baseline*

- 5.3.22 The baseline information for surface and groundwater resources in the Calvert, Steeple Claydon, Twyford and Chetwode area is described in the main ES (Volume 2, CFA13, Section 13).
- 5.3.23 All water bodies in the study area fall within the Upper and Bedford Ouse catchment including Padbury Brook and its tributaries. This catchment falls within the Anglian River Basin District.
- 5.3.24 Table 6 includes features potentially affected by the additional balancing ponds at Calvert IMD.

Table 6: Surface water features potentially affected by the amendments

Water feature	Location description (and watercourse reference as set out in the main ES)	Watercourse classification	Water Framework Directive (WFD) water body and current overall status	WFD status objective (by 2027 as per River Basin Management Plan (RBMP <sup>9</sup> ))	Receptor value
Drain S75 (tributary of the Padbury Brook)	Located near Portway Farm.  (SWC-CFA13-02, SWC-CFA13-17, SWC-CFA13-18 and SWC-CFA13-20)	Ordinary watercourse	No status shown in RBMP  Assumed status  Good Potential	No status shown in RBMP  Assumed status  Good potential	Moderate
Drain M23 (tributary of Twin (Grebe Lake))	Located south-west of Steeple Claydon, 1km south-west of SWC-CFA13-16. M23 will be crossed by the Calvert IMD and railhead at SWC-CFA13-15.	Ordinary watercourse	No status shown in RBMP  Assumed status  Good Potential	No status shown in RBMP  Assumed status  Good potential	Moderate
Unnamed drain	Rises near Briar Hill approximately 1km west of Steeple Claydon and flows northwards to the Padbury Brook.	Ordinary watercourse	No status shown in RBMP  Assumed status  Good Potential	No status shown in RBMP  Assumed status  Good potential	Moderate

- 5.3.25 No unlicensed surface water or groundwater abstractions have been identified in the study area. There is the potential for unlicensed abstractions to exist, as a licence is not required for abstraction volumes below 20m<sup>3</sup> per day.
- 5.3.26 The proposed balancing ponds will not be within 1km of any areas with statutory ecologically designated sites.

<sup>9</sup> Environment Agency (2009), River Basin Management Plan, Anglian River Basin District.

5.3.27 According to the Environment Agency updated Flood Map for Surface Water (uFMfSW), the balancing pond situated to the east lies at the base of the valley associated with a tributary of Padbury Brook referred to by the Buckingham and River Ouzel Internal Drainage Board as M23. Although there are no associated river flood zones, the valley is shown on the uFMfSW to be at risk of flooding in the 1 in 30 years return period (3.33% annual probability) rainfall event. The balancing pond lies in this area of existing flood risk. The balancing pond situated to the west is not shown to be at risk of flooding on the uFMfSW. According to British Geological Survey groundwater flooding data, the area immediately downstream of the amendment is at "Very High" risk of groundwater flooding from permeable superficial deposits (Alluvium).

5.3.28 The amendment will lie in Flood Zone 1 and will not cross any areas of historical river flooding, or areas at "Moderate" (or greater) susceptibility to groundwater flooding, as defined by the Environment Agency. There is no identified risk of flooding from reservoirs, sewers or other artificial waterbodies.

### *Future baseline*

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

5.3.29 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 2, CFA<sub>13</sub>, Section 13.3).

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

5.3.30 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 2, CFA<sub>13</sub>, Section 13.3).

### *Effects arising during construction*

5.3.31 The amendment relates to the permanent provision of surface water drainage and consequently there are no new or different significant temporary effects anticipated in comparison to the SES<sub>3</sub> scheme.

5.3.32 The two new balancing ponds and modifications to the drainage of Calvert IMD will not give rise to new or different significant effects on water resources or flood risk during construction and will not change the level of significance of the effects reported in the main ES.

### *Effects arising from operation*

5.3.33 The new western balancing pond is located in an area at high risk of surface water flooding and as a result there is a potential effect on the risk of surface water flooding to local receptors in the area through displacement of flood waters and obstruction of floodplain flow. Local receptors that share a common flood pathway with the proposed balancing pond are:

- arable land south of West Street and west of Addison Road (less vulnerable, moderate value receptor); and
- residential properties in Steeple Claydon, approximately 0.9km downstream (more vulnerable, high value receptor).

- 5.3.34 Due to the Bicester to Bletchley Line and the Calvert IMD, overland flow along the valley of the M23 drainage ditch is obstructed immediately upstream of the proposed new eastern balancing pond. Consequently, there is no significant parallel flow along the floodplain of the watercourse from upstream of the balancing pond, and the location of the pond within an area of surface water flood risk will not significantly obstruct floodwaters from this direction. Surface water flowing towards the base of the valley from the west will be collected in the proposed ditch.
- 5.3.35 There is potential that the proposed western balancing pond will result in a loss of storage for surface water, resulting in displacement of floodwaters onto surrounding land and property. However, due to the upstream flow restriction and drainage measures incorporated into the original scheme, the catchment area forming the floodplain in this location will be modified. Rain falling to the east of the balancing pond, which could form the source of surface water flooding at this location, is likely to be collected in the proposed new ditch. There may be displacement of water onto immediately adjacent land prior to collection in local drainage. Such displacement is likely to be transient and highly localised. There will not be a significant impact on the risk of flooding from surface water as a result of the amendment, affecting either the surrounding arable farm land or the Steeple Claydon residential area downstream.
- 5.3.36 The balancing ponds and modifications to the drainage of Calvert IMD will not give rise to new or different significant operational effects on water resources and flood risk and will not change the level of significance of the effects reported in the main ES.

#### *Mitigation and residual effects*

- 5.3.37 The draft CoCP sets out the measures and standards of work that will be applied to the construction of the AP4 revised scheme (see Volume 5: Appendix CT-003-000/1 of the main ES). These will provide effective management and control of the impacts during the construction period.
- 5.3.38 Drainage has been designed to reduce the rate and volume of run-off from the railway and to avoid an increase in flood risk. The balancing ponds will provide mitigation to ensure that surface water run-off from the AP4 revised scheme including the Calvert IMD will be released in a controlled manner to the receiving watercourses reducing the potential for adverse impacts on the water quality and flow of the receiving watercourse. The balancing ponds, shown on Maps CT-06-054 to CT-06-060 (SES3 and AP4 ES, Volume 2, CFA13 Map Book), will be designed where practicable to discharge at existing run-off rates and will accommodate for events up to and including the 1 in 100 annual probability (1%) including an allowance for climate change.
- 5.3.39 The amendment will not give rise to new or different significant residual effects for water resources or flood risk during operation and will not change the level of significance of the effects reported in the main ES.

#### *Cumulative effects*

- 5.3.40 There are no new or different significant cumulative effects for water resources or flood risk as a result of the AP4 amendments interacting with one another or with any AP1 or AP2 amendments or with any relevant committed development.

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

- 5.3.41 The two balancing ponds at Calvert IMD do not change the significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA<sub>13</sub>, Calvert, Steeple Claydon, Twyford and Chetwode).

### 5.4 Additional land required for the relocation of a balancing pond at Twyford viaduct (AP<sub>4</sub>-013-004)

- 5.4.1 The Bill provides for a balancing pond north of Twyford viaduct and east of the route (refer to map CT-06-057 in the main ES, Volume 2, CFA<sub>13</sub> Map Book).
- 5.4.2 Since submission of the Bill, further assessment of surface flood risk adjacent to Padbury Brook has been undertaken. It identified that the pond will need to be relocated northwards by approximately 150m. The access track and turning head<sup>10</sup> for the original pond will not be constructed, instead an access track and turning head will be constructed south of the relocated pond (refer to maps CT-05-057 and CT-06-057 in the SES<sub>3</sub> and AP<sub>4</sub> ES, Volume 2, CFA<sub>13</sub> Map Book).
- 5.4.3 The estimated duration of construction is one month, which is the same as the main ES. Approximately 0.4ha of additional land will be required permanently for the works, which is outside of the limits of the Bill. However, approximately 0.4ha of land for the original site of the pond will no longer be required and therefore the net permanent land requirement is similar for this amendment compared to the original scheme.
- 5.4.4 The relocation of a 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, and traffic and transport and water resources and flood risk assessment. However, reassessment was considered to be required in respect of agriculture, forestry and soils, and cultural heritage.

### 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 SES<sub>3</sub> scheme.

#### *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.

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<sup>10</sup> A space where vehicles can turn around.

- 5.4.7 The area of agricultural land affected by the amendment is small (0.4ha) and therefore will not alter the significance of effect, or result in a different effect, on BMV agricultural land or forestry land within CFA13. The route-wide effects on BMV land and forestry land are reported in Volume 3.

#### *Existing baseline*

- 5.4.8 Two holdings will be affected by the amendment. Cowley Lodge Farm (CFA13/6) is a 440ha arable and sheep holding. Cowley Farm (CFA13/8) is also engaged in arable and sheep farming and extends to 170ha.

#### *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, CFA13, 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. These 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, CFA13, Section 3.3).

#### *Effects arising during construction*

- 5.4.12 The removal of the balancing pond from close to the Padbury Brook will reduce the area of land required from Cowley Farm by approximately 0.4ha. This will reduce the overall area of land required from 16.2ha to 15.8ha which represents 9% of the holding. The requirement for 16.2ha (9% of the holding) for the construction of the original scheme was assessed as a minor adverse effect; the reduction in land required does not alter that assessment.
- 5.4.13 By contrast, Cowley Lodge Farm will lose a further 0.4ha with a total of 2.1ha now required. However, this still represents less than 1% of the holding and will be a negligible effect.
- 5.4.14 Overall, this amendment will not give rise to any new or different significant effects or change the significance of the effects reported in the main ES.

#### *Effects arising from operation*

- 5.4.15 There are no new or different significant operational effects for agriculture, forestry and soils as a result of the amendment in comparison with those described in the main ES.

#### *Mitigation and residual effects*

- 5.4.16 No mitigation measures are required for this amendment.

- 5.4.17 This amendment will marginally reduce the area of land required from one holding and marginally to increase the area required from another, but the effects are not significant.

### *Cumulative effects*

- 5.4.18 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 AP1 or AP2 amendments or with 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.

### *Scope, assumptions and limitations*

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

### *Existing baseline*

- 5.4.21 The cultural heritage baseline for the assessment takes into account information collected in support of the main ES, which included walk-over 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 with amendments provided in Volume 2, section 3.1.4 of the SES and AP2 ES.
- 5.4.22 The land required for the revised location of the balancing pond at Twyford viaduct and the land no longer required by the AP4 revised scheme does not encroach on any heritage assets or their setting.
- 5.4.23 Twyford medieval earthworks west (asset reference CAL054) is 470m to the south of the revised balancing pond and Twyford medieval earthworks north (asset reference CAL051) is 340m to the south-east. Both are assets of moderate heritage value. There are also two areas of ridge and furrow earthworks, one 300m south-west (asset reference CAL062) of the land required for the revised balancing pond and one 450m south-east (asset reference CAL053). Both assets have low heritage value.
- 5.4.24 The former London extension to the disused GCML railway (asset reference CAL018) lies 170m south-west of the land required for the revised location of the balancing pond. There is an associated railway bridge (asset reference CAL061) 180m south-west of the land required. Both assets have low heritage value.

### *Future baseline*

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

- 5.4.25 The future baseline for construction in 2017 remains unchanged from that reported in the main ES (Volume 5: Appendix CT-004-000).

### **Operation (2026)**

- 5.4.26 The future baseline for operation in 2026 remains unchanged from that reported in the main ES (Volume 5: Appendix CT-004-000).

#### *Effects arising during construction*

- 5.4.27 The land required for the revised location of a balancing pond at Twyford viaduct and the land removed from the scheme will not result in a change to any heritage assets or their setting.
- 5.4.28 The revised location for a balancing pond at Twyford viaduct 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*

- 5.4.29 The revised location for the balancing pond at Twyford viaduct will not give rise to a new or different operational effect and will not change the level of significance of the effects reported in the main ES.

#### *Mitigation and residual effects*

- 5.4.30 There will be no change to the mitigation and residual effects reported in Volume 2 of the main ES.

#### *Cumulative effects*

- 5.4.31 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 with any AP1 or AP2 amendments or with any relevant committed development.

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

- 5.4.32 The revised location for the balancing pond at Twyford viaduct does not change the significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA13).

## **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.

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