

HIGH SPEED RAIL (LONDON - WEST MIDLANDS) ADDITIONAL PROVISION

Environmental Statement

Volume 1 | Introduction and methodology

Volume 2 | Community forum area report

Volume 3 | Route-wide effects

Glossary of terms

September 2014

ES 3.1



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Department
for Transport

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

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Environmental Statement

Volume 1 | Introduction and methodology

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Structure of the HS2 Additional Provision Environmental Statement

The Additional Provision (AP) Environmental Statement (ES) comprises:

- Non-technical summary (NTS). This provides a summary in non-technical language of the AP amendments and any likely significant residual environmental effects, both beneficial and adverse, which are new or different to those reported in the HS2 Phase One ES ('the main ES') submitted to Parliament in November 2013 in support of the hybrid Bill for Phase One of HS2;
- Volume 1: Introduction to the AP ES. This describes the amendments, construction information relating to utility diversions and any changes to the scope, methodology, assumptions and limitations required for the environmental assessment associated with them;
- Volume 2: Community Forum Area (CFA) reports and Map Books. These describe the amendments and any new or different likely significant environmental effects arising from the amendments in each CFA compared to those reported in the main ES; this volume also describes any changes to the Volume 5 Technical Appendices resulting from the proposed amendments;
- Volume 3: Route-wide effects. This describes any new or different likely significant route-wide effects arising from the amendments, compared to those reported in the main ES;
- Volume 5: Map Book. This contains environmental maps in support of the CFA sections of Volume 2; and
- Glossary of terms and list of abbreviations. This contains any new or different terms and abbreviations used throughout the AP ES documentation, compared to those used in the main ES.

In the main ES, Volume 4 presented an assessment of the likely significant environmental effects that will occur in locations away from the route (i.e. outside the CFAs). As none of the amendments relate to off-route areas, off-route effects have been scoped out of the assessment and therefore there is no Volume 4 included within the AP ES.

Structure of this report

This volume comprises the following sections:

- Introduction: introduces the amendments;
- Construction of the revised scheme: describes the construction methods relevant to this AP ES; this is additional to the construction information provided in the main ES, Volume 1, Section 6;
- Environmental impact assessment: explains the process that has been adopted for this AP ES, including any changes to the approach and assumptions that have been used in the assessment of environmental effects, compared to the main ES; and
- Consultation and engagement: describes the consultation and engagement process in relation to the AP ES.

1 Introduction

- 1.1.1 The hybrid Bill for High Speed Rail between London and the West Midlands (the Bill) was submitted to Parliament together with an Environmental Statement (ES) (the main ES) in November 2013. If enacted by Parliament, the Bill will provide the powers to construct, operate and maintain Phase One of High Speed 2 (HS2). This phase of HS2 will provide a new north-south railway between London, Birmingham and the West Midlands.
- 1.1.2 Since the Bill's deposit, 55 generally minor amendments to the design of the original scheme have been identified as a result of:
- further discussions with landowners and occupiers;
 - design refinements; and
 - changes to accommodate the requirements of utility undertakers.
- 1.1.3 These amendments require the use of land outside the original limits of the Bill, additional access rights, or other extensions of the powers conferred by the Bill, making it necessary to submit an Additional Provision (AP) to the Bill. The amendments to the design include:
- utilities requirements: the project affects a number of electricity, gas, fuel and fibre optic lines provided by utility companies either in, or above the ground. Since Bill deposit, a number of utility companies have refined their requirements and so changes to the design of these works are needed. These are principally amendments to the amount of land required temporarily for works to pylons and electricity wires;
 - access arrangements: amendments to the locations, alignments and/or width of some access tracks proposed by the original scheme. These tracks are required to provide private access to properties and agricultural holdings; access to undertake utility diversions; and to facilitate construction and/or maintenance of HS2 infrastructure (e.g. balancing ponds, areas where new habitats will be created and auto-transformer stations);
 - roads and Public Rights of Way (PRoW): changes to the locations of temporary diversions or permanent realignments;
 - balancing ponds: the relocation of one of the balancing ponds; and
 - mitigation habitats: the relocation of one of the proposed habitat mitigation areas.
- 1.1.4 The purpose of this ES (the AP ES) is to provide an assessment of the likely significant environmental effects arising from the amendments. Specifically, it describes:
- the temporary and permanent works and/or requirements for the use of land arising from the amendments;
 - any changes to the environmental baseline in the area of the amendments since submission of the main ES;

- an assessment of the likely significant environmental effects arising from the amendments;
- any likely significant environmental effects, which are new or different to those reported in the main ES; and
- residual likely significant adverse effects that remain with the proposed mitigation in place.

1.1.5 The measures that will be used to mitigate likely significant adverse environmental effects during HS2's construction and operation 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 AP ES.

1.1.6 Table 1 provides a summary of the proposed amendments with reference to the CFAs that they are located in. Figure 1 shows the HS2 Phase One route and the location of the CFAs with and without amendments. The amendments are described in the CFA sections of Volume 2 of this AP ES and shown on the AP ES Volume 2 Map Books.

1.1.7 It should be noted that the resulting scheme (i.e. the original scheme submitted in November 2013 with the amendments) is hereafter referred to as the 'revised scheme'.

Table 1: Summary table of amendments

CFA	Amendment
CFA 7, Colne Valley	Existing access through Buckinghamshire Golf Club for utility works (AP1-007-001)
CFA 9, Central Chilterns	Additional land required for construction and maintenance access near No Man's Wood (AP1-009-002)
CFA 10, Dunsmore, Wendover and Halton	Additional land required for utility works and access to the south of Small Dean Lane (AP1-010-003)
CFA 10, Dunsmore, Wendover and Halton	Additional land required for utility works to the north of Wellwick Farm (AP1-010-004)
CFA 10, Dunsmore, Wendover and Halton	Change to land required for reconfiguration of road layout of Nash Lee Lane and HS2 maintenance access (AP1-010-005)
CFA 10, Dunsmore, Wendover and Halton	Additional land to erect temporary scaffolding over B4009 Nash Lee Road (AP1-010-006)
CFA 11, Stoke Mandeville and Aylesbury	Additional land required for the A4010 Stoke Mandeville bypass to the south of Stoke Mandeville (AP1-011-007)
CFA 11, Stoke Mandeville and Aylesbury	Change to land required for reconfiguration of the roundabout junction of the proposed A4010 Stoke Mandeville bypass with B4443 Lower Road (AP1-011-008)
CFA 11, Stoke Mandeville and Aylesbury	Additional land required for utility access at Standall's Farm (AP1-011-009)
CFA 11, Stoke Mandeville and Aylesbury	Land no longer required for access to drainage ponds to the north of Bishopstone (AP1-011-010)
CFA 11, Stoke Mandeville and Aylesbury	Additional land required for utility works adjacent to the A418 Oxford Road to the west of Aylesbury (AP1-011-011)
CFA 11, Stoke Mandeville and Aylesbury	Additional land required for access to balancing pond from Lower Hartwell passing by Whaddon Hill Farm (AP1-011-012)
CFA 11, Stoke Mandeville and Aylesbury	Change to land required for access to balancing pond west of Putlowes Farm (AP1-011-013)
CFA 12, Waddesdon and Quainton	Land required to mitigate the impact on the Doddershall Deserted Medieval Village (AP1-012-014)

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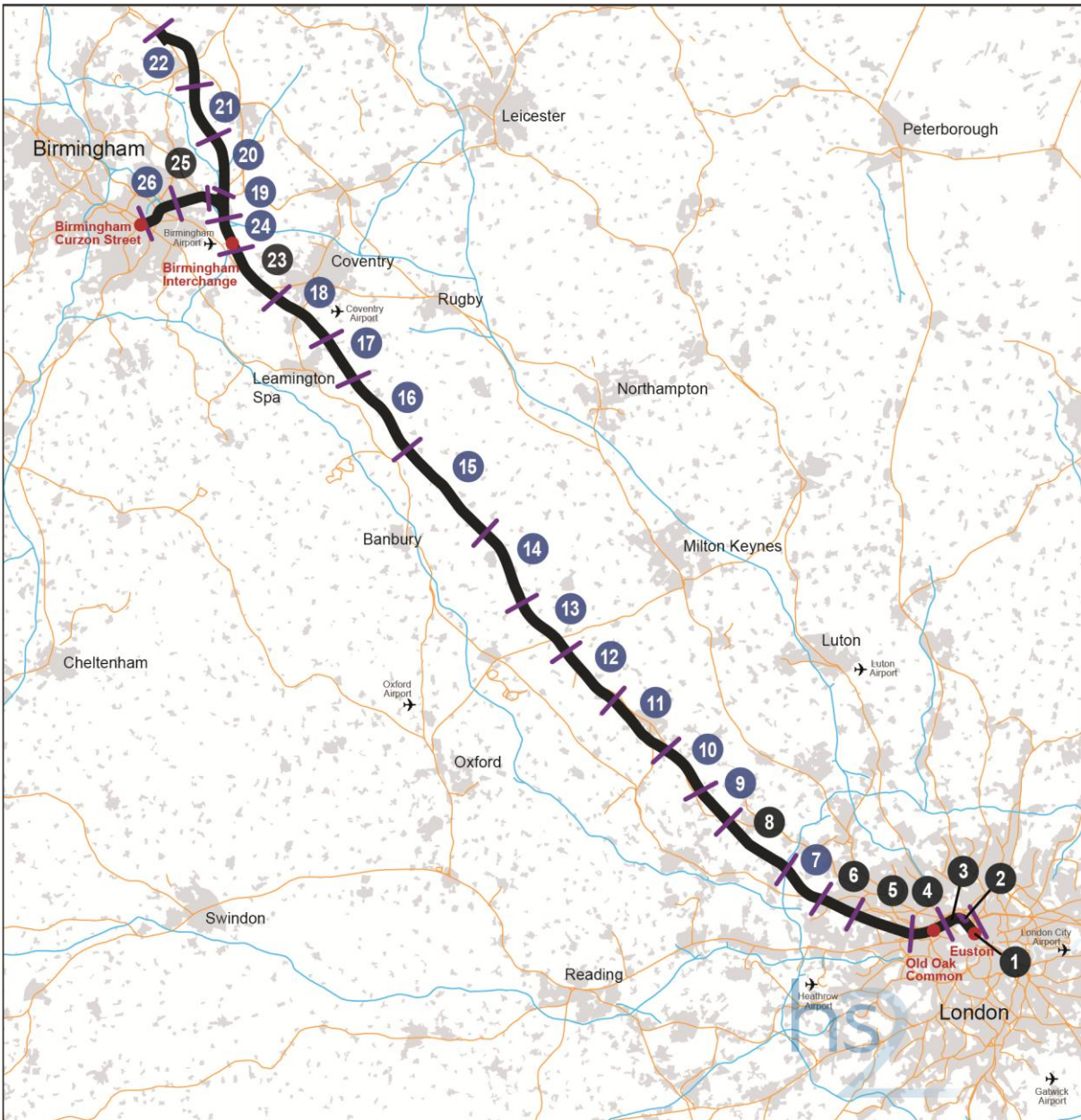
CFA	Amendment
CFA 12, Waddesdon and Quainton	Land required for pylon works near Quainton (AP1-012-015)
CFA 12, Waddesdon and Quainton	Reinstatement of private access to Edgcott Road at Woodlands Farm Cottages (AP1-012-016)
CFA 13, Calvert, Steeple Claydon, Twyford and Chetwode	Extension of ground anchors at Calvert Jubilee (AP1-013-017)
CFA 13, Calvert, Steeple Claydon, Twyford and Chetwode	Alternative maintenance and farm access for Cowley Farm (AP1-013-018 and AP1-013-019)
CFA 14, Newton Purcell to Brackley	Replacement of private access to Warren Farm (AP1-014-020)
CFA 14, Newton Purcell to Brackley	Provision of access to balancing pond near Mixbury (AP1-014-021)
CFA 14, Newton Purcell to Brackley	Additional land required to install safety barriers along the A422 Brackley Road (AP1-014-022)
CFA 14, Newton Purcell to Brackley	Provision of an underpass under the A43 near Brackley (AP1-014-023)
CFA 15, Greatworth to Lower Boddington	Revised access to Danes Moor auto-transformer station (AP1-015-024)
CFA 15, Greatworth to Lower Boddington	Revision of bridleway and access provision at Chipping Warden (AP1-015-025)
CFA 16, Ladbroke and Southam	Amendment of Radbourne Lane realignment (AP1-016-026)
CFA 16, Ladbroke and Southam	B4451 Kineton Road to The Fields House access link (AP1-016-027)
CFA 17, Offchurch and Cubbington	Additional temporary land and permanent access rights at Burnt Heath Farm (AP1-017-028)
CFA 18, Stoneleigh, Kenilworth and Burton Green	Additional land to access replacement floodplain near Finham Brook (AP1-018-029)
CFA 18, Stoneleigh, Kenilworth and Burton Green	Additional land to facilitate pipeline diversion adjacent to Burton Green tunnel (AP1-018-030)

CFA	Amendment
CFA 18, Stoneleigh, Kenilworth and Burton Green	Temporary diversion of Kenilworth Greenway (AP1-018-031)
CFA 19, Coleshill Junction	Additional land for winching and a fibre optic cable diversion near the M42 (AP1-019-032)
CFA 20, Curdworth to Middleton	Additional land for protection of Birmingham and Derby line near Lichfield Road / Faraday Road (AP1-020-033)
CFA 20, Curdworth to Middleton	Temporary construction and permanent maintenance access to the Curdworth viaduct (central) satellite compound, adjacent to the Birmingham and Derby Line (AP1-020-034)
CFA 20, Curdworth to Middleton	Land for woodland habitat creation west of Dunton Wood (AP1-020-035)
CFA 20, Curdworth to Middleton	Additional land for pipeline diversion works and access (AP1-020-036)
CFA 20, Curdworth to Middleton	Additional access rights between A4091 and Birmingham and Fazeley Canal (AP1-020-037)
CFA 20, Curdworth to Middleton	Additional land for overhead power line works adjacent to Cuttle Mill Lane (AP1-020-038)
CFA 20, Curdworth to Middleton	Additional land for overhead power line works to the south-west of Middleton House Farm (AP1-020-039)
CFA 20, Curdworth to Middleton and CFA 21, Drayton Bassett, Hints and Weeford	Additional land between Drayton Lane and Coppice Lane (AP1-021-040)
CFA 21, Drayton Bassett, Hints and Weeford	Access for utility works along Bangle Lane (AP1-021-041)
CFA 21, Drayton Bassett, Hints and Weeford	Access for utility works between Green Barns Lane and the gravel pits east of the M6 toll (AP1-021-042)
CFA 21, Drayton Bassett, Hints and Weeford	Access and land required for utility works west of Brockhurst Lane (AP1-021-043)
CFA 21, Drayton Bassett, Hints and Weeford and CFA 22, Whittington to Handsacre	Access and land required for utility works near the junction of the A5148 and A38 (AP1-021-044)

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CFA	Amendment
CFA 22, Whittington to Handsacre	Additional land and temporary rights required in the vicinity of Fulfen Farm (AP1-022-045)
CFA 22, Whittington to Handsacre	Land temporarily required in vicinity of the West Coast Main Line (AP1-022-046)
CFA 22, Whittington to Handsacre	Additional land required, and removal of a similar area, near Hanch Reservoir (AP1-022-047)
CFA 22, Whittington to Handsacre	Additional land and temporary rights required in the vicinity of Hanch Hall Farm and Shaw Lane Farm (AP1-022-048)
CFA 22, Whittington to Handsacre	Additional land required north-east of Tuppenhurst Lane (AP1-022-049)
CFA 24, Birmingham Interchange and Chelmsley Wood	Oversail rights at Common Farm, Bickenhill (AP1-024-050)
CFA 24, Birmingham Interchange and Chelmsley Wood	Additional land at Melbicks Garden & Leisure Centre, Coleshill (AP1-024-051)
CFA 24, Birmingham Interchange and Chelmsley Wood	Additional construction traffic route at Quartz Point Business Park, Coleshill (AP1-024-052)
CFA 26, Washwood Heath to Curzon Street	Stopping up of Public Right of Way 18, near to Common Lane, Washwood Heath (AP1-026-053)
CFA 26, Washwood Heath to Curzon Street	Additional land for construction traffic routes near to the A47 Heartlands Parkway (AP1-026-054)
CFA 26, Washwood Heath to Curzon Street	Stopping up of Hereford Square and demolition of a building, near Saltley High Street (AP1-026-055)

Figure 1: HS2 Phase One route showing community forum areas with and without amendments



Community forum areas		<ul style="list-style-type: none"> — Proposed Phase One route ● HS2 station — CFA boundary ● CFAs with no amendments ● CFAs with amendments — Existing railways — Motorways ✈ Airports
<ul style="list-style-type: none"> 1 Euston - Station and Approach 2 Camden Town and HS1 Link 3 Primrose Hill to Kilburn (Camden) 4 Kilburn (Brent) to Old Oak Common 5 Northolt Corridor 6 South Ruislip to Ickenham 7 Colne Valley 8 The Chalfonts and Amersham 9 Central Chilterns 10 Dunsmore, Wendover and Halton 11 Stoke Mandeville and Aylesbury 12 Waddesdon and Quainton 13 Calvert, Steeple Claydon, Twyford and Chetwode 	<ul style="list-style-type: none"> 14 Newton Purcell to Brackley 15 Greatworth to Lower Boddington 16 Ladbroke and Southam 17 Offchurch and Cubbington 18 Stoneleigh, Kenilworth and Burton Green 19 Coleshill Junction 20 Curdworth to Middleton 21 Drayton Bassett, Hints and Weeford 22 Whittington to Handsacre 23 Balsall Common and Hampton-in-Arden 24 Birmingham Interchange and Chelmsley Wood 25 Castle Bromwich and Bromford 26 Washwood Heath to Curzon Street 	

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2 Construction of the revised scheme

2.1 Introduction

2.1.1 The construction of the revised scheme will follow the same approach as set out in the main ES, Volume 1, Section 6. However, discussions with utility companies following submission of the main ES have identified refinements in working methods and land requirements for utilities works that have led to many of the amendments described in this AP ES. This section therefore provides information on the working methods for the following utility works:

- diversions of overhead power lines involving the construction of pylons, reconductoring, winching, earthing and the construction of protective scaffolding;
- diversions of fibre optic cables; and
- diversions and upgrades of gas and fuel pipelines.

2.1.2 It should be noted that these are standard construction methods, which are used by utilities providers on a regular basis to undertake works of this nature.

2.1.3 The construction methods for the other amendments detailed in this AP ES are described in the main ES, Volume 1, Section 6.

2.2 Diversions of overhead power lines

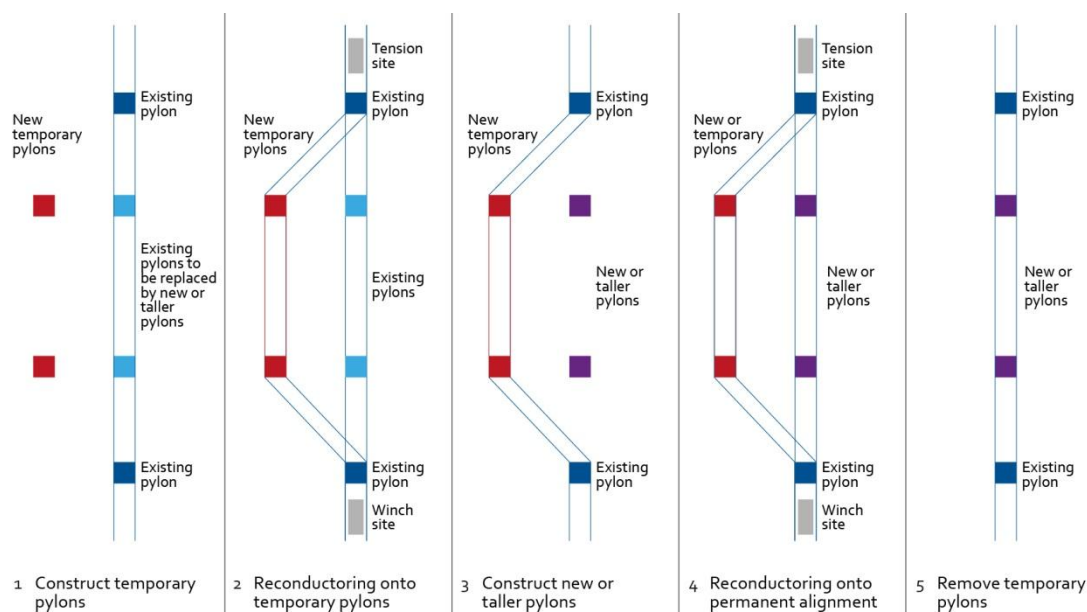
Overview

2.2.1 When diverting an overhead power line, the electricity supply to premises and facilities must be maintained at all times. Therefore a temporary diversion may need to be constructed first, should it be deemed that both circuits being diverted cannot be temporarily disconnected from the transmission system simultaneously. Temporary pylons are erected on-site and temporary conductors (electricity wires) are strung along the route. Once the temporary diversion is in place, and live, work can start on the main diversion.

2.2.2 The process of removing and reinstalling the main conductors is referred to as reconductoring. In order to carry out reconductoring, a winch is installed at one end of the main diversion site and a tension point installed at the other. Once the old conductors have been removed the existing pylons can be dismantled and removed from site and new pylons erected. Depending on the specific diversion these could be positioned in the same location as previously (but with the conductors raised, for example, to travel safely over the route) or in a new location.

2.2.3 Once the new pylons have been constructed, new conductors can be winched into place. The temporary diversion will be removed once the new route has been tested and made live. During the diversion works additional earthing will be required at some of the existing pylons. This will be carried out at the next three pylons at either end of the main diversion site. The earth points will be checked regularly throughout the diversion works to ensure the safety of the operators. Figure 2 shows a simplified sequence of overhead power line diversion works.

Figure 2: Simplified sequence of works for the temporary diversion of an overhead power line



2.2.4 The following sections provide more detailed information on the process of diverting overhead power lines.

Construction of pylons

2.2.5 Pylons will be built for the temporary diversion of an overhead power line or to raise the height of existing pylons to provide clearance over the route.

2.2.6 Temporary construction fencing will be erected around the site for security and temporary access tracks will be constructed from crushed stone where necessary. Excavators will be used to dig holes for foundations and in certain ground conditions piling rigs will also be required. Pre-mixed concrete and reinforcing steelwork for the foundation frames and bases will be transported to the site. The main steelwork for the pylon will then be delivered in sections. The pylon is erected using a mobile crane, which lifts the assembled steelwork into position.

2.2.7 An area of approximately 100m x 100m will be required for construction of each pylon. It is assumed that any existing vegetation will be cleared. For the construction period, the topsoil will be stripped and stored, and the area filled with stone or hardcore or covered in metal plating. These areas will be reinstated to their former use at the end of the construction period.

2.2.8 The construction of a pylon typically takes three months and is always undertaken within summer months when electricity demand is reduced. Electricity supply will be maintained at all times.

2.2.9 For temporary pylons the land will be required in most cases for up to 12 months, this allows three months to construct, six months for the diversions to be undertaken and another three months to remove the temporary pylon and its foundations. These timescales are dependent on ground conditions and the complexity of construction. The area around the temporary pylons will be reinstated at the end of the diversion period. Only sufficient topsoil to undertake the works will be removed and this will be stored locally and in proximity to the pylon.

Reconductoring

- 2.2.10 Reconductoring is the process of installing or replacing conductors (or wires) on a section of overhead power line using winches.
- 2.2.11 The conductors which carry the electricity are usually installed in sections of approximately ten or more pylons at a time, depending on the complexity of the route. Pilot wires are run at ground level (and over temporary scaffolding and netting protecting infrastructure such as properties, roads, railways, navigable rivers and canals) along the full length of the section, between a 'pulling site' and a 'tensioning site'. The pilot wires are then lifted and fed through running wheels on the cross arms of all the pylons in the section, and fed around a winch at the pulling site. In order to keep the wires off the ground and avoid any damage to property, the tensioning site has a similar machine that stops the wire running freely when the pulling machine 'pulls' the pilot wire.
- 2.2.12 Reconductoring work takes place mainly within the working area of approximately 100m x 100m mentioned above in relation to the construction of pylons. A corridor of land up to 100m wide along the centre line of the conductor route is also required to allow the sequence of reconductoring to be undertaken while avoiding any sensitive receptors. The actual working area is likely to be approximately 10m wide within the 100m corridor. The area underneath the line will be surveyed and some vegetation clearance may be required to maintain a safe working area and prevent the conductor being damaged. Vegetation clearance will be undertaken at suitable times of the year in accordance with ecological requirements.
- 2.2.13 Reconductoring will take place within the timescale mentioned above in relation to pylons.

Winching

- 2.2.14 As mentioned above, a winch is used during reconductoring to replace or install new conductors on a stretch of overhead power line.
- 2.2.15 An area of approximately 40m x 50m is required for the winching site at the last pylon that requires reconductoring and at the tensioning site. This is in addition to the 100m x 100m identified above.
- 2.2.16 The winching and tensioning sites will be cleared of vegetation and temporary construction fencing will be erected around the sites for security. Aluminium sheeting will then be placed under the winching and tensioning machines to earth the working area. Wooden sheeting will also be placed on the ground around these to provide a safety zone. Protection such as scaffolding will be set up in advance of winching commencing (see the 'Construction of protective scaffolding' section). Figure 3 shows a typical winching site.

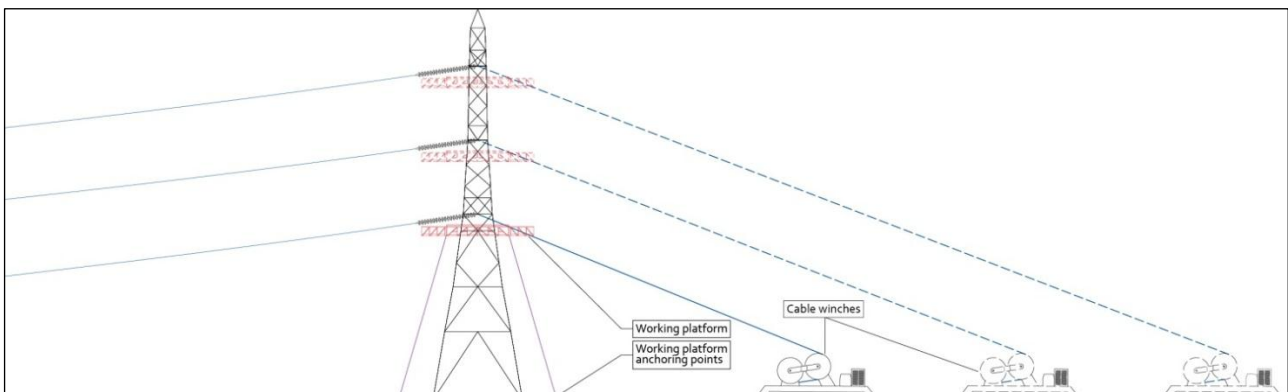
Figure 3: Typical winching site



(© National Grid)

- 2.2.17 The set up and demobilisation of the winching and tensioning sites will typically take a month before and after the main reconductoring period.
- 2.2.18 A temporary access track may be constructed from crushed stone or metal plates depending on the particular site in question. Figure 4 shows a diagram of the arrangement of a winching site.

Figure 4: Diagram of winching site



Earthing of conductors

- 2.2.19 The earthing of conductors involves workers climbing the pylon and connecting an earthing bond (a thin wire connecting the conductor to the pylon earthing system)

from the conductor to the earth plate on the tower to protect operatives working on the lines. This needs to be undertaken at all pylons being worked on and three pylons back from either end. This activity takes approximately two hours at the start of the construction period and the reverse process occurs at the end of the construction period.

Construction of protective scaffolding

- 2.2.20 The construction of scaffolding and netting is necessary during reconductoring works to protect infrastructure such as properties, roads, railways, navigable rivers and canals. This is also to ensure the safety of the general public and to protect the conductors.
- 2.2.21 Temporary construction fencing will be erected around the site, if publicly accessible, for security. Where ground conditions are poor, foundations will be required. It will therefore be necessary to use excavators to remove the topsoil located around the scaffold footprint and working area. Stone or crushed concrete will be used to form a stable base and the structures will be anchored with concrete blocks.
- 2.2.22 The area required is dependent on the nature of the infrastructure to be crossed; and the angle and type of crossing. It is assumed that vegetation clearance will be necessary and topsoil will be replaced on completion of the works. After completion of the works the land will be restored to its former use.
- 2.2.23 Protective scaffolding will be constructed prior to and for the duration of, the reconductoring works and typically takes one to two months before and after these works to erect and dismantle.

2.3 Diversions of fibre optic cables

- 2.3.1 There is a need to temporarily divert fibre optic telecommunication cables suspended from pylon routes whilst pylons are being replaced. This is likely to be carried out in advance of reconductoring works (subject to programme). For these works, it is assumed that the diverted cables will be laid in a shallow trench in ducting (i.e. tubing or piping). Temporary traffic management may be necessary when crossing roads or other infrastructure.
- 2.3.2 A trench approximately 30cm wide and 40cm deep will be required where cables are laid in ducts, although a 100m wide corridor has been provided for in the Bill plans. At this stage the exact route for the cable diversions cannot be finalised and this corridor is required to enable, as far as reasonably practicable, the avoidance of sensitive receptors during detailed design. The trench for the duct itself will require a working area approximately 10m wide along the cable run, so a considerably reduced area will actually be used. Cables are installed by pulling through ducts, following installation of the ducting. Any excavations required for installation of fibre optic cable diversions would be made good afterwards by backfilling and returning the land to its former use.
- 2.3.3 The duration of the works is dependent on the distance of the diversion but can range from one to three months either side of the overhead power line diversion work.

2.4 Diversions and upgrades of gas and fuel pipelines

- 2.4.1 A number of high pressure gas mains will need to be diverted, upgraded or protected to ensure the ongoing safe operation and maintenance of the gas pipelines through the construction and operational phases of the revised scheme.
- 2.4.2 When installing a high pressure gas pipeline a temporary working corridor will be fenced off to permit the construction of the gas pipeline safely and efficiently.
- 2.4.3 The width of the working strip is dependent upon the diameter of the pipe which is being installed, but generally ranges from 30m to 50m. It may be increased in certain areas for example road, rail, river and canal crossings and pipe connection points to accommodate the more complex construction processes at these locations.
- 2.4.4 Within the working corridor a 2m to 3m wide excavation is required depending on the pipe size, the number of crossings and ground conditions. Where the pipes need to be connected, an additional excavation with an area of approximately 60m x 40m is required to isolate the pipe depending on the pipe size and ground conditions.
- 2.4.5 The typical procedure for installation of a gas pipeline comprises the following stages:
1. temporary access tracks are constructed from crushed stone, if necessary;
 2. the construction area is marked out and suitable fences are installed;
 3. topsoil is stripped along the route of the proposed pipeline;
 4. sections of pipe are delivered to site by heavy goods vehicles (HGVs) and are laid out along the route;
 5. a trench is excavated by machine, to a specified depth for pipe placement;
 6. the pipe sections are welded together, manually or by machine into one continuous pipeline; angle bends are used to change the line of direction and depth of the pipe to match the contours of the ground;
 7. the welded pipe sections are lowered into the trench by sideboom tractors using belts or cradles in a carefully coordinated action;
 8. the trench is then backfilled, with a layer of fine fill material around the pipe, normally using material excavated from the trench; and
 9. the construction material is removed from the site, topsoil is replaced and the area is restored as closely as possible to its original pre-construction condition.
- 2.4.6 Gas pipeline diversions and upgrades take a period of 4 to 12 months depending upon the complexity of the works. Very occasionally, this timeframe will be split over two years, with a pause in the middle during winter months.

2.5 Core working hours

- 2.5.1 In accordance with the draft CoCP, core working hours will be from 08:00 to 18:00 on weekdays (excluding bank holidays) and from 08:00 to 13:00 on Saturdays. The nominated undertaker will require that its contractors adhere to these core working hours for each site as far as is reasonably practicable, or unless otherwise permitted under Section 61 of the Control of Pollution Act 1974.

- 2.5.2 Guidance on the site specific variations to core hours and/or additional hours likely to be required will be included within the Local Environmental Management Plan (LEMP) following consultation with the relevant local authority.
- 2.5.3 Except in the case of an emergency, any work required to be undertaken outside of core hours (not including repairs or maintenance) will be agreed with the local authority prior to undertaking the works under Section 61 of the Control of Pollution Act 1974, within the framework set out by the LEMP and the CoCP.
- 2.5.4 Further information on working hours including start up and close down periods, additional working hours and abnormal deliveries can be found in the draft CoCP contained within the main ES, Volume 5, Appendix CT-003-000.

2.6 Worker numbers and welfare facilities

- 2.6.1 The construction of pylons, reconductoring, winching, earthing and the erection of protective scaffolding typically require up to approximately 20 construction workers, for whom temporary welfare facilities will be provided. Five construction workers are generally required for the diversion of fibre optic cables.
- 2.6.2 With respect to the diversion and upgrade of gas pipelines, approximately 5 to 20 workers are usually necessary during the site preparation and topsoil removal and storage stages, increasing to 10 to 30 for welding operations, special crossings and tie-in connections. Temporary welfare facilities will therefore be required.

2.7 Vehicle movements

Diversions of overhead power lines

- 2.7.1 For a typical overhead power line diversion as described above, it is estimated that there will be between four and six vehicle movements per working day for construction workers to access the work sites. In addition, there will be between 20 and 50 vehicle movements at the beginning and end of these works for the supply and removal of equipment. This includes approximately 30 HGVs for the transportation of materials and 20 private cars or vans to transport workers to the site.

Diversions of fibre optic cables

- 2.7.2 For a typical fibre optic cable diversion, it is estimated that there will be between four and six vehicle movements per working day during the site set up and installation period, comprising up to four private cars or vans and two HGVs for the delivery of materials and equipment. During operation of the diversion it is assumed that there would be only an occasional vehicle movement for inspection and maintenance purposes.

Diversions and upgrades of gas and fuel pipelines

- 2.7.3 For a typical gas and fuel pipeline diversion as described above, it is assumed that there will be a total of approximately 20 vehicle movements for construction workers and approximately 30 HGVs for the delivery of materials and equipment per working day during the six week site set up period. The construction period is likely to generate a total of approximately 50 vehicle movements per working day. It is estimated that the site clear up period will generate approximately 10 vehicle

movements for construction workers and 30 HGVs per working day over a period of four weeks.

3 Environmental impact assessment

3.1 Preparation of the Additional Provision Environmental Statement

Scoping

- 3.1.1 Prior to assessing the environmental effects of each amendment, a scoping exercise based on a precautionary approach was undertaken by the technical specialists who undertook the environmental assessments for the main ES. This determined whether the amendments had the potential to result in any new likely significant environmental effects or change the level of significance of the environmental effects identified previously for each topic. Amendments identified as having the potential to result in any new or different likely significant environmental effects were then subject to further assessment work.
- 3.1.2 A number of assessments of environmental topics were judged not to be affected by any of the amendments and were therefore not considered any further. These are discussed in more detail in the following sections.

Climate (carbon)

Introduction

- 3.1.3 Volume 3 of the main ES reported the assessment of the greenhouse gas (GHG) emissions of the original scheme during construction and operation.

Changes to assessment of effects

- 3.1.4 The proposed amendments were reviewed qualitatively in order to identify whether they would have a significant impact on the carbon footprint assessment reported in the main ES (Volume 3, Section 5). The amendments were considered individually and as a whole. The changes have no impact on carbon emissions from the operation and maintenance of the scheme and have little to no impact on the actual volume of construction materials or earthworks required and the associated transport, labour and plant emissions. The majority of the changes relate to additional land requirements for access reasons, some of which involve realigning existing access routes or require additional rights over land without any physical changes to the land itself. The amendments are considered to represent a negligible change to land use requirements. Given the above it is assessed that the potential impact of the amendments on the carbon footprint would be negligible and as such does not warrant any further analysis.

Climate change adaptation and resilience

- 3.1.5 In the main ES, assessment of the potential combined impact of the original scheme and climate change on the receiving environment and community was reported in Volume 5 (Appendix CT-009-000) and summarised in Volume 1, Section 7. The assessment to identify the potential risks of climate change on the original scheme

was reported in Volume 5 (Appendix CL-003-000). As noted in 3.1.4 the amendments are considered to represent a negligible change to land use requirements. Given the above it is assessed that the potential impact of the amendments on climate change adaptation and resilience would be negligible and as such do not warrant any further analysis.

Waste

- 3.1.6 The proposed amendments have been reviewed to identify if they will lead to any change to the likely significant environmental effects associated with the off-site disposal to landfill of solid waste reported in the main ES.
- 3.1.7 A qualitative assessment has been undertaken for each amendment to identify if it will generate more or less solid waste than the original scheme, and if there is any significant increase in the quantity of waste requiring off-site disposal to landfill. As the majority of the amendments relate to changes in land-take, temporary works and minor construction activities, it is expected that they will lead to the generation of negligible quantities of additional waste. Some of the amendments, such as access road realignments and avoiding the demolition of buildings will in contrast result in an expected reduction in waste generation.
- 3.1.8 Based on this qualitative assessment, it is considered unlikely that the amendments will result in any change to the likely significant environmental effects, on a route-wide basis, associated with the off-site disposal to landfill of solid waste.
- 3.1.9 None of the amendments bring about any change to the operational waste generated by the scheme. Therefore, potential environmental effects associated with operational waste have not been considered any further.

Off-route effects

- 3.1.10 The off-route effects assessment contained within the main ES presents those aspects of the construction and operation of the original scheme that have the potential to generate significant environmental effects in locations remote to the route corridor (i.e. 'off-route'), which are not covered within the spatial scope of the CFA reports (in Volume 2) or the route-wide effects (in Volume 3).
- 3.1.11 As the amendments are all within or close to the route corridor their effects have been described in the Volume 2 CFA reports and there are no off-route effects to report.

Wider effects assessment

- 3.1.12 The mapping in the main ES shows the original scheme on the centre line for the permanent works. Limits of deviation shown on the Bill plans and sections and described in the Bill enable the scheme to deviate slightly from the centre line of the works as may be required following detailed design. The wider effects report in Volume 5 of the main ES (Appendix CT-005-000) assesses whether the power to deviate within these statutory limits alters the significance of the effects as reported elsewhere in the main ES.
- 3.1.13 The proposed amendments were reviewed qualitatively in order to identify whether they would introduce any new or different likely significant environmental effects to

those reported in the wider effects report. It was concluded that the changes are all relatively minor and do not affect the conclusions of that report.

Baseline data gathering

- 3.1.14 Baseline conditions are defined as the environmental conditions that exist in the vicinity of the amendments and across the study areas for each topic. The majority of the amendments are located in areas close to or within the route corridor of the original scheme and therefore the baseline conditions reported in the main ES have been used in this assessment. In addition, studies have been undertaken to update and supplement this baseline information, where necessary. These comprised desk-top research to gather and evaluate previous environmental work and publicly available information. The baseline with respect to the environmental topics has been updated to the end of June 2014 with particular reference to data sets maintained by the following:
- Environment Agency;
 - English Heritage; and
 - Natural England.
- 3.1.15 Updated policies, guidelines and legislation, together with industry-accepted practice, were also identified. This updated baseline has been taken into account in the assessment of potential environmental effects associated with the amendments.
- 3.1.16 Where appropriate, information regarding the current baseline conditions has also been extrapolated into the future to take account of predicted or anticipated variations due to factors such as changing climatic conditions (based on trends within the UKCP09 projections), policy, legislation and advances in technology. This is known as the future baseline.
- 3.1.17 Due to the inevitable uncertainty of predicting effects based on future baseline conditions, a reasonable worst-case approach has been adopted.
- 3.1.18 Future baseline conditions may also be altered by other developments. The identification of future developments includes those that may occur before or during the construction of the revised scheme, with the potential to result in significant effects. The baseline with respect to future developments has been updated to the end of May 2014. No future developments have been identified which would introduce new environmental receptors that could be significantly affected by any of the amendments, or give rise to new or different cumulative effects as compared with the main ES.

Impact assessment

- 3.1.19 Assessment of the impacts and effects of the revised scheme has been undertaken in accordance with the methodology outlined for each environmental topic in the Scope and Methodology Report (SMR) and SMR Addendum contained within the main ES, Volume 5, Appendix CT-001 -000/1 and CT-001-000/2, respectively. Any deviations from this are described in the 'Technical scope and methodology' section below.
- 3.1.20 The assessment has identified the likely significant environmental effects arising from construction (expected to take place between 2017 and 2026) and operation of the

revised scheme; the measures envisaged to mitigate significant adverse effects; and the likely significant residual effects (i.e. following mitigation), during the construction and operation phases.

Mitigation

- 3.1.21 The approach to mitigation adopted for this AP ES remains as set out in the main ES, Volume 1, Section 9. In summary, a hierarchy has been employed such that priority has been given to avoiding or preventing effects; and then (if this was not possible), to reducing or abating them; and then if necessary to offsetting them through repair (restoration or reinstatement) or compensation.

Technical scope and methodology

- 3.1.22 As noted previously, the assessment of the effects of the revised scheme has been undertaken in accordance with the methodology outlined for each environmental topic in the SMR and SMR Addendum. Any deviations from this are described below.

Ecology

- 3.1.23 The ecological baseline for the additional land required is based primarily on information collected in support of the main ES. However, where any relevant additional or amended information has become available since production of the main ES this has been incorporated.
- 3.1.24 In accordance with the approach adopted in the main ES, in order to ensure that all likely significant effects of the revised scheme have been identified, where baseline information is incomplete, a precautionary approach to evaluation has been adopted, which assumes a reasonable worst-case. Further details of this approach are included within the ecological assessment methodology technical note included in the SMR Addendum.
- 3.1.25 The ecology sections of the AP ES provide a summary of the relevant baseline information provided in the main ES. As a consequence they should be read in conjunction with the corresponding section in Volume 2 of the main ES.
- 3.1.26 In order to clearly identify any change to the likely significant effects reported in the main ES, the assessment in each case considers and reports upon the following for all relevant ecological receptors:
- new or different impacts and resultant effects (i.e. those new or different to those reported in the main ES); and
 - any changes in the impacts previously anticipated (positive or negative), and if these changes alter the geographic level at which the resultant effect is of relevance.
- 3.1.27 For each amendment the assessment subsequently considers if there is any requirement for additional or revised mitigation and/or compensation to that described within the main ES.
- 3.1.28 The potential for additional or different cumulative effects on ecological receptors at the route wide level is considered in Volume 3 of the AP ES.

- 3.1.29 The assessment of potential effects arising from construction assumes implementation of appropriate measures under the draft CoCP which includes the translocation of protected species where required, and sensitive timing of vegetation clearance to avoid or minimise impacts. For example, it is assumed that vegetation clearance will be undertaken outside the bird breeding season or with necessary controls in place to prevent destruction or disturbance of active nests. As a consequence, effects of amendments on bird populations are only discussed where habitat loss or disturbance is sufficient to result in any new or different likely significant effects to those reported in the main ES.

Landscape and visual assessment

- 3.1.30 The scope and methodology for the landscape and visual assessment generally follows that described in the SMR and SMR Addendum contained within the main ES, Volume 5, Appendix CT-001 -000/1 and CT-001-000/2, respectively. The impact assessment methodology for construction in the main ES considers effects during the peak construction phase (the period during which the main civil engineering works will take place). These are considered to be long-term temporary effects in relation to the construction programme.
- 3.1.31 The majority of amendments relate to works that will occur outside of the peak construction phase and are therefore generally regarded as of a less intrusive nature. For example, utility diversions as part of advance works are likely to be of a relatively short duration and of a less substantial nature. In these instances, the potential effects of these amendments have been scoped out of the assessment. The only exception to this is when the amendments are considered likely to give rise to a significant effect outside the peak construction phase. In these instances, a construction phase assessment has been undertaken.
- 3.1.32 To ensure the focus is on significant change to the effects reported in the main ES, the assessment considers:
- new significant effects arising from the amendment;
 - existing significant effects where the amendment would alter the level of effect but they will remain significant; and
 - existing significant effects which will be eliminated or reduced to non-significant when taking account of the amendment.
- 3.1.33 The baseline for the landscape and visual assessment has only been updated where a change has occurred to a receptor since the main ES was submitted. This includes consideration of where a visual receptor may have changed land use (i.e. changing the sensitivity of the receptor), where a visual receptor may no longer exist, or where a new visual receptor exists or will exist that had not previously been considered as part of the future baseline.
- 3.1.34 Photomontages prepared for the main ES have been adjusted only in cases where the amendment is noticeable in the view. Where changes are barely perceptible in the background of photomontages, they have not been updated on the basis that these changes are not significant.

Approach to appendices

- 3.1.35 In the main ES, Volume 5: Appendices and Map Books contains supporting environmental information and associated mapping. In this AP ES, most of the amendments are small and represent only minor changes to the original scheme. All relevant information has therefore been included in the Volume 2 text. This information should be read in conjunction with the information set out in the Volume 5 Appendices and Map Books of the main ES.

Approach to mapping

- 3.1.36 Construction and operation mapping (the CT-05 and CT-06 AP1 map series) has been produced for each amendment. In each case, the relevant map from the main ES has been reproduced showing the original scheme and a second, showing the same map with the revised scheme, has also been produced. A red 'cloud' indicates where the change is located on the map. These maps are included in the Volume 2 Map Book.
- 3.1.37 The environmental maps in the Volume 5 Map Book have been produced where an existing significant effect has been reduced or removed or there is a newly identified significant effect.

3.2 General assumptions and limitations

- 3.2.1 During the preparation of an ES, there are sometimes circumstances in which the information available to inform the assessment process is limited. For example, there is inevitably some uncertainty in predicting future baseline conditions, impacts and effects, especially given that the revised scheme is not due to begin operating until 2026.
- 3.2.2 In addition, it has not been possible to access all land required to carry out fully comprehensive surveys. Nevertheless, it is considered that the baseline is sufficiently robust to allow the assessment of the likely significant environmental effects of the revised scheme on the basis of a precautionary, reasonable worst-case approach.
- 3.2.3 For the purposes of this assessment, it is assumed that the overall construction programme as described in the main ES (Volume 1, Section 6 and the CFA reports of Volume 2) remains unchanged.
- 3.2.4 Where relevant for each environmental topic, key assumptions made in undertaking the assessment have been explained, and their consequences on the completeness or potential accuracy of the conclusions have been identified. Section 8 in Volume 1 of the main ES provides a description of general assumptions and limitations per environmental topic areas. Local assumptions and limitations are detailed within Volume 2 of the AP ES.

4 Consultation and engagement

- 4.1.1 A formal public consultation on the AP ES is required by Parliament. Consultees will have at least 42 days (six weeks) to respond to the consultation following the deposit of the Additional Provision in Parliament and the first publication of the necessary newspaper notices that follows. Parliamentary officials have appointed an

independent assessor who will summarise responses and provide a report to Parliament before Third Reading of the Bill.

- 4.1.2 There will also be a petitioning period, which will run in parallel with the consultation described in the paragraph above.

HIGH SPEED RAIL (LONDON - WEST MIDLANDS) ADDITIONAL PROVISION

Environmental Statement

Volume 2 | Community forum area report

September 2014

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Structure of the HS2 Additional Provision Environmental Statement

The Additional Provision (AP) Environmental Statement (ES) comprises:

- Non-technical summary (NTS). This provides a summary in non-technical language of the AP amendments and any likely significant residual environmental effects, both beneficial and adverse, which are new or different to those reported in the HS2 Phase One ES submitted to Parliament in November 2013 in support of the hybrid Bill for Phase One of HS2 (hereafter referred to as 'the main ES');
- Volume 1: Introduction to the AP ES. This describes the amendments, construction information relating to utility diversions and any changes to the scope, methodology, assumptions and limitations required for the environmental assessment associated with them;
- Volume 2: Community Forum Area (CFA) reports and Map Books. These describe the amendments and any new or different likely significant environmental effects arising from the amendments in each CFA compared to those reported in the main ES;
- Volume 3: Route-wide effects. This describes new or different likely significant route-wide effects arising from the amendments compared to those reported in the main ES;
- Volume 5: Map Book. This contains environmental maps in support of the CFA sections of Volume 2; and
- Glossary of terms and list of abbreviations. This contains any new or different terms and abbreviations used throughout the AP ES documentation, compared to those included in the main ES.

In the main ES, Volume 4 presented an assessment of the likely significant environmental effects that will occur in locations away from the route (i.e. outside of the CFAs). As none of the amendments relate to off-route areas, off-route effects have been scoped out of the assessment and therefore there is no Volume 4 included within the AP ES.

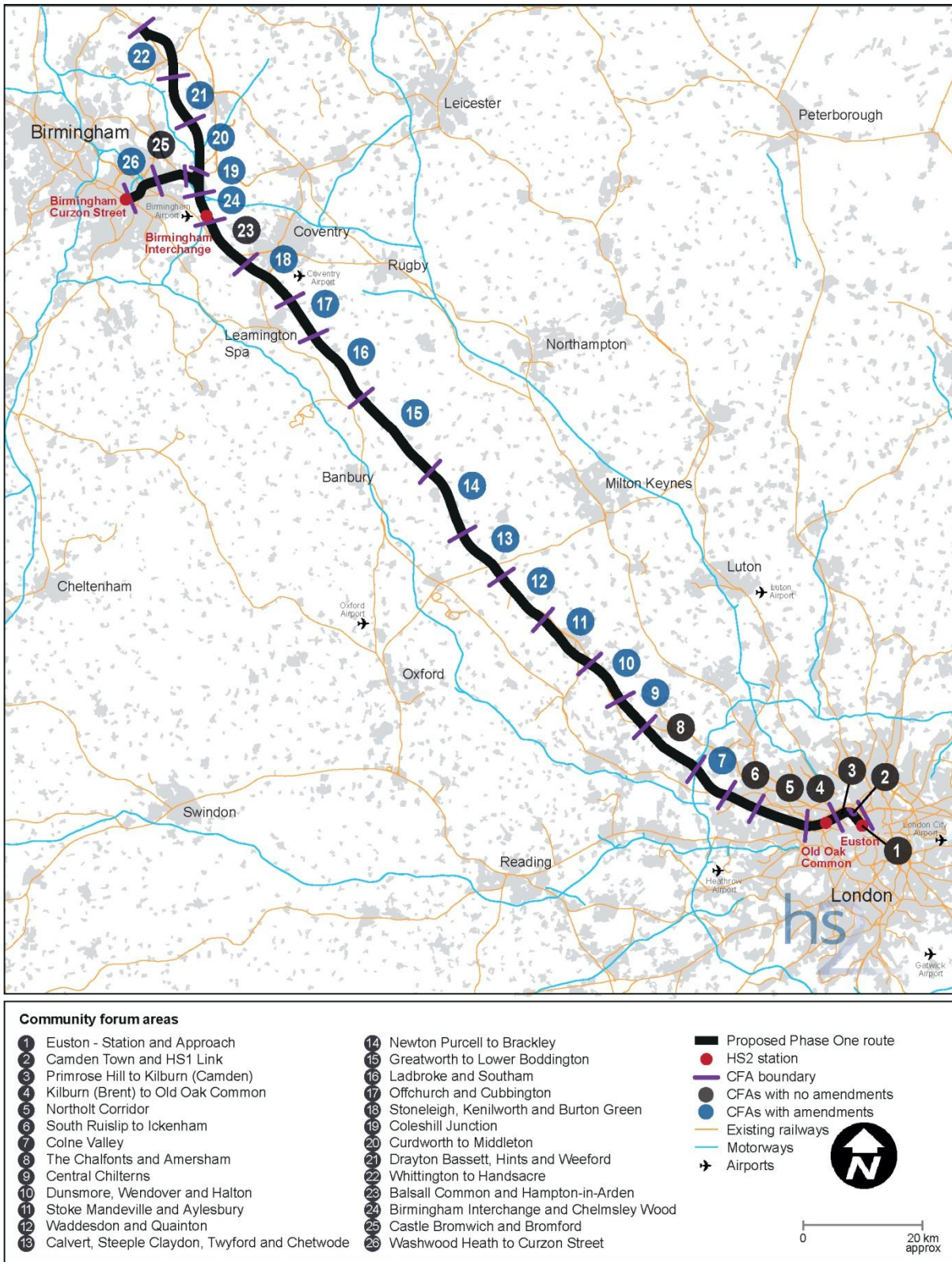
Structure of this report

This volume of the AP ES has a section for each CFA where there is an amendment. Each section includes:

- A list of the amendments within each CFA.
- An overview of each amendment.
- An assessment of the environmental effects of each amendment for relevant environmental topics considering the:
 - scope, assumptions and limitation of the AP ES assessment;
 - environmental baseline;
 - effects arising during construction;
 - effects arising during operation; and
 - mitigation and residual effects.
- A summary of any new or different likely significant residual effects as a result of each proposed amendment.

Figure 1 shows the HS2 Phase One route and the location of the CFAs where amendments are proposed.

Figure 1: HS2 Phase One route showing community forum areas with and without amendments



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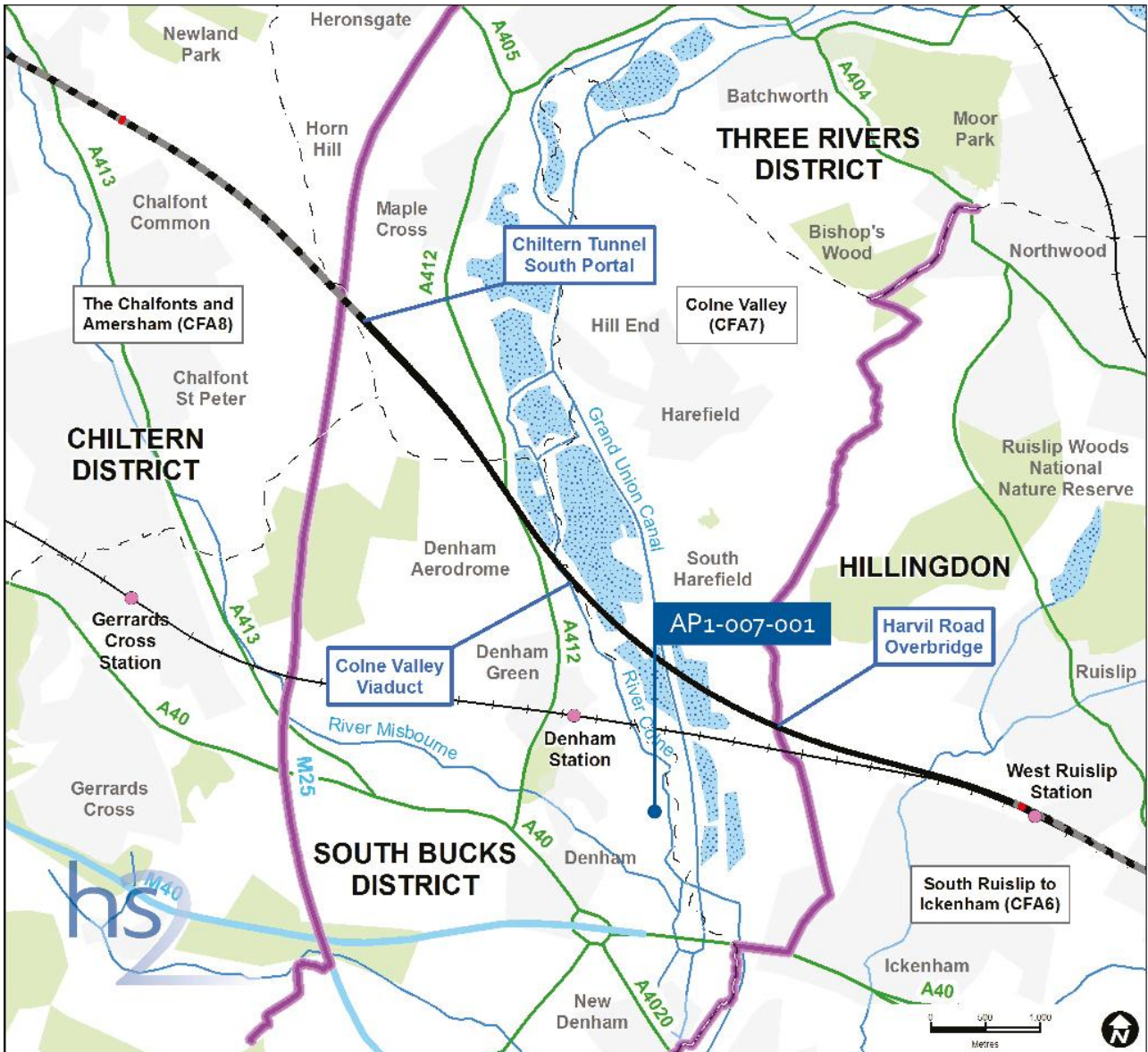
CFA7, Colne Valley

1 Overview of the amendments

- 1.1.1 Table 1 provides a summary of the amendments in the Colne Valley community forum area (CFA7) and Figure 2 shows the locations.
- 1.1.2 The legend for Figure 2 and all the following community forum area maps is provided below:



Figure 2: Locations of amendments in Colne Valley area



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Table 1: Summary of amendments in the Colne Valley area (CFA7)

CFA	Amendment	Description of the original scheme	Description of the revised scheme
7	Existing access through Buckinghamshire Golf Club for utility works AP1-007-001	The temporary provision of a new section of access track parallel and adjacent to a watercourse through Buckinghamshire Golf Club to enable construction access for the diversion of a 275kV overhead power line.	The access track identified in the original scheme followed an incorrect alignment for access past the Buckinghamshire Golf Club clubhouse. The revised scheme will use the existing access to the golf club car park to access the land required for the diversion of the 275kV overhead power line. No possession of car parking spaces will be required.

2 Existing access through Buckinghamshire Golf Club for utility works (AP1-007-001)

2.1 Overview of amendment

- 2.1.1 The Bill provides for construction access to a temporary bridge over the River Colne on what was assumed to be the existing access to the Buckinghamshire Golf Club car park. The access track was required to enable construction access for the diversion of a 275kV overhead power line (refer to main ES map CT-05-019b-L1 in main ES, Volume 2, CFA7 Map Book). Since submission of the Bill, it has been identified that this access track ran parallel and adjacent to, a landscaped watercourse which flows into the River Colne through the Buckinghamshire Golf Club and did not follow the route of the existing access to the club car park as was intended. The revised scheme has been adapted to make use of the existing access, providing an easier construction access to the temporary bridge over the River Colne and enabling access to undertake works to the diversion of the 275kV overhead power line (refer to AP map CT-05-019b-L1 in AP ES Volume 2, Map Book Part 1). The land required for the revised access is outside the original limits of the Bill, hence the need for this amendment. This additional land (approximately 600m²) will be required temporarily and will not require any temporary possession of car parking spaces. The use of this access will not require any additional vegetation clearance or earthworks to that described in the main ES. The incorrect alignment of the access track in the original scheme will be removed from the Bill.
- 2.1.2 The duration of construction access through the golf course will not change as a result of this minor amendment. During its construction works, the nominated undertaker will require that the impacts to users of the golf course complex from construction traffic are minimised by its contractors and that public access is maintained where reasonably practicable. This will require site-specific traffic management measures to be implemented during the construction of the 275kV overhead power line diversion. General provisions relating to the construction process are set out in more detail in the draft Code of Construction Practice (CoCP) (see Volume 5: Appendix CT-003-000 of the main ES).
- 2.1.3 The revised access track 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: agriculture, forestry and soils; air quality; community; cultural heritage; ecology; land quality; landscape and visual assessment; socio-economics; sound, noise and vibration; and traffic and transport. However, there were changes where reassessment was considered to be required in respect of water resources and flood risk assessment.

2.2 Water resources and flood risk assessment

Scope, assumptions and limitations

- 2.2.1 The assessment scope, key assumptions and limitations for 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.

Environmental baseline

- 2.2.2 The baseline water resources and flood risk information for the Colne Valley area is described in the main ES (Volume 2, CFA Report 7, Colne Valley, Section 13).
- 2.2.3 The access track included in the Bill was to run alongside the landscaped watercourse and part of the River Colne, a main river¹ and included a temporary structure over the watercourse and river. The current overall status² under the WFD³ of the River Colne is Poor, while the status objective for 2027 is Good Potential.

Effects arising during construction

- 2.2.4 The amendment will not involve any below ground works. Part of the revised access track to the 275kV pylons will run on existing road and will no longer run adjacent to the western branch of the River Colne. A temporary bridge over the River Colne will still be required. Volume 2 of the main ES reported that there will be no significant temporary adverse effects on water resources or flood risk. The assessment of the revised scheme does not change this conclusion, although the non-significant adverse impact to the River Colne will be less than that arising from the original scheme due to the reduced earthworks and traffic adjacent to the watercourse.
- 2.2.5 There will be no permanent significant effects on any water receptors, since the access track will be used temporarily.

Effects arising from operation

- 2.2.6 The amendment does not change the assessment reported in Volume 2 of the main ES.

Mitigation and residual effects

- 2.2.7 The draft CoCP sets out the measures and standards of work that will be applied to the construction of the original scheme (see the main ES, Volume 5, Appendix CT-003-000). These will provide effective management and control of the impacts during the construction period. The amendment will result in no change to the likely residual significant effects reported in the main ES.

¹ Water-feature classifications: Section 113 of the Water Resources Act 1991 defines a main river as a watercourse that is shown as such on a main river map. Section 72 of the Land Drainage Act 1991 defines an ordinary watercourse as 'a watercourse that is not part of a main river'. Section 221 of the Water Resources Act 1991 defines a watercourse as including 'all rivers and streams, ditches, drains, cuts, culverts, dikes, sluices, sewers (other than public sewers) and passages through which water flows'. Main rivers are larger rivers and streams designated by Defra on the main river map and are regulated by the Environment Agency.

² Environment Agency (2009) River Basin Management Plan, Thames River Basin District

³ Water Framework Directive – Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, Strasbourg, European Parliament and European Council

2.3 Summary

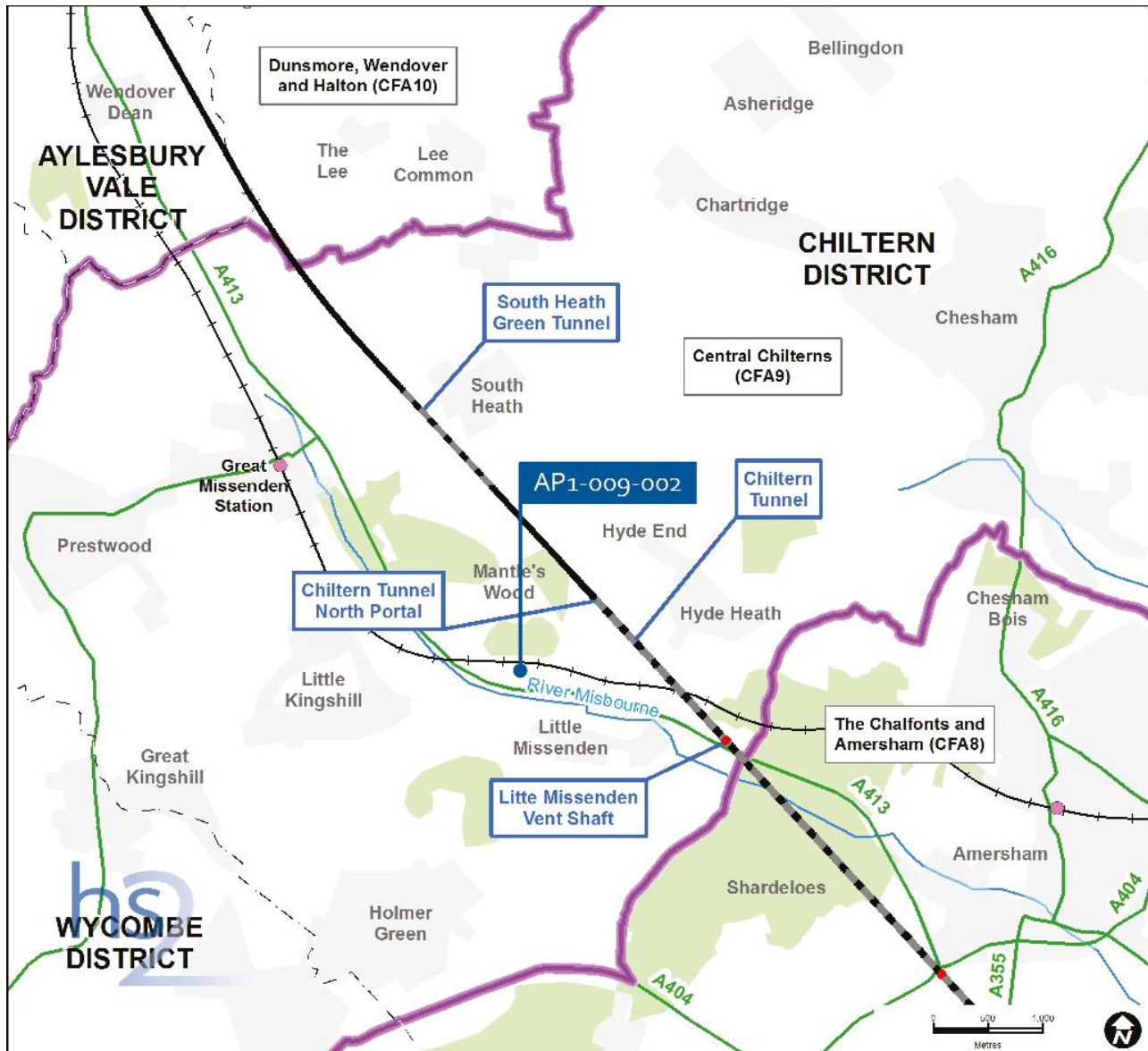
The use of the existing access through Buckinghamshire Golf Club for utility works does not change the significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA Report 7, Colne Valley).

CFA9, Central Chilterns

3 Overview of the amendments

3.1.1 Table 2 provides a summary of the amendments in the Central Chilterns community forum area (CFA9) and Figure 3 shows the locations.

Figure 3: Locations of amendments in the Central Chilterns areas



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Table 2: Summary of amendments in the Central Chilterns Area (CFAg)

CFA	Amendment	Description of the original scheme	Description of the revised scheme
9	Additional land required for construction and maintenance access near No Man's Wood AP1-009-002	The provision of a temporary access track from the A413 for the construction of a balancing pond (for railway drainage) and for the creation of an area of woodland habitat.	The revised scheme will alter the alignment of this access track to the north of the Marylebone to Aylesbury Line. It will provide temporary construction access and permanent maintenance access to the balancing pond and the area of woodland habitat.

4 Additional land required for construction and maintenance access near No Man's Wood (AP1-009-002)

4.1 Overview of amendment

- 4.1.1 The Bill provides for an access track from the A413 for construction of a balancing pond (for railway drainage) and for the creation of an area of woodland habitat. Part of the route of this access track was from the A413 via an existing private access to a property to the south of No Man's Wood (refer to main ES map CT-05-032-L1 in main ES Volume 2, CFA9 Map Book). The remaining length of this track was a new access following the route of an existing equestrian route between No Man's Wood, which is partly designated as ancient woodland, New Firs and John's Plantation.
- 4.1.2 Since submission of the Bill, HS2 Ltd has identified the need for a permanent access to the balancing pond and woodland planting area for maintenance purposes. A revised route for this new access track has been identified parallel and adjacent to the Marylebone to Aylesbury Line (refer to AP map CT-05-032-L1 and CT-06-032-L1 in the AP ES Volume 2, Map Book Part 1). The revised route will reduce disruption to the property to the south of No Man's Wood, the adjacent Valley View Sporting Gun Club and to the ancient woodland of No Man's Wood. The existing access between the A413 and the Marylebone to Aylesbury Line is not of a sufficient standard and width for the construction and maintenance vehicles that will use it. For the revised scheme it will therefore be improved and widened to 3.5m with 1.5m verges on each side and a 1.5m passing bay. The new section of access track parallel to the Marylebone to Aylesbury Line will be of a similar width and construction, also with a 1.5m passing bay.
- 4.1.3 The estimated duration of construction is six months, which is the same as for the original scheme. A 15m-wide strip of land is required for the construction of the works, as in the original scheme. Traffic access from the A413 to the residential property and the shooting club close to the revised access track will be maintained during construction and operation. The land required for the revised route of this widened access track is outside the original limits of the Bill, hence the need for this amendment. The sections of the original access track that are no longer required will be removed from the Bill. Overall an additional area of approximately 1.1 ha will be required for the amendment.
- 4.1.4 The revised new access track 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; land quality; landscape and visual assessment; socio-economics; sound, noise and vibration; traffic and transport; and water resources and flood risk assessment. However there were changes where reassessment was considered to be required in respect of: agriculture, forestry and soils; community; cultural heritage; and ecology.

4.2 Agriculture, forestry and soils

Scope, assumptions and limitations

- 4.2.1 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. The assessment is based on the permanent requirement for an access track with a total width of 6.5m. The amendment will require the permanent use of approximately 0.2ha of agricultural land including the earthworks required, which is more than that required for the original scheme, although along a revised alignment. The access track would also permanently require 0.4ha of woodland from John's Plantation.

Environmental baseline

Existing baseline

- 4.2.2 The area of land affected by the amendment has soil in the Coombe 1 and Frome associations, as described in the main ES (see Volume 2, Central Chilterns (CFA Report 9), Section 3). Coombe 1 soils are well drained (Wetness Class I (WC))⁴ and comprise silty clay loam or clay loam soils overlying chalk. Coombe 1 soils can be very shallow and are variably chalky. Frome soils are also characterised by silty clay loam to silty clay topsoils but are poorly drained (WC IV). The quality of agricultural land affected in this location is assessed as Subgrade 3a, variably due to droughtiness and soil wetness limitations.
- 4.2.3 No details are recorded in the main ES of the holding that will be affected. However, information provided by the landowner since publication of the main ES suggests that the land forms part of a 2oha mainly wooded holding where some limited livestock grazing is undertaken. Farm diversification in the form of a shooting club is also undertaken on the land, as discussed in Section 4.3, Community. The holding is considered to be of medium sensitivity to change, based on the criteria set out in the main ES.

Effects arising during construction

- 4.2.4 The area of agricultural land required for the original scheme is as reported in the main ES. Of the total of 0.2ha of additional land required permanently, approximately 0.1ha of land is classified as Subgrade 3a and thus best and most versatile agricultural land (Grades 1, 2 and 3a). However, the area required does not alter the assessment of effect reported in the main ES (i.e. major/ moderate adverse).
- 4.2.5 The construction of the access track will permanently require approximately 0.3ha from a holding of 2oha. This represents less than 5% of the holding and is an impact of negligible magnitude. The realigned access track will also have less impact on the holding than the previous alignment, since it will be located adjacent to the Marylebone to Aylesbury Line. The magnitude of impact is considered to be negligible such that the effect on the holding is negligible and not significant.

⁴The Wetness Class of a soil is classified according to the depth and duration of waterlogging in the soil profile and has six bands.

4.2.6 The access track would also permanently require 0.4ha of woodland from John's Plantation. The loss of such a small area of woodland does not alter the assessment of effects on forestry reported in the main ES.

4.2.7 The activities at the shooting club will need to be carefully monitored during construction (with appropriate liaison as described in the draft Code of Construction Practice (CoCP) – refer to Volume 5: Appendix CT-003-000 of the main ES) to ensure safe working for all parties.

Effects arising from operation

4.2.8 No additional effects to agriculture, forestry and soil receptors are predicted to arise from operation of the revised scheme.

Mitigation and residual effects

4.2.9 No additional mitigation measures are required. The amendment will not result in additional residual effects on agriculture, forestry or soils.

4.3 Community

Scope, assumptions and limitations

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

Environmental baseline

Existing baseline

4.3.2 The baseline community information for Central Chilterns is described in the main ES (Volume 2, CFA Report 9, Section 5). Valley View Sporting Gun Club was not identified. The Club opened in 1985 and is located off the A413 near Great Missenden, immediately south of No Man's Wood. It uses 11ha of new and mature plantations (Francis and John's Plantations) for clay pigeon shooting, with fixtures held every second Sunday between the end of August and the end of May.

Effects arising during construction

4.3.3 Access to the residential property and the shooting club will not be restricted during construction and the club will not experience any in-combination effects. Therefore, no significant temporary or permanent effects arising from construction of the proposed new access track have been identified.

Effects arising from operation

4.3.4 Access to the residential property and the shooting club will not be restricted during operation and the club will not experience any in-combination effects. Therefore, no significant effects arising from operation of the proposed new access track have been identified.

Mitigation and residual effects

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

4.4 Cultural heritage

Scope, assumptions and limitations

- 4.4.1 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.
- 4.4.2 It has been assumed that topsoil will be removed, as a minimum, for construction of the access track and that all archaeological remains and earthworks within the footprint of the access track will be removed or disturbed.
- 4.4.3 Information on the potential archaeological remains at this location is based on desk-based research (sources including the historic environment record (HER), historic maps and aerial photographs) and non-intrusive surveys comprising LiDAR⁵ and hyperspectral survey.

Environmental baseline

- 4.4.4 The revised scheme will be constructed close to heritage assets assessed as low significance in the main ES. The assets consist of the 18th century turnpike road (asset reference CC008), now the A413 and the existing Marylebone to Aylesbury Line (asset reference CC005). The connection to the former turnpike road is in the same location for the original and revised schemes, although the access track is wider in the revised scheme. The crossing over the Marylebone to Aylesbury Line is also unchanged from the original scheme.
- 4.4.5 The area of revised access track will be located along the northern side of the Marylebone to Aylesbury Line, which originated in the late 19th century as the Great Central Railway Line. The access track will cross a field and will pass along the edge of a woodland plantation. It will not cross the cutting or any other features associated with the 19th century railway line, or any other heritage assets.

Effects arising during construction

- 4.4.6 The revised scheme does not change the result of the assessment or proposed mitigation as set out in the main ES with respect to cultural heritage, as it does not encroach onto any of the heritage assets previously identified.

Effects arising from operation

- 4.4.7 No significant effects arising from operation of the proposed new access track have been identified. The cultural heritage effects arising from operation will therefore be as reported in Volume 2 of the main ES.

Mitigation and residual effects

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

⁵ Light detection and ranging (LiDAR) is a high resolution remote sensing technique to capture 3D data.

4.5 Ecology

Scope, assumptions and limitations

- 4.5.1 The assessment scope for ecology is as set out in Volume 1 of the AP ES. The key assumptions, limitations and the methodology for determining significance of effects 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.
- 4.5.2 The land required for the amendment is bordered by land already within the limits of the Bill and has been subject to desk-based ecological investigations as well as field survey and assessment for flora and fauna.
- 4.5.3 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; Chilterns Conservation Board; North Bucks Bat Group; Berkshire and South Buckinghamshire Bat Group; and Buckinghamshire Amphibian and Reptile Group.
- 4.5.4 To address any limitations in data, a precautionary baseline has been considered, according to the guidance reported in the main ES Volume 5, Appendix CT-001-000/2. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 4.5.5 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.

Environmental baseline

- 4.5.6 A summary of the baseline information relevant to the assessment of the amendment is provided below. For those receptors described in the main ES, further details are provided in Volume 2, CFA9, Section 7.3 and in Volume 5, including Maps EC-01 to EC-12, Ecology Map Book.

Designated sites

- 4.5.7 There are two non-statutory designated local wildlife sites (LWS) between the Marylebone to Aylesbury Line and Hyde Heath Road, located within 500m of the area of the amendment. Mantle's Wood LWS is located approximately 230m east and Hedgemoor and Farthings Wood LWS is approximately 380m north of the amendment. Both LWS are ancient woodlands (with the exception of parts of Hedgemoor Wood) which are assessed in the main ES as being of county/metropolitan value.
- 4.5.8 The Doctor's Meadow Biological Notification Site (BNS) is approximately 250m south of land required for the amendment. This site, crossed by the River Misbourne, is designated for calcareous grassland and contains an area of rough meadow and a disused watercress bed. This BNS is of up to county/metropolitan value.
- 4.5.9 No Man's Wood, an area of approximately 1ha of ancient semi-natural woodland, is located approximately 75m north of the amendment and is of county/metropolitan value.

- 4.5.10 There is no other statutory or non-statutory designated nature conservation site or ancient woodland that is within 500m of the land required for this amendment, or otherwise relevant to the assessment. Statutory and non-statutory designated sites are described in the main ES, Volume 2, CFA9, Section 7 and are shown on the main ES Maps EC-01-017 to EC-01-018, Volume 5, Ecology Map Book.

Habitats

- 4.5.11 The land affected by the revised scheme between the A413 and the Marylebone to Aylesbury Line is semi-improved grassland and was assessed as being of local/parish value within the main ES.
- 4.5.12 The Marylebone to Aylesbury Line passes across the land required for the amendment. To the north of the Marylebone to Aylesbury Line the land required for the amendment is located within approximately 1.0ha of improved grassland and John's Plantation, a 2.6ha broadleaved woodland which qualifies as a habitat of principal importance (lowland mixed deciduous woodland). The improved grassland and broadleaved woodland on land required for the amendment are assessed as part of the same resource of improved grassland and broadleaved woodland identified in the main ES as being of no more than local/parish value.
- 4.5.13 Hedgerows are located 200m to the north and 400m to the west of the revised scheme. The main ES reports that all surveyed hedgerows qualified as habitats of principal importance and the hedgerow network is of district/borough value due to the connectivity that it provides between ancient woodlands such as Farthings Wood and Mantle's Wood. Hedgerows on land required for the amendment are part of the same hedgerow network assessed in the main ES.
- 4.5.14 Habitats surrounding the land required for the amendment are described in the main ES, Volume 2, CFA24, Section 7 and are shown on the main ES Maps EC-01-052 to EC-01-054a, Volume 5, Ecology Map Book.

Protected and/or notable species

- 4.5.15 Desk study data on the land required for the amendment and field surveys undertaken on adjacent land, as reported in the main ES, did not record any protected and/or notable species of flora or fauna.
- 4.5.16 As reported in the main ES, the bat assemblage using the woodland and hedgerows around Mantle's Wood for foraging and commuting is of district/borough value. At its closest point, John's Plantation is approximately 200m west of Mantle's Wood and both sites are connected by broadleaved woodland bordering the Marylebone to Aylesbury Line. The proximity and connectivity of John's Plantation with Mantle's Wood, suggests that the same bat assemblage will utilise the land required for the amendment in John's Plantation as commuting and foraging habitat.
- 4.5.17 As stated in the main ES, it is likely that potential populations of reptiles throughout the area would be of up to district/borough value. Grassland habitat suitable to support reptiles is abundant within the section of land required for the amendment to the south of the Marylebone to Aylesbury Line. If present, the reptile populations on land required for the amendment are assessed as part of the reptile populations identified in the main ES.

- 4.5.18 Locations of species records are illustrated on Maps EC-01 to EC-12, main ES Volume 5, Ecology Map Book.

Effects arising during construction

Avoidance and mitigation measures

- 4.5.19 There are no specific measures included as part of the amendment to avoid or reduce effects to features of ecological value on the land required for the amendment.
- 4.5.20 The assessment assumes implementation of the draft CoCP.

Designated sites

- 4.5.21 The main ES identifies that habitat loss and fragmentation will result in a permanent adverse effect on the integrity of Mantle's Wood LWS that will be significant at the county/metropolitan level. Mantle's Wood LWS is approximately 230m east of the land required for the amendment and no additional significant effects are expected as a result of construction associated with the amendment. The assessment in relation to Mantle's Wood LWS is unchanged by the amendment.
- 4.5.22 The main ES identifies that habitat loss and increased isolation arising from the original scheme will result in a permanent adverse effect on the integrity of the Hedgemoor and Farthings Wood LWS and these effects will be significant at the county/metropolitan level. The amendment will not result in any additional impacts on this site which is approximately 380m from land required for the amendment. The assessment in relation to the Hedgemoor and Farthings Wood LWS is unchanged by the amendment.
- 4.5.23 The main ES confirms that ancient woodland in Mantle's Wood and Farthing's Wood cannot be replaced and habitat loss and fragmentation will result in a permanent adverse effect on the conservation status of areas of ancient woodland that will be significant at county/metropolitan level. As part of the original scheme the access track bordered No Man's Wood. This amendment relocates the access track approximately 75m south of No Man's Wood (ancient woodland). Any change in noise or air pollution associated with the revised scheme will be highly localised and temporary and there will be no effect on the conservation status of this area of woodland.
- 4.5.24 The amendment will not result in an impact on the Doctor's Meadow BNS. This site is 250m south of the land required for the amendment and is separated by the existing highway network.

Habitats

- 4.5.25 The main ES reports that loss of important hedgerow habitat will result in a permanent adverse effect on the conservation status of the hedgerow network that will be significant at the district/borough level. The extent of loss of hedgerow habitat caused by vegetation clearance on land required for the amendment will not change the level at which the effect on the conservation status of the hedgerow network is significant. The assessment in relation to the hedgerow network is therefore unchanged by the amendment.

- 4.5.26 The main ES concludes that it is unlikely that any other effects on habitat receptors, such as John's Plantation, at more than the local/parish level will occur. Loss of up to 0.4ha of deciduous woodland within John's Plantation to the north of the Marylebone to Aylesbury Line associated with the construction of the revised access track will not result in additional adverse effects to those reported in the main ES, significant at the local/parish level.
- 4.5.27 The main ES concludes that it is unlikely that any other effects on habitat receptors, such as grassland, will occur at more than the local/parish level. The amendment will result in the loss of up to 0.3ha of semi-improved grassland within land required for the amendment, to the south of the Marylebone to Aylesbury Line and 0.4ha of improved grassland adjacent to John's Plantation, to the north of the Marylebone to Aylesbury Line. Although construction activities for the revised access track will result in the loss of additional grassland habitat, there will be no change to the adverse effect at the local/parish level, as reported in the main ES.

Species

- 4.5.28 The main ES states that the effects of vegetation clearance on bat commuting and foraging habitat could result in an adverse effect on the bat assemblage of Mantle's Wood that would be significant at the district/borough level. This bat assemblage may utilise habitats within the land required for the amendment for commuting and foraging. Construction activities for the revised access track will result in the loss of up to 0.2ha of suitable habitat in and adjacent to John's Plantation, however woodland edge and verge habitat will be retained along the widened track as a woodland ride. Considering the availability of suitable commuting and foraging habitat within the wider landscape it is unlikely that habitat loss of this extent will change the adverse effect at the district/borough level reported in the main ES.
- 4.5.29 As reported in the main ES, a reduction in the extent of habitat available for foraging and sheltering of common reptile species will result in a permanent adverse effect on the conservation status of reptiles that would be significant at up to the district/borough level. Vegetation clearance as a result of construction activities will remove approximately 0.7ha of grassland habitat within land required for the amendment. Considering the availability of suitable reptile habitat within the wider landscape, habitat loss of this extent is unlikely to result in any change to the effect identified in the main ES.

Mitigation and residual effects

Other mitigation measures

- 4.5.30 No additional or different mitigation is required for the amendment.
- 4.5.31 Mitigation for the additional habitat loss of approximately 0.4ha at John's Plantation will be provided as part of the area of woodland habitat creation, contiguous with John's Plantation, within the land required for construction of the original scheme. As reported in the main ES, 16ha of woodland will be created immediately south of the Chiltern tunnel north portal to link the fragmented southern and western parts of Mantle's Wood LWS with the remaining parts of Hedgemoor and Farthings Wood LWS. The new planting will connect to existing woodland, including John's Plantation, to the south. This area of mitigation woodland is based on a precautionary estimate

and is sufficient in extent to compensate for the loss of additional habitat from John's Plantation resulting from the amendment.

Residual effects

- 4.5.32 The amendment will result in no change in the residual likely significant effects reported in the main ES.

Effects arising from operation

Avoidance and mitigation measures

- 4.5.33 There are no specific measures included as part of the amendment to avoid or reduce impacts to features of ecological value in the area required for the amendment.

Assessment of impacts and effects

- 4.5.34 The main ES reports that it is unlikely that any operational effects on receptors relevant to this amendment will occur at more than the local/parish level. Access to the balancing pond by HGVs on land required for the amendment will result in no additional significant operational effects and will not change the effects reported in the main ES.

Mitigation and residual effects

Other mitigation measures

- 4.5.35 No additional or different mitigation is required for the amendment.

Residual effects

- 4.5.36 The amendment will result in no change in the residual likely significant effects reported in the main ES.

4.6 Summary

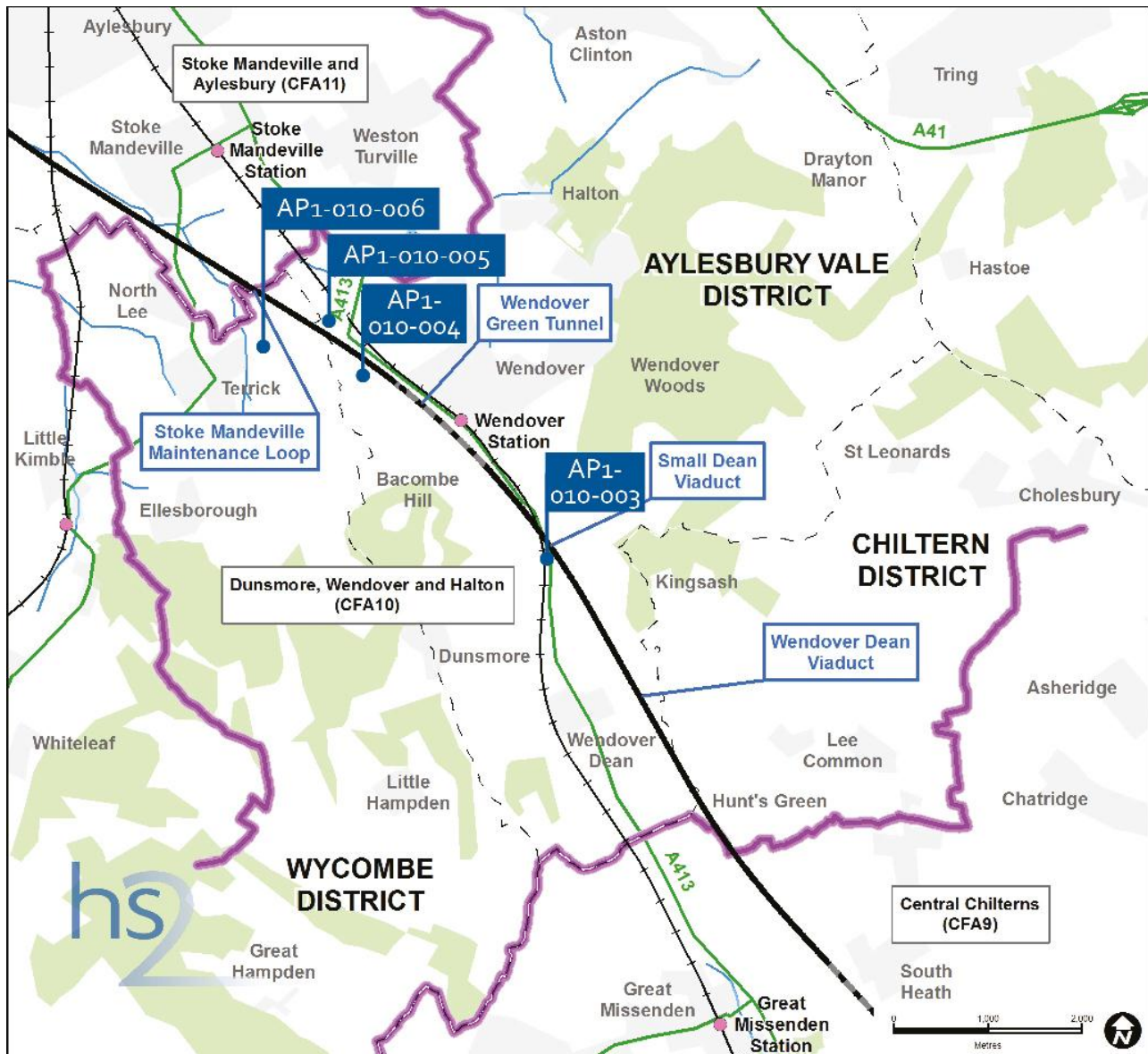
The use of the additional land for construction and maintenance access within John's Plantation and areas of grassland does not change the significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA report 9, Central Chilterns).

CFA10, Dunsmore, Wendover and Halton

5 Overview of the amendments

5.1.1 Table 3 provides a summary of the amendments in the Dunsmore, Wendover and Halton community forum area (CFA10) and Figure 4 shows the locations.

Figure 4: Locations of amendments in the Dunsmore, Wendover and Halton area



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Table 3: Summary of amendments in the Dunsmore, Wendover and Halton area (CFA10)

CFA	Amendments	Description of the original scheme	Description of the revised scheme
10	Additional land required for utility works and access to the south of Small Dean Lane AP1-010-003	The temporary reconductoring (i.e. re-stringing of overhead power lines) as part of the works to realign the 400kV overhead power lines 50m to the south of their existing route south of Wendover.	Additional land is required temporarily to erect scaffolding to support netting over the Marylebone to Aylesbury Line in order to undertake the reconductoring works. Additional land is also required temporarily for a working area to undertake the reconductoring works to the pylon south of Small Dean Lane.
10	Additional land required for utility works to the north of Wellwick Farm AP1-010-004	The temporary diversion, 70m to the south, of the existing 400kV overhead power line, with permanent reinstatement along its existing alignment west of Wendover.	The amendment relates to additional land required temporarily for a working area to undertake the works to one temporary pylon to the north of Wellwick Farm.
10	Change to land required for reconfiguration of road layout of Nash Lee Lane and HS2 maintenance access AP1-010-005	The permanent realignment of Nash Lee Lane and junction with B4009 Nash Lee Road and provision of a junction for maintenance access to the original scheme.	The road layout requires additional land to reconfigure the junction and an amendment on the Bill plans and in the Bill to the description of the work. The Nash Lee Lane access from the B4009 Nash Lee Road has been realigned, providing a gentler curve and flatter gradient. A reconfigured 'T'-junction off Nash Lee Lane will provide safer maintenance access to the original scheme. Maintenance access to the adjacent balancing pond has been relocated. An area of agricultural land south-east of Nash Lee Lane has also been removed from the Bill to allow access between fields adjacent to The Hollies, a residential property.
10	Additional land to erect temporary scaffolding over B4009 Nash Lee Road AP1-010-006	The temporary diversion, 70m to the south, of existing 400kV overhead power lines and pylons, with permanent reinstatement along its existing alignment west of Wendover.	Additional land to erect temporary scaffolding to support netting over B4009 Nash Lee Road and for additional working area to reconductor the overhead power lines along their existing alignment.

6 Additional land required for utility works and access to the south of Small Dean Lane (AP1-010-003)

6.1 Overview of amendment

- 6.1.1 The Bill provides land for the permanent realignment, 50m to the south of the existing alignment, of the 400kV overhead power line and pylons to the west of Small Dean Viaduct (refer to the main ES map CT-05-37 in the main ES Volume 2, CFA10 Map Book). Since submission of the Bill, a requirement has been identified for an additional 0.5ha of land to temporarily erect scaffolding to support netting over the Marylebone to Aylesbury Line to allow the reconductoring (i.e. restringing of the overhead power lines) work to be undertaken safely. An additional area of approximately 0.3ha of land is also required temporarily for a working area around a pylon (see grid reference E7, AP map CT-05-37 in AP ES Volume 2, Map Book Part 1 of 6) which lies immediately to the west of this railway and to the south of Small Dean Lane. The additional land required is outside the original limits of the Bill, hence the need for this amendment.
- 6.1.2 The ground will be prepared before the scaffolding is erected, vegetation will be cleared where necessary and topsoil stripped within the working area and temporarily stored adjacent to the working area for later re-use. The scaffolding will take approximately one to two months to erect. It will be constructed beneath the existing overhead power line that crosses the Marylebone to Aylesbury Line, to protect the railway.
- 6.1.3 The reconductoring involves taking the overhead power line down and replacing it between the existing pylons using winches and a work platform.
- 6.1.4 In the original scheme, a corridor of land 50m wide along the centre line of the conductor route was required. Vegetation will be cleared as necessary to maintain a safe working area and to prevent the conductor being damaged during reconductoring. The scaffolding will extend from above the Marylebone to Aylesbury Line railway to the highest conductors on the pylons. Earthing will be undertaken at all pylons being worked on and three pylons back from the winching pylon. The total duration of the works within the land required for the amendment will be approximately six months. Topsoil will be reinstated at the end of the works.
- 6.1.5 The revised land requirements and restringing are not considered to make changes that require a reassessment of the environmental effects or proposed mitigation as set out in the main ES with respect to: air quality; community; land quality; sound, noise and vibration; socio-economics; traffic and transport; and water resources and flood risk assessment. However there were changes where reassessment was considered to be required in respect of: agriculture, forestry and soils; cultural heritage; ecology; and landscape and visual assessment.

6.2 Agriculture, forestry and soils

Scope, assumptions and limitations

- 6.2.1 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. On completion of the works, the land required for the amendment will be restored to its former agricultural use.

Environmental baseline

Existing baseline

- 6.2.2 The additional area of land affected has soil in the Charity 2 association and comprises well drained (Wetness Class I (WC)⁶) silty loam soils developed in flinty chalky drift, as described in the main ES (see Volume 2, CFA Report 10, Dunsmore, Wendover and Halton, Section 3). The quality of the agricultural land affected is assessed as Subgrade 3a.
- 6.2.3 Two holdings already affected by the original scheme would be further affected by the amendment, namely CFA10/7 (Road Barn Farm) and CFA10/10 (Grove Farm). Road Barn Farm is a 28ha grassland unit that will be affected by demolition and will lose the farmhouse and farm buildings as a result of the original scheme, along with approximately 10.3ha of agricultural land, or 37% of the holding. The effect was reported as moderate adverse in the main ES, since the holding is considered to have a low sensitivity to change.
- 6.2.4 Grove Farm is an 89ha grassland farm used for rearing dairy heifers. It is considered to be of medium sensitivity to change. The main ES reported a minor adverse effect during construction due to an area of land required temporarily for the original scheme of approximately 7.9ha, or 9% of the holding, reducing to a negligible effect once the agricultural land required during construction is restored.

Effects arising during construction

- 6.2.5 The temporary requirement for an additional area of approximately 0.8ha of agricultural land in Subgrade 3a does not change the significance of the effect on best and most versatile (BMV) agricultural land (Grades 1, 2 and 3a) reported in the main ES (i.e. moderate adverse).
- 6.2.6 Road Barn Farm is considered to be of low sensitivity to change since it is a small holding that does not rely on the availability of land for its commercial viability. The temporary requirement for approximately 0.3ha for the working area around the pylon will add to the overall impact of the original scheme but will not alter the significance of effect (moderate adverse).
- 6.2.7 The additional area of land temporarily required from Grove Farm for the revised scheme is approximately 0.5ha for the scaffolding. This will marginally increase the percentage of the holding required during construction by 0.6%. This land requirement is still assessed as a temporary impact of low magnitude, giving a minor adverse temporary effect during construction.

⁶The Wetness Class of a soil is classified according to the depth and duration of waterlogging in the soil profile and has six bands.

Effects arising from operation

- 6.2.8 There are no additional impacts to agriculture, forestry and soil receptors during the operation of the scheme.

Mitigation and residual effects

- 6.2.9 The land required temporarily for construction would be restored to its former agricultural use once the works are completed. The soil handling will involve stripping, storing and reinstating topsoils on land required for the temporary works, following best practice guidance for handling soil set out in the draft Code of Construction Practice (CoCP). Therefore, it is predicted that there will be no residual effects to agriculture, forestry and soil receptors as a result of the additional works required for the revised scheme.

6.3 Cultural heritage

Scope, assumptions and limitations

- 6.3.1 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.
- 6.3.2 It is assumed that topsoil will be removed, as a minimum, for scaffolding areas around each pylon and that all archaeological remains and earthworks within the footprint of the amendment will be removed or disturbed.
- 6.3.3 Information on the potential archaeological remains at this location is based on desk based research (sources including the historic environment record (HER), historic maps and aerial photographs) and non-intrusive surveys comprising LiDAR⁷ and hyperspectral survey.

Environmental baseline

Existing baseline

- 6.3.4 The revised scheme will be constructed close to but outside of the boundary of heritage assets of low significance, associated predominantly with post-medieval or modern agricultural activity. Such assets include the farm complex at Road Barn Farm (asset reference DWH082) and a series of field boundaries (e.g. asset reference DWH068).
- 6.3.5 The part of the revised scheme closest to the farm complex lies approximately 40m to the west. The part of the revised scheme closest to the western end of the field boundary mentioned above is approximately 140m to the north-west. A railway overbridge (DWH151) and a roadside milestone (DWH071) are also in the area, located approximately 170m and 300m, respectively, away from the boundary of the revised scheme.
- 6.3.6 The baseline resources are as described in the main ES (see CFA Report 10, Section 6 and Volume 5 Appendix CH-001-010).

⁷Light detection and ranging (LiDAR) is a high resolution remote sensing technique to capture 3D data.

Effects arising during construction

- 6.3.7 The revised scheme does not change the results of the assessment or mitigation as set out in the main ES with respect to cultural heritage as it does not encroach onto any of the heritage assets previously identified or alter their settings.

Effects arising from operation

- 6.3.8 As the additional land is only needed temporarily for the pylon works there will be no operational effects.

Mitigation and residual effects

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

6.4 Ecology

Scope, assumptions and limitations

- 6.4.1 The assessment scope for ecology is as set out in Volume 1 of the AP ES. The key assumptions and limitations, and the methodology for determining significance of effects are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 6.4.2 The land required for the amendment is bordered by land already within the limits of the Bill which has been subject to desk-based ecological investigations as well as field survey and assessment for flora and fauna.
- 6.4.3 The ecological baseline of the land required for the amendment has therefore been based on field data collated for the main ES on land required for the amendment and adjacent land, 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; Chilterns Conservation Board; North Bucks Bat Group; Berkshire and South Buckinghamshire Bat Group; Buckinghamshire Bird Club; and Buckinghamshire Amphibian and Reptile Group.
- 6.4.4 To address any limitations in data, a precautionary baseline has been considered, according to the guidance reported in the main ES Volume 5: Appendix CT-001-000/2. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 6.4.5 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.

Environmental baseline

- 6.4.6 A summary of the baseline information relevant to the assessment of the amendment is provided below. For those receptors described in the main ES, further details are provided in the main ES Volume 2, CFA10, Section 7.3 and in Volume 5, including Maps EC-01 to EC-12, Ecology Map Book.

Designated sites

- 6.4.7 The grassland at Wendover Rifle Range Biological Notification Site (BNS) (1.8ha) is located approximately 180m north-west of the land required for the amendment. The grassland at Wendover Rifle Range BNS is predominantly species-rich grassland and is of county/ metropolitan value, as reported in the main ES.
- 6.4.8 There are no other statutory designated nature conservation sites or ancient woodland within 500m of the land required for this amendment or otherwise relevant to the assessment. Statutory and non-statutory designated sites are described in the main ES, Volume 2, CFA10, Section 7 and are shown on the main ES Maps EC-01-019 to EC-01-021a, Volume 5, Ecology Map Book.

Habitats

- 6.4.9 The land required for the amendment to the west of the Marylebone to Aylesbury Line comprises a small area of semi-natural broad-leaved woodland, scattered trees and shrubs and an area of semi-improved neutral grassland. These habitats are assessed as part of the woodland, scrub and grassland receptors which are each reported in the main ES as being of local/parish value. The land to the east of the Marylebone to Aylesbury Line that is required for the amendment is predominantly arable and cultivated land and is assessed as part of the arable and cultivated land evaluated in the main ES as being of local/parish value.
- 6.4.10 Habitats surrounding the land required for the amendment are described in the main ES, Volume 2, CFA10, Section 7 and are shown on the main ES Maps EC-03-059b to EC-03-067, Volume 5, Ecology Map Book.

Protected and/or notable species

- 6.4.11 As reported in the main ES, a number of bat populations, ranging from local/parish to county/metropolitan value, were recorded as using the wider landscape for foraging and commuting. The soprano pipistrelle population associated with habitats around Grove Farm is relevant to the assessment of the amendment. It is located approximately 500m north-west of land required for the amendment. Due to the presence of suitable broad-leaved woodland habitat within the amendment area, it is likely that the soprano pipistrelle population will utilise areas of land within this area for commuting and foraging. This bat population is assessed in the main ES as being of local/parish value.
- 6.4.12 Reptile populations on land within and around Wendover Rifle Range BNS are up to county/metropolitan value as reported in the main ES. Land required for the amendment may contain grassland habitat suitable for reptiles. If present, reptiles on land required for the amendment are likely to be part of the reptile populations on land within and around Wendover Rifle Range BNS.
- 6.4.13 Locations of species records are illustrated in the main ES on Maps EC-01 to EC-12, Volume 5, Ecology Map Book.

Effects arising during construction

Avoidance and mitigation measures

- 6.4.14 There are no specific measures included as part of the revised scheme to avoid or reduce impacts to features of ecological value on the land required for the amendment.
- 6.4.15 The assessment assumes implementation of the draft CoCP.

Designated sites

- 6.4.16 The amendment will result in no impacts on sites designated for nature conservation or ancient woodland. There will be no change to the effects reported in the main ES.

Habitats

- 6.4.17 The main ES identified semi-natural broadleaved woodland, shrubs and semi-improved neutral grassland within the land required for the amendment, the loss of which was reported in the main ES as an adverse effect on each receptor at the local/parish level. The extent of additional habitat loss (approximately 0.5ha of arable land on Grove Farm and approximately 0.3ha of grassland with scrub and scattered trees on Road Barn) associated with the construction activities for the amendment is unlikely to result in any change to the level at which these effects are significant.

Species

- 6.4.18 The main ES concludes that no likely significant effects are expected on the soprano pipistrelle population. The extent of habitat loss associated with the construction activities for the amendment (approximately 0.5ha of arable land on Grove Farm and approximately 0.3ha of grassland with scrub and scattered trees on Road Barn Farm) is unlikely to result in any additional effects that would be significant. Since extensive foraging sites will be retained as part of the revised scheme, the loss of habitat is unlikely to result in an adverse effect on the conservation status of the population and there will be no change to the conclusion of the main ES.
- 6.4.19 The main ES concludes that the original scheme would result in a permanent adverse effect on reptile populations in the vicinity of the Wendover Rifle Range BNS, significant at up to county/metropolitan level. While the scale of habitat loss will increase by approximately 0.3ha as a result of the amendment, there will be no change to the likely significant effect reported in the main ES.

Mitigation and residual effects

- 6.4.20 The assessment assumes implementation of the draft CoCP.

Other mitigation measures

- 6.4.21 No additional or different mitigation is required for the amendment.

Residual effects

- 6.4.22 The amendment will result in no change in the residual likely significant effects reported in the main ES.

Effects arising from operation

- 6.4.23 There are no new or different operational effects for ecology as a result of the proposed amendment.

6.5 Landscape and visual assessment

Scope, assumptions and limitations

- 6.5.1 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.

Environmental baseline

Existing baseline

- 6.5.2 The amendment is located within Wendover Gap landscape character area (LCA) and the potential direct effects will be limited to this LCA. The baseline resources are as described in the main ES (Volume 2, CFA Report 10, Section 9.3). Indirect effects on the setting of the adjacent LCA are not anticipated since the revised scheme will not introduce construction activities that are substantially different to those assumed for the original scheme. This amendment is also located within the Chilterns Area of Outstanding Natural Beauty (AONB), the baseline resources for which are described in the main ES (Volume 3, Route-wide effects, Section 2).
- 6.5.3 The landscape around the amendment features a number of visual receptors including residential, recreational and transport receptors. Views east from dwellings on Small Dean Lane (Viewpoint 101.2.004, in the main ES Volume 5, Appendix LV-001-010) overlook the revised scheme from a distance of approximately 500m. The existing view from this location is of a valley with arable farmland on the lower slopes and mature deciduous woodland on the escarpment top. The valley floor has views of the A413, residential properties lining the A413 and the Marylebone to Aylesbury Line. In addition, the overhead power lines and pylons are visible across the middle- and background of the view. The full baseline is described in the main ES, Volume 2, CFA Report 10.

Assessment of temporary impacts and effects

- 6.5.4 The revised scheme will not introduce construction activities that are substantially different to those for the original scheme. The revised scheme will necessitate additional vegetation removal (up to 0.2ha) along the Marylebone to Aylesbury Line and the introduction of scaffolding and netting for a short period. However, this will not alter the major adverse effect reported for the Wendover Gap LCA or the Chilterns AONB in the main ES.
- 6.5.5 Construction activities associated with the amendment, including scaffolding and vegetation removal, will be clearly visible for a short period in the middle ground of views from viewpoint 101.2.004 (main ES, Volume 5, Appendix: LV-001-010), in front of the Marylebone to Aylesbury Line. However, this will represent a barely perceptible increase to the vegetation removal assessed for the original scheme, and will therefore, not alter the major adverse effect reported in the main ES.

Permanent effects arising during operation

- 6.5.6 The additional loss of vegetation caused during construction will represent a barely perceptible change to landscape character and visual receptors during operation, particularly in the context of the wider vegetation loss and effects already reported in the main ES. Therefore, the amendment will not alter the operational effects reported in the main ES which are moderate adverse, Year 15 and minor adverse, year 60.

Mitigation and residual effects

- 6.5.7 No mitigation is considered necessary for this amendment. The mitigation and residual effects will remain as reported in the main ES.

6.6 Summary

- 6.6.1 The use of the additional land for utility works and access to the south of Small Dean Lane does not change the significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA Report 10, Dunsmore, Wendover and Halton).

7 Additional land required for utility works to the north of Wellwick Farm (Amendment AP1-010-004)

7.1 Overview of amendment

- 7.1.1 The Bill provides for the temporary diversion, 70m to the south, of the existing 400kV overhead power lines and pylons west of Wendover, with permanent reinstatement along its existing alignment (refer to main ES map CT-05-039 in main ES Volume 2, CFA10 Map Book). Since submission of the Bill, a requirement has been identified for additional land to erect a temporary pylon south of the A413 Nash Lee Road (see AP map CT-05-039 in AP ES Volume 2, Map Book Part 1). An additional area of approximately 0.3ha of land is required around the pylon as an additional working area. The additional land needed to meet this requirement is not included within the Bill, hence the need for this amendment. The works will require the stripping of vegetation and removal of topsoil. The works are currently planned to start in spring 2018 and are expected to take approximately one year to complete. Topsoil will be temporarily stored adjacent to the working area and will be used to reinstate the area once construction is complete.
- 7.1.2 The temporary use of this additional land 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; and traffic and transport. This amendment is located on the western edge of the Chilterns AONB, however a reassessment of effects or proposed mitigation is not considered necessary for landscape and visual effects, since the baseline resources and predicted effects will remain as described in the main ES (Volume 3, Route-wide effects, Section 2). However, there were changes where reassessment was considered to be required in respect of: agriculture, forestry and soils; cultural heritage; ecology; sound, noise and vibration; and water resources and flood risk assessment.

7.2 Agriculture, forestry and soils

Scope, assumptions and limitations

- 7.2.1 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. On completion of the works the land required for the amendment will be restored to its former agricultural use.

Environmental baseline

Existing baseline

- 7.2.2 The area of land required for the amendment has soil in the Wantage 1 and Block associations, as described in the main ES (Volume 2, CFA Report 10, Section 3). Wantage 1 soils comprise well drained (WC I) silty clay loam soils developed over chalk. Block soils are moderately well drained (WC II) and comprise clay loam and sandy clay loam profiles. The quality of land affected is assessed as Grade 2 to Subgrade 3a.
- 7.2.3 Wellwick Farm (CFA10/12), already affected by the original scheme, will be further affected by this amendment. Wellwick Farm is an 81ha arable and equestrian unit that is considered to be of medium sensitivity to change. The main ES reported a major/moderate adverse effect during construction due to an area of land loss of 25.6ha or 32% of the holding, reducing to a moderate adverse effect once the agricultural land required during construction is restored.

Effects arising during construction

- 7.2.4 The temporary requirement for a further 0.3ha of agricultural land in Grade 2 or Subgrade 3a does not change the significance of the effect on agricultural land as reported in the main ES (i.e. moderate adverse).
- 7.2.5 For Wellwick Farm, the area of additional land will increase the percentage of the holding required during construction to 33%. This does not, however, alter the major/moderate temporary effect of the original scheme during construction. The permanent impact arising from the loss of land reported in the main ES will not be altered as no land is required permanently for this amendment.

Effects arising from operation

- 7.2.6 There are no additional impacts to agriculture, forestry and soil receptors during operation of the scheme.

Mitigation and residual effects

- 7.2.7 The land required temporarily for construction will be restored to its former agricultural use once the works are completed. The soil handling will involve stripping, storing and reinstating topsoils on land required for the temporary works, following best practice guidance for handling soil set out in the draft CoCP. The amendment will result in no change in the residual likely significant effects reported in the main ES.

7.3 Cultural heritage

Scope, assumptions and limitations

- 7.3.1 The assessment scope, key assumptions and limitations for cultural heritage are as set out 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.
- 7.3.2 It is assumed that topsoil will be removed, as a minimum, for construction of the revised scheme and that all archaeological remains and earthworks within the footprint of the amendment will be removed or disturbed.
- 7.3.3 Information on the potential archaeological remains at this location is based on desk based research (sources including the Buckinghamshire historic environment record (HER), historic maps and aerial photographs) and non-intrusive surveys comprising LiDAR and hyperspectral survey.

Environmental baseline

Existing baseline

- 7.3.4 The amendment is located close to potential heritage assets of high significance, dating from the prehistoric, Roman, medieval and post-medieval periods (asset reference DWH111).
- 7.3.5 Fieldwalking and metal-detecting surveys over a number of years across the area to the east of Wellwick Farm and north of Conecroft Farm (to the south of the revised scheme) has yielded artefactual evidence which may indicate a former Romano-British villa site or possible Romano-British trackway. Evidence for Roman period settlement and occupation of this area was strengthened by the discovery and excavation of a human cremation burial of this date within the area. The area to the east of Wellwick Farm has been assigned as an archaeological notification area by Buckinghamshire County Council on this basis.
- 7.3.6 These baseline resources are as described in the main ES (Volume 2, CFA Report 10, Section 6.3) and Maps CH-01-031 and CH-01-0033 (Volume 5, Cultural Heritage Map Book).

Effects arising during construction

- 7.3.7 The main ES reported that landscaping associated with the original scheme would remove approximately 25% of the area of artefactual evidence (asset reference DWH111) which has been identified as an area of high archaeological significance. This has been assessed as a medium adverse impact, with a major adverse effect.
- 7.3.8 The revised scheme will temporarily require additional land which will further impact this area of archaeological interest. The southern corner of this expanded area of land required lies approximately 35m to the north-west of the Buckinghamshire County Council archaeological notification area.
- 7.3.9 The revised scheme does not change the result of the assessment or mitigation set out in the main ES with respect to cultural heritage as it will not encroach onto any of the heritage assets previously identified or have an effect on their setting.

Effects arising from operation

- 7.3.10 The temporary nature of the amendment means there will be no operational effects.

Mitigation and residual effects

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

7.4 Ecology

Scope, assumptions and limitations

- 7.4.1 The assessment scope for ecology is as set out in Volume 1 of the AP ES. The key assumptions and limitations, and the methodology for determining significance of effects are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 7.4.2 The land required for the amendment is adjacent to land already within the limits of the Bill and has been subject to desk-based ecological investigations as well as field survey and assessment for flora and fauna.
- 7.4.3 The ecological baseline of the land required for the amendment has therefore been based on field data collated for the main ES on land within the amendment area and adjacent land, 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; Chilterns Conservation Board; North Bucks Bat Group; Berkshire and South Buckinghamshire Bat Group; Buckinghamshire Bird Club; and Buckinghamshire Amphibian and Reptile Group.
- 7.4.4 To address any limitations in data, a precautionary baseline has been considered, according to the guidance reported in the main ES Volume 5: Appendix CT-001-000/2. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 7.4.5 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.

Environmental baseline

- 7.4.6 A summary of the baseline information relevant to the assessment of the amendment is provided below. For those receptors described in the main ES, further details are provided in Volume 2, CFA10, Section 7.3 and in Volume 5, including Maps EC-01 to EC-12, Ecology Map Book.

Designated sites

- 7.4.7 There are no statutory or non-statutory designated nature conservation sites or ancient woodland within 500m of the land required for this amendment or otherwise relevant to the assessment. Statutory and non-statutory designated sites in the wider local area are described in the main ES, Volume 2, CFA10, Section 7 and are shown in the main ES on Maps EC-01-019 to EC-01-021a, Volume 5, Ecology Map Book.

Habitats

- 7.4.8 The land required for the amendment comprises arable habitat located north-west of Wellwick Farm and south of the Marylebone to Aylesbury Line. The area is assessed as being of local/parish value in the main ES.
- 7.4.9 Habitats surrounding the land required for the amendment are described in the main ES, Volume 2, CFA10, Section 7 and are shown on Maps EC-03-059b to EC-03-067, Volume 5, Ecology Map Book.

Protected and/or notable species

- 7.4.10 Desk study data on the land required for the amendment and field surveys undertaken on land within the area of the amendment, as reported in the main ES, did not record any protected and/or notable species of flora or fauna.
- 7.4.11 The main ES identified a population of great crested newt with a peak count of 15 individuals (a medium population size class) in one of three ponds surveyed at Wellwick Farm, 400m south-west of the land required for the amendment. Great crested newt were confirmed as absent in two other ponds surveyed at Wellwick Farm within 300m of the land required for the revised scheme. The ponds are isolated from other water bodies but surrounded by grassland and woodland suitable for this species during its terrestrial phase. This population is identified in the main ES as being of county/metropolitan value.
- 7.4.12 The locations of species records are illustrated in the main ES on Maps EC-01 to EC-12, Volume 5, Ecology Map Book.

Effects arising during construction

Avoidance and mitigation measures

- 7.4.13 There are no specific measures included as part of the revised scheme to avoid or reduce impacts to features of ecological value on the land required for the amendment.
- 7.4.14 The assessment assumes implementation of appropriate mitigation measures described within the draft CoCP.

Designated sites

- 7.4.15 The amendment will not result in any additional impacts on statutory designated sites for nature conservation as none are located within 500m of the land required for the amendment.

Habitats

- 7.4.16 As reported in the main ES, it is considered unlikely that adverse effects on arable land will occur at more than the local/parish level. The loss of an additional area of 0.3ha of arable land as a result of construction activities within the additional land required does not change the level of significance of the effects reported in the main ES.

Species

- 7.4.17 The main ES reports that no likely significant effects are expected on the great crested newt populations at Wellwick Farm. The ponds at Wellwick Farm are isolated from the

amendment area by intervening agricultural land which is considered to be sub-optimal terrestrial habitat for great crested newts. As a result, construction on land required for the amendment will not result in any adverse impacts on these populations and will not change the effects reported in the main ES.

Mitigation and residual effects

Other mitigation measures

7.4.18 No additional or different mitigation is required for the amendment.

Residual effects

7.4.19 The amendment will result in no change in the likely residual significant effects reported in the main ES.

Effects arising from operation

7.4.20 There are no new or different operational effects for ecology as a result of the proposed amendment, as compared with the main ES.

7.5 Sound, noise and vibration

Scope, assumptions and limitations

7.5.1 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES. The assessment was undertaken for the construction phase only. The temporary diversion of the overhead power lines was not assessed for the main ES. It has been assumed that the construction works will remain unchanged from those reported in the main ES (see Volume 2, CFA Report 10, Section 11) with the exception of the works related to the temporary pylon diversion, which was part of the original scheme, and the additional site area required for the amendment.

Environmental baseline

Existing baseline

7.5.2 The baseline sound, noise and vibration information for CFA10 will not change as a result of this amendment. The baseline is described in the main ES (Volume 5 Appendix SV-002-010) at Ellesborough Road, Wendover (assessment location 357730).

Effects arising during construction

7.5.3 Site preparation (including site clearance) will be the main noise-generating phase of works for the revised scheme.

7.5.4 The closest sensitive receptors to the works are residential properties, such as Wellwick Farm, located to the south of the work site and are represented by receptors at Ellesborough Road, Wendover (assessment location 357730, refer to main ES Volume 5: Appendix SV-002-010).

7.5.5 The works for the original and revised scheme do not represent a substantial intensification of the works reported in the main ES. Due to this and the lack of

proximity to the nearest noise sensitive receptor, the outcomes of the assessment reported in the main ES remain unchanged.

Mitigation and residual effects

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

7.6 Water resources and flood risk assessment

Scope, assumptions and limitations

- 7.6.1 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. The temporary diversion of the overhead power lines was not assessed for water resources and flood risk assessment in the main ES. Further information has now been provided to enable this temporary diversion to be assessed. The following has been assumed in undertaking the assessment:
- the depths of the piled foundations for the temporary pylons will be determined once ground investigations are complete; for this assessment the pile depth is assumed to be up to 30m; and
 - all but the top 2m of the pile foundations for the temporary pylons will remain after the pylons have been dismantled.

Environmental baseline

Existing baseline

- 7.6.2 The baseline water resources and flood risk information for the Dunsmore, Wendover and Halton area is described in the main ES (Volume 2, CFA Report 10, Section 13).
- 7.6.3 There are no surface water bodies within the additional area required for the revised scheme.
- 7.6.4 The sites for the two new temporary pylons (included in the original scheme) are underlain by Cretaceous Chalk, the Zig Zag Chalk Formation and West Melbury Marly Chalk Formation (Grey Chalk Subgroup) comprising blocky chalk with marls, with occasional hard limestone. The formation is classified as Principal Aquifer. The Chiltern Chalk Scarp groundwater body is largely classified as having 'Poor' status⁸. Below the Chalk is the Undifferentiated Cretaceous Gault and Upper Greensand Formation comprising mudstone, siltstone and sandstone and is classified as Unproductive strata.
- 7.6.5 The direction of groundwater flow in the vicinity of the amendment is generally towards the north-west.
- 7.6.6 There are no licensed groundwater abstractions and no reported private, unlicensed groundwater abstractions in this area as set out in main ES Volume 5: Appendix WR-002-010. There is the potential for unlicensed abstractions to exist, as a licence is not required for abstraction volumes below 20m³ per day.

⁸ Environment Agency (2009) River Basin Management Plan, Thames River Basin District

7.6.7 There are no known springs and no known water dependent habitats in the area.

7.6.8 Flood risk is as described in the main ES (Volume 2, CFA Report 10, Section 13).

Effects arising during construction

7.6.9 Piling for the foundations of the pylons in the original scheme has been assessed to be up to 30m in depth and is likely to fully penetrate the thickness of the Chalk into the Undifferentiated Gault/Greensand Formation. Although the piles may disrupt groundwater flow locally, the change in regional flows will be negligible. Any reduction in flow immediately down the hydraulic gradient of the piles is unlikely to impact the springs and surface water features to the north of the Wendover cutting as all groundwater within the zone of influence of the cutting will be intercepted by drainage in the cutting. The additional land required for the amendment does not change this conclusion.

7.6.10 The 400kV overhead power line will be reinstated along its original alignment after two years although the lower part of the foundation piles will remain in place. Therefore, there will be no permanent significant effect on any water receptors.

Effects arising from operation

7.6.11 The temporary diversion and amendment do not change the significance of the effects reported in Volume 2 of the main ES.

Mitigation and residual effects

7.6.12 The draft CoCP sets out the measures and standards of work that will be applied to the construction of the original scheme (see the main ES, Volume 5, Appendix CT-003-000). These will provide effective management and control of the impacts during the construction period and therefore there will be no significant residual effects.

Volume 5 amendments

7.6.13 Table 4 sets out the additions to the main ES, Volume 5, Appendix, WR-002-010, Water Resources Assessment.

Table 4: Additions to Volume 5, Appendix: WR-002-010, Water Resources Assessment

Receptor	Receptor value	Design element	Discussion of potential impact to water receptor	Magnitude of potential impact	Avoidance and mitigation measures included in design	Magnitude of remaining impact and effect	Other mitigation measures	Residual effect	Duration of effect
Chalk Principal Aquifer	High	Two temporary pylons on <30m deep piled foundations	Although some localised groundwater flow will be disrupted it is unlikely to significantly impact groundwater flow within the aquifer regionally.	Minor impact Slight effect (Not significant)	With implementation of the draft CoCP (Sections 12 and 16) groundwater quality and flow in the Chalk are unlikely to be significantly impacted by construction in this area.	Negligible impact Neutral effect (Not significant)	None	Negligible impact Neutral effect (Not significant)	Construction (temporary)

7.7 Summary

- 7.7.1 The temporary diversion of the existing 400kV overhead power line and use of the additional land to the north of Wellwick Farm does not change the significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA Report 10, Dunsmore, Wendover and Halton).

8 Change to land required for reconfiguration of road layout of Nash Lee Lane and HS2 maintenance access (AP1-010-005)

8.1 Overview of amendment

- 8.1.1 The Bill provides for the permanent realignment of Nash Lee Lane and its junction with B4009 Nash Lee Road and the provision of a junction for a maintenance access to the original scheme (refer to main ES maps CT-05-039, CT-05-040a and CT-06-039 in Volume 2, CFA10 Map Book). A Stage 1 Road Safety Audit⁹ subsequently indicated that the junction for the maintenance access, a crossroads, would be confusing for road users due to the retention of the redundant arm of Nash Lee Lane. A reconfigured road layout – a 'T' junction – is proposed with the major road in the junction being Nash Lee Lane and the minor road being the maintenance access to the original scheme (refer to AP maps CT-05-039, CT-05-040a and CT-06-039 in AP ES Volume 2, Map Book) Part 1 of 6).
- 8.1.2 The Nash Lee Lane access from the B4009 Nash Lee Road has been realigned on a gentler curve and shallower gradient to improve safety. The revised scheme will have a maximum gradient of 5%, compared to a maximum gradient of 8% stated in the main ES. The reconfigured road layout requires an additional land area of approximately 0.3ha and an amendment to the description of the work in the Bill, hence the need for this amendment. In addition, agricultural land has been taken out of the Bill, comprising an area of 100m² south-east of Nash Lee Lane, to allow landowner access between fields adjacent to The Hollies. The duration of the revised scheme will be the same as that for the original scheme.
- 8.1.3 The revised road layout 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: agriculture, forestry and soils; air quality; community; ecology; land quality; socio-economics; sound, noise and vibration; traffic and transport; and water resources and flood risk assessment. However there were changes where reassessment was considered to be required in respect of: cultural heritage and landscape and visual assessment.

⁹ Stage 1 Road Safety Audits are undertaken at the completion of preliminary design stage of a project.

8.2 Cultural heritage

Scope, assumptions and limitations

- 8.2.1 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.
- 8.2.2 It is assumed that topsoil will be removed, as a minimum, for construction of the revised scheme and that all archaeological remains and earthworks within the footprint of the amendment would be removed or disturbed.
- 8.2.3 Information on the potential archaeological remains at this location is based on desk based research (sources including the historic environment record (HER), historic maps and aerial photographs) and non-intrusive surveys comprising LiDAR and hyperspectral survey.

Environmental baseline

Existing baseline

- 8.2.4 The revised scheme is located close to potential archaeological deposits of moderate value. This comprises the route of the prehistoric and possibly also Roman period Lower Icknield Way (asset reference DWH129) which is broadly followed by Nash Lee Road. The line of the Lower Icknield Way is uncertain in this area but it is possible that the former routeway runs through the area of additional land required. There is also potential for the remains of Roman roadside settlement or activity associated with the Lower Icknield Way to be present in this location.
- 8.2.5 The amendment is also adjacent to two further heritage assets assessed as being of low value comprising two post-medieval or early field boundaries depicted on Enclosure maps of 1805 (asset reference DWH137-8). DWH137 is aligned with Nash Lee Road and DWH138 is aligned with the trackway that leads north-westwards from the road, along the western side of the property named Bon Accord.
- 8.2.6 The baseline resource is as described in the main ES (see CFA10, section 6 and Volume 5 Appendix CH-001-010).

Effects arising during construction

- 8.2.7 The land required for the amendment includes part of the modern road itself, as well as a small amount of land on the northern side and a larger area of land on the southern side. The revised scheme will remove a small portion of the Lower Icknield Way (asset reference DWH129) and associated archaeological deposits if they survive in this location. The overall impact on this asset of moderate value is minor adverse as only a small part of the routeway would be removed by the revised scheme. This would constitute a minor adverse effect which is not significant.
- 8.2.8 The reconfigured road layout does not change the result of the assessment or proposed mitigation set out in the main ES with respect to assets DWH137 and DWH138 as it does not encroach onto either of these heritage assets identified or have an effect on their setting.

Effects arising from operation

- 8.2.9 Operational effects were previously assessed as having a neutral effect on these heritage assets. There will be no change to the operational effects as a result of this amendment.

Mitigation and residual effects

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

8.3 Landscape and visual assessment

Scope, assumptions and limitations

- 8.3.1 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.

Environmental baseline

Existing baseline

- 8.3.2 The amendment is located within the Southern Vale LCA and Longwick Vale LCA. Any potential direct/indirect impacts associated with this amendment will be limited to these two LCAs. The baseline for these receptors is as described in the main ES (Volume 2, CFA Report 10, Section 9.3).
- 8.3.3 The amendment will be visible within views from residential receptors on Nash Lee Lane, Wendover (Viewpoint 108.2.001, Volume 5: Appendix LV-001-010). The visual baseline description for this receptor is as described in the main ES.

Assessment of temporary impacts and effects

- 8.3.4 The amendment will not introduce construction activities that are substantially different to those for the original scheme. The moderate adverse effects will therefore be as reported for Southern Vale LCA, Longwick Vale LCA and Viewpoint 108.2.001 in the main ES.

Permanent effects arising during operation

- 8.3.5 The revised scheme will involve a slight change in design from a crossroad to a T-junction and will therefore not result in a change to the operational effects reported for the original scheme for Southern Vale LCA and Longwick Vale LCA in the main ES.
- 8.3.6 The revised junction will be clearly visible within the foreground of the view from Viewpoint 108.2.001. This will be visible in place of the crossroad junction presented in the original scheme. Additional vegetation loss in the foreground will be clearly visible and will open up views to the B4009 Nash Lee Road overbridge in the middle ground. This will represent a worsening of visual effects from viewpoint 108.2.001, however, as the effects reported in the main ES were major adverse, the amendment will not alter the level of significance of effect reported in the main ES). The view of the revised scheme from this location during the winter of year 1 of operation is illustrated on the photomontage shown in Figure LV-01-058 (AP ES, Volume 2, CFA10 Map Book Part 1).

Mitigation and residual effects

8.3.7 The mitigation and residual effects will be as described in the main ES.

8.4 Summary

8.4.1 The change to land required for the reconfiguration of the road layout of Nash Lee Lane and the HS2 maintenance access does not change the significance of the environmental effects or mitigation as set out in the main ES (Volume 2, CFA Report 10).

9 Additional land to erect temporary scaffolding over B4009 Nash Lee Road (AP1-010-006)

9.1 Overview of amendment

- 9.1.1 The Bill provides for the temporary diversion, 70m to the south, of the existing 400kV overhead power lines and pylons west of Wendover for a period of approximately two years, with permanent reinstatement along its existing alignment (refer to Section 7 and to main ES map CT-05-040a in main ES Volume 2, CFA10 Map Book). Since submission of the Bill, a requirement has been identified for additional land temporarily for a working area to erect scaffolding to support netting over the B4009 Nash Lee Road. The temporary scaffolding and netting is required to allow reconductoring (i.e. restringing of the lines) work to be undertaken safely at a pylon located south of and adjacent to the B4009 Nash Lee Road (refer to AP map CT05-040a in AP ES Volume 2 Map Book Part 1 of 6). A total of approximately 0.5ha of additional land is required outside the land required within the Bill for these works. The total standard working area around pylons of 1ha has been reduced in this instance to ensure it does not encroach on the private access to Flint Cottage. The additional land was not included within the Bill, hence the need for this amendment. The private access and the road will remain open, with temporary measures used to control traffic on the B4009 Nash Lee Road during the scaffolding works. The works are anticipated to start in autumn 2017 and are expected to take one year to complete.
- 9.1.2 The ground will be prepared before the scaffolding is erected, vegetation will be cleared where necessary, topsoil stripped within the working area and temporarily stored adjacent to the working area for later re-use. The scaffolding will take approximately one to two months to erect. The working area will be restored to its former use once construction is complete.
- 9.1.3 The revised additional land is not considered to make changes that require a reassessment of the environmental effects or mitigation as set out in the main ES with respect to: agriculture, forestry and soils; air quality; community; land quality; landscape and visual assessment; socio-economics; traffic and transport. However, there were changes where reassessment was considered to be required in respect of: cultural heritage; ecology; sound, noise and vibration; and water resources and flood risk assessment.

9.2 Cultural heritage

Scope, assumptions and limitations

- 9.2.1 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.
- 9.2.2 It is assumed that topsoil will be removed, as a minimum, for construction of the revised scheme and stockpiled for subsequent re-use and that all archaeological remains and earthworks within the footprint of the amendment would be removed or disturbed.
- 9.2.3 Information on the potential archaeological remains at this location is based on desk based research (sources including the historic environment record (HER), historic maps and aerial photographs) and non-intrusive surveys comprising LiDAR and hyperspectral survey.

Environmental baseline

- 9.2.4 The revised scheme is located close to but outside of an area of potential archaeological deposits of moderate significance. This comprises the probable former location of the medieval settlement of Nash Lee Green, which has been identified from the remains of a moated site on the southern side of the road, as well as a concentration of medieval artefact recovery in the area (asset reference DWH132). Pottery and worked flints of prehistoric date have also been retrieved from this location. The northern edge of the amendment ends approximately 14m to the south of this heritage asset.
- 9.2.5 The baseline resource is as described in the main ES (see CFA Report 10, Section 6 and Volume 5 Appendix CH-001-010).

Effects arising during construction

- 9.2.6 As noted above, the revised scheme does not extend into the area of the heritage asset DWH132 and as such there is no further impact on it. Therefore the revised scheme does not change the result of the assessment or mitigation as set out in the main ES with respect to cultural heritage.

Effects arising from operation

- 9.2.7 The temporary nature of the additional land required during the works to the pylon close to Flint Cottage means there will be no operational effects.

Mitigation and residual effects

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

9.3 Ecology

Scope, assumptions and limitations

- 9.3.1 The assessment scope for ecology is as set out in Volume 1 of the AP ES. The key assumptions and limitations, and the methodology for determining significance of

effects are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

- 9.3.2 The additional land for the amendment is adjacent to land already within the limits of the Bill which has been subject to desk-based ecological investigations as well as field survey and assessment for flora and fauna.
- 9.3.3 The ecological baseline of the land for the amendment has therefore been based on field data collated for the main ES on land within the amendment area and adjacent land, aerial photography and relevant existing information gathered from national organisations and from regional and local sources including: the Environment Agency; Buckinghamshire and Milton Keynes Environmental Records Centre; Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust; Chilterns Conservation Board; North Bucks Bat Group; Berkshire and South Buckinghamshire Bat Group; Buckinghamshire Bird Club; and Buckinghamshire Amphibian and Reptile Group.
- 9.3.4 To address any limitations in data, a precautionary baseline has been considered, according to the guidance reported in the main ES Volume 5: Appendix CT-001-000/2. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 9.3.5 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.

Environmental baseline

- 9.3.6 A summary of the baseline information relevant to the assessment of the amendment is provided below. For those receptors described in the main ES, further details are provided in Volume 2, CFA10, Section 7.3 and in Volume 5, including Maps EC-01 to EC-12, Ecology Map Book.

Designated sites

- 9.3.7 There are no statutory or non-statutory designated nature conservation sites or ancient woodland within 500m of the land required for this amendment or otherwise relevant to the assessment. Statutory and non-statutory designated sites are described in the main ES, Volume 2, CFA10, Section 7.3 and are shown on main ES Maps EC-01-019 to EC-01-021a, Volume 5, Ecology Map Book.

Habitats

- 9.3.8 The habitat south of Nash Lee Road is predominantly arable land with scattered trees and shrubs; the area north of Nash Lee Road is amenity grassland. These areas are part of the wider resource of arable land and amenity grassland which are each identified as being of local/parish value in the main ES.

Protected and/or notable species

- 9.3.9 As reported in the main ES, a number of bat species use the wider landscape for foraging and commuting. The bat populations relevant to this assessment are the noctule bat population at the orchard north of Nash Lee Road and the common pipistrelle population surveyed west of Wendover, both of which are assessed in the main ES as being of district/borough value. The land required for the amendment is located within a wider area, identified in the main ES, as suitable commuting and foraging habitat for these populations.

- 9.3.10 The main ES identified a population of great crested newt (medium size class) in a pond located at Wellwick Farm, 500m south-east of land required for the amendment. This population is assessed in the main ES as being of county/metropolitan value. This breeding pond is isolated by intervening agricultural land and the existing highway network.
- 9.3.11 Locations of species records are illustrated in the main ES on Maps EC-01 to EC-12, Volume 5, Ecology Map Book.

Effects arising during construction

Avoidance and mitigation measures

- 9.3.12 There are no specific measures included as part of the amendment to avoid or reduce impacts to features of ecological value on the land for the amendment.
- 9.3.13 The assessment assumes implementation of appropriate mitigation measures described within the draft CoCP.

Designated sites

- 9.3.14 The revised scheme will not result in any additional impacts on statutory designated sites for nature conservation as none are located within 500m of land required for the amendment.

Habitats

- 9.3.15 The main ES reports that the loss of arable land, scattered trees and shrub associated with the original scheme will result in effects on conservation status at up to local/parish level. The loss of a further 0.5ha of arable habitat associated with the construction activities for the amendment does not change the level of significance reported in the main ES.

Species

- 9.3.16 The main ES reports that no likely significant adverse effects are expected on the noctule population at the orchard north of Nash Lee Road or the common pipistrelle population west of Wendover. The extent of vegetation clearance within the land required for the amendment (0.5ha of arable land) is unlikely to impact commuting and foraging habitat of bat populations in the wider area. The amendment will therefore not result in any effect on the conservation status of these bat populations and will not change the effects reported in the main ES.
- 9.3.17 The main ES reports that no likely significant effects are expected on the great crested newt populations at Wellwick Farm. The ponds at Wellwick Farm are isolated from the amendment area by intervening agricultural land which is considered to be sub-optimal terrestrial habitat for great crested newts. Therefore, construction on land required for the amendment will not have any effect on the conservation status of these populations and will not change the effects reported in the main ES.

Mitigation and residual effects

Other mitigation measures

- 9.3.18 No additional or different mitigation is required for the amendment.

Residual effects

- 9.3.19 The amendment will result in no change in the residual likely significant effects reported in the main ES.

Effects arising from operation

- 9.3.20 There are no new or different operational effects for ecology as a result of the proposed amendment.

9.4 Sound, noise and vibration

Scope, assumptions and limitations

- 9.4.1 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES. The assessment was undertaken for the construction phase only as the amendment does not affect operational noise. It has been assumed that the construction works will remain unchanged from those reported in the main ES, with the exception of the works related to the diversion and additional site area.

Environmental baseline

Existing baseline

- 9.4.2 The baseline sound, noise and vibration information for CFA10 will not change as a result of this amendment. The baseline is described in the main ES (Volume 5: Appendix SV-002-010).

Effects arising during construction

- 9.4.3 Site preparation (including site clearance) will be the main noise-generating phase of works for the revised scheme.
- 9.4.4 The closest sensitive receptors to the works are residential properties located to the south of the work site and are represented by assessment location 314625 (refer to main ES map SV-03-020 in main ES Volume 5, Sound, Noise and Vibration Map Book - Country South).
- 9.4.5 The works for the revised scheme do not represent a significant intensification of the works reported in the main ES, given the short duration and the size of the area of the works. Therefore, the outcome of the assessment reported in the main ES remains unchanged.

Mitigation and residual effects

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

9.5 Water resources and flood risk assessment

Scope, assumptions and limitations

- 9.5.1 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. It has been assumed that no diversion of the Chalkshire Stream is required.

Environmental baseline

Existing baseline

- 9.5.2 The baseline water resources and flood risk information for the Dunsmore, Wendover and Halton area is described in the main ES (Volume 2, CFA Report 10, Section 13).
- 9.5.3 The Chalkshire Stream, a tributary of the Stoke Brook, is crossed by the land required for the revised scheme. The Chalkshire Stream is a Main River. Its current overall status¹⁰ under the Water Framework Directive (WFD) is assumed to be Moderate, while the objective for 2027 is Good Potential/Status. The site is underlain by the Undifferentiated Cretaceous Gault and Upper Greensand Formation comprising mudstone, siltstone and sandstone and classified as Unproductive strata. The direction of groundwater flow in the vicinity of the amendment is generally towards the north-west.

Effects arising during construction

- 9.5.4 The land to be used for this amendment does not involve any additional below ground works that will penetrate the natural strata. The assessment confirms the conclusion in Volume 2 of the main ES that there will be no likely significant temporary adverse effects on water resources or flood risk.
- 9.5.5 The 400kV overhead power line will be reinstated along its original alignment after two years. Therefore, there will be no permanent significant effect on any water receptors.

Effects arising from operation

- 9.5.6 The amendment does not change the assessment reported in Volume 2 of the main ES.

Mitigation and residual effects

- 9.5.7 The draft CoCP sets out the measures and standards of work that will be applied to the construction of the original scheme (see the main ES, Volume 5, Appendix CT-003-000). These will provide effective management and control of the impacts during the construction period. There will be no change to the mitigation and residual effects as reported in the main ES.

9.6 Summary

The additional land to erect temporary scaffolding to support netting over the B4009 Nash Lee Road does not change the significance of the environmental effects or mitigation as set out in the main ES (Volume 2, CFA Report 10).

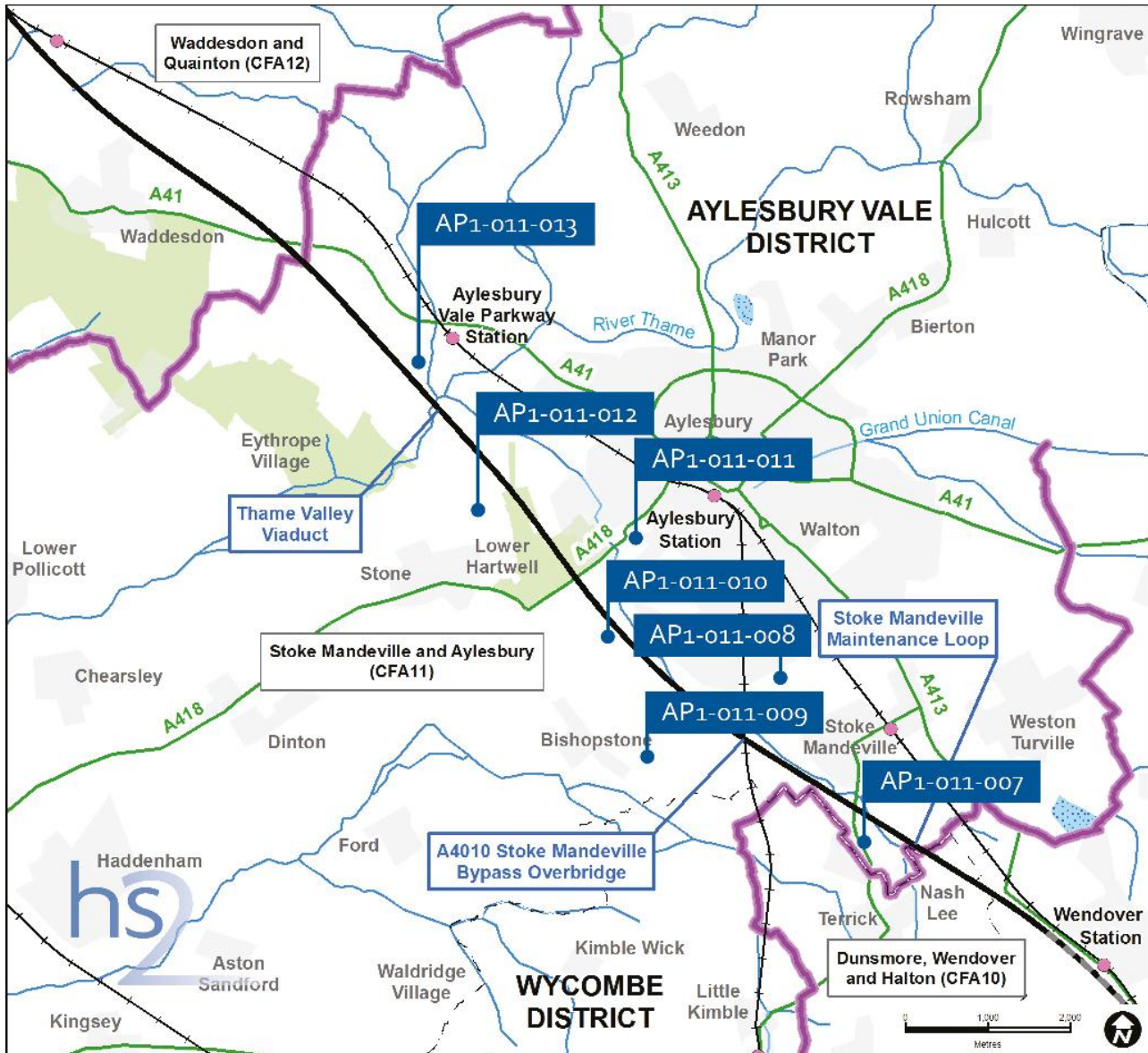
¹⁰ Environment Agency (2009) River Basin Management Plan, Thames River Basin District

CFA11, Stoke Mandeville and Aylesbury

10 Overview of the amendments

10.1.1 Table 5 provides a summary of the amendments in the Stoke Mandeville and Aylesbury area (CFA11) and Figure 5 shows the locations.

Figure 5: Locations of amendments in the Stoke Mandeville and Aylesbury area



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Table 5: Summary of amendments in the Stoke Mandeville and Aylesbury area (CFA11)

CFA	Amendment	Description of the original scheme	Description of the revised scheme
11	Additional land required for the A4010 Stoke Mandeville bypass to the south of Stoke Mandeville AP1-011-007	Permanent provision of a bypass to the south and west of Stoke Mandeville.	Amendments to the bypass due to the recent completion of a care home for the elderly just off A4010 Risborough Road, close to where the bypass ties in with the A4010 Risborough Road.
11	Change to land required for reconfiguration of the roundabout junction of the proposed A4010 Stoke Mandeville bypass with B4443 Lower Road AP1-011-008	Permanent provision of a bypass of Stoke Mandeville, tying in to the south with the A4010 Risborough Road and to the west with B4443 Lower Road, with a single crossing over the railway. The bypass will tie in with the B4443 Lower Road, south of Aylesbury, with a new roundabout. The alignment and junction arrangement will require the demolition of an adjacent residential property, Elmfield, 30 Lower Road.	The roundabout and a small section of the B4443 Lower Road approaching the roundabout will be moved south-west to avoid the demolition of Elmfield. An existing length of Lower Road will be turned into a service road accessing the adjacent properties.
11	Additional land required for utility access at Standall's Farm AP1-011-009	Permanent use of an existing farm access track from Bishopstone Road to Standall's Farm to allow for temporary access for works to a pylon and for permanent maintenance access to a balancing pond and pumping station on the northern side of the route of the original scheme. Access will be through both the farmyard and around the periphery of the farm to the east linking the existing tracks north and south of the farm.	The revised scheme will remove the land through the farmyard for maintenance access. The access track from Bishopstone Road to Standall's Farm will be widened to a minimum of 5m to provide sufficient width for temporary access. For permanent access along this track to the balancing pond and pumping station, a 3.5m carriageway with 1.5m verges on either side and passing bays is required and the track will be rebuilt to this standard.
11	Land no longer required for access to drainage ponds to the north of Bishopstone	Permanent provision of an access track for maintenance from Bishopstone Road to balancing ponds and a land drainage area adjacent to the original scheme. An access road from the A418 Oxford Road to the balancing ponds and land drainage area is also provided.	The access from the A418 Oxford Road is sufficient for maintenance purposes, therefore the access track from Bishopstone Road is therefore not required and is to be removed.

	AP1-011-010		
11	<p>Additional land required for utility works adjacent to the A418 Oxford Road to the west of Aylesbury</p> <p>AP1-011-011</p>	<p>Temporary diversion of a 400kV overhead power line with permanent increase in overhead clearance and reinstatement along the original alignment.</p>	<p>An additional area of land is required temporarily to enable access to a pylon immediately south of the A418 Oxford Road and west of Dormer Close, Aylesbury. The amendment also includes the re-stringing of the overhead power line over properties in Dormer Close and Parrot Close, Aylesbury which was not reported in the main ES.</p>
11	<p>Additional land required for access to balancing pond from Lower Hartwell passing by Whaddon Hill Farm</p> <p>AP1-011-012</p>	<p>Permanent use of an existing access track from Lower Hartwell through Whaddon Hill Farm for maintenance access to a balancing pond. The balancing pond will be adjacent to the southern abutment of the Thame Valley viaduct to the west of the original scheme and north of Bridleway SBH/2.</p>	<p>A new permanent maintenance access around Whaddon Hill Farm, 3.5m wide with 1.5m verges, will be provided to join the two existing lengths of access track. Land through the farm provided for maintenance access is to be removed.</p>
11	<p>Change to land required for access to balancing pond west of Putlowes Farm</p> <p>AP1-011-013</p>	<p>Permanent provision of a maintenance access from the old A41 Bicester Road connecting with Putlowes Drive to a balancing pond for railway drainage south of Putlowes Farm to the west of the original scheme.</p>	<p>The whole of Putlowes Drive will be used for maintenance access. The proposed new section of track at the northern end of the drive is no longer required and will be removed. Putlowes Drive will be improved and widened to a 3.5m carriageway with 1.5m verges on both sides and passing bays. A new permanent maintenance access around the northern periphery of Putlowes Farm, 3.5m wide with 1.5m verges on either side and passing bays, will be provided to join the existing tracks east and west of the farm. Land through the farm yard provided for maintenance access will be removed.</p> <p>The new access around Putlowes Farm will require the diversion of a watercourse through a realigned culvert.</p>

11 Additional land required for the A4010 Stoke Mandeville bypass to the south of Stoke Mandeville (AP1-011-007)

11.1 Overview of amendment

- 11.1.1 The Bill provides for an extended realignment of the A4010 Risborough Road, running to the south and west of Stoke Mandeville with a single crossing over the railway and forming a bypass to Stoke Mandeville, referred to in the main ES as the A4010 Stoke Mandeville bypass. Since submission of the Bill, a recently completed care home for the elderly, Fremantle Court (a new receptor which was not included in the main ES), has been identified just off the A4010 Risborough Road, close to where the proposed A4010 Stoke Mandeville bypass ties in with this road.
- 11.1.2 The existing road has been widened to facilitate a right hand turn into the new development. The road layout for the revised scheme has been amended to take this into account (refer to AP maps CT-05-041 and CT-06-041 in AP ES Volume 2, Map Book Part 2 of 6). The necessary alterations, involving road widening, extend outside the limits of the Bill, hence the need for this amendment. The alterations require approximately 400m² of additional land. The duration of construction for the revised scheme is the same as for the original scheme. Traffic access to Fremantle Court will be maintained during construction.
- 11.1.3 The revised bypass layout is not considered to make changes that require a reassessment of the environmental effects or mitigation as set out in the main ES with respect to: agriculture, forestry and soils; air quality; cultural heritage; land quality; socio-economics; traffic and transport; and water resources and flood risk assessment. However there were changes where reassessment was considered to be required in respect of community; ecology; landscape and visual assessment; and sound, noise and vibration.

11.2 Community

Scope, assumptions and limitations

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

Environmental baseline

Existing baseline

- 11.2.2 The baseline community information for the area is described in the main ES (Volume 2 CFA11, Section 5). The nursing home was not identified in the baseline section referring to Stoke Mandeville during the preparation of the main ES.
- 11.2.3 Fremantle Court is a 90 bed residential care and nursing home located on Risborough Road. It opened in spring 2014 and provides specialist dementia care.

Effects arising during construction

- 11.2.4 Access to and from Fremantle Court will not be restricted during construction of the original or revised scheme. However, Fremantle Court is predicted to experience significant visual effects and significant noise effects arising from construction of the A4010 overbridge and the Stoke Mandeville bypass for a duration of approximately two years and six months. These in-combination effects will result in a major adverse temporary effect on the amenity of Fremantle Court, which is significant. These construction effects were not reported in the main ES. There are, however, no new or different significant effects as a result of the amendment.

Effects arising from operation

- 11.2.5 Access to and from Fremantle Court will not be restricted during operation of the original scheme. However, the nursing home is predicted to experience significant visual and noise effects from years 0 - 15 of operation. These in-combination effects will result in a major adverse effect on the amenity of Fremantle Court, which is significant. This operational effect was not reported in the main ES. There are, however, no new or different significant effects as a result of the amendment.

Mitigation and residual effects

- 11.2.6 There will be residual significant effects during construction and operation (see AP map CM-01-034 in AP ES Volume 5 Map Book).
- 11.2.7 HS2 Ltd will identify reasonably practicable measures to mitigate these residual significant effects, including discretionary measures identified in the draft Code of Construction Practice (CoCP). In doing so, HS2 Ltd will engage with stakeholders to fully understand the care home, its use and the benefit of the measures.

Volume 5 amendments

- 11.2.8 Table 6 and Table 7 set out the changes to the main ES, Volume 5, Appendix, CM-001-011, Community Assessment Impact Table.

Table 6: Fremantle Court nursing and residential care home impact table for construction phase (2017+)

Resource name	Fremantle Court nursing and residential care home
CFA	Stoke Mandeville and Aylesbury (CFA11)
Resource type	Community facility
Resource description/profile	Nursing and residential care home on Risborough Road, south of Stoke Mandeville, as shown on AP ES CM-01-034 (AP ES Volume 5, Map Book)
Assessment year	Construction phase (2017+)
Impact 1: loss of amenity	<p>Impact: residents of Fremantle Court nursing and residential care home are predicted to experience in-combination effects arising from significant visual and noise effects during the construction of the Stoke Mandeville bypass.</p> <p>Visual: activities associated with the new A4010 Stoke Mandeville Bypass will be visible in the left foreground and construction of the original scheme will be visible in the middle ground looking north west from Fremantle Court nursing and residential care home.</p> <p>Noise: there will be significant noise effects associated with the construction of the A41010 Stoke Mandeville overbridge and bypass.</p> <p>Duration: effects coincide for approximately 2 years and 6 months.</p>
Assessment of magnitude	Moderate: as residents will be affected by a combination of significant residual visual and noise effects.
Relevant receptors	Residents of Fremantle Court nursing and residential care home.
Assessment of sensitivity of receptor(s) to impact	High: as these are residential receptors requiring nursing care and have limited ability to absorb the change.
Significance rating of effect	Major adverse significant effect on residents of Fremantle Court due to loss of amenity.
Proposed mitigation options for significant effects	No further mitigation of amenity effects.
Residual effect significance rating	Major adverse- significant effect on residents due to loss of amenity.

Table 7: Fremantle Court nursing and residential care home impact table for operation phase (2026+)

Resource name	Fremantle Court nursing and residential care home
CFA	Stoke Mandeville and Aylesbury (CFA11)
Resource type	Community facility
Resource description/profile	Nursing and residential care home on Risborough Road, south of Stoke Mandeville, as shown on AP ES CM-01-034 (AP ES Volume 5 map book).
Assessment year	Operation phase (2026+)
Impact 1: loss of amenity	<p>Impact: residents of Fremantle Court nursing and residential care home are predicted to experience in-combination effects arising from significant visual and noise effects during the operation for the original scheme.</p> <p>Visual: there will be significant visual effects due to views of the original scheme, including the track, overhead power line equipment and Footpath ELL/20 overbridge.</p> <p>Noise: there will be significant noise effects due to the operation of the new train services, in the day time and in the night time.</p> <p>Duration: 15 years.</p>
Assessment of magnitude	Medium: as residents will be affected by a combination of significant residual visual and noise effects.
Relevant receptors	Residents of Fremantle Court nursing and residential care home.
Assessment of sensitivity of receptor(s) to impact	High: as these are residential receptors requiring nursing care and have limited ability to absorb the change.
Significance rating of effect	Major adverse significant effect on residents of Fremantle Court due to loss of amenity.
Proposed mitigation options for significant effects	No further mitigation of amenity effects.
Residual effect significance rating	Major adverse- significant effect on residents due to loss of amenity.

11.3 Ecology

- 11.3.1 The assessment scope for ecology is as set out in Volume 1 of the AP ES. The key assumptions, limitations and the methodology for determining significance of effects 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.
- 11.3.2 The ecological baseline of the area has therefore been based on field data for the surrounding area that was 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; Buckinghamshire Bird Club; and the North Bucks Bat Group.
- 11.3.3 To address any limitations in data, a precautionary baseline has been built up according to the guidance reported in Volume 5: Appendix CT-001-000/2. This constitutes a 'reasonable worst case' basis for the assessment of the revised scheme.
- 11.3.4 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.

Environmental baseline

- 11.3.5 A summary of the baseline information relevant to the assessment of the amendment is provided below. For those receptors described in the main ES, further details are provided in Volume 2, CFA11, Section 7.3 and in Volume 5, including Maps EC-01-021b to EC-01-025a, Volume 5, Ecology Map Book.

Designated sites

- 11.3.6 Grassland at North Lee Biological Notification Site (BNS) is a non-statutory site of county/metropolitan value which is designated for its semi-improved neutral grassland. Both the original layout and the amendment of the A4010 Stoke Mandeville bypass are located within the northern section of the site.
- 11.3.7 There is no other statutory or non-statutory designated nature conservation site or ancient woodland within 500m of the land required for this assessment, or otherwise relevant to the assessment. Statutory and non-statutory designated sites are described in the main ES, Volume 2, CFA11, Section 7.3 and are shown on the main ES Maps EC-01-021b to EC-01-025a, Volume 5, Ecology Map Book.

Habitats

- 11.3.8 Habitats recorded within the land required for the amendment are semi-improved grassland and arable land with surrounding hedgerows.
- 11.3.9 The main ES reports that the semi-improved grassland and arable land within the land required for the amendment are both parts of wider receptors identified in the main ES as being of local/parish value.
- 11.3.10 Habitats surrounding the land required for the amendment are described in the main ES, Volume 5, CFA11, Section 7.3 and are shown on the main ES Maps EC-02-021b to EC-02-079a, Volume 5, Ecology Map Book.

Protected and/or notable species

- 11.3.11 Desk study data on the land required for the amendment, as reported in the main ES, did not report any protected and/or notable species of flora or fauna.
- 11.3.12 A number of bat populations, ranging from local/parish to county/ metropolitan value, were recorded using the wider landscape for foraging and commuting and these are reported in the main ES. It is likely that land required for the amendment contains suitable commuting and foraging habitat for bat populations.
- 11.3.13 Locations of species records are illustrated on the main ES Maps EC-01 to EC-12, Volume 5, Ecology Map Book.

Effects arising during construction

Avoidance and mitigation measures

- 11.3.14 There are no specific measures included as part of the revised scheme to avoid or reduce impacts to features of ecological value on the land required for the amendment.
- 11.3.15 The assessment assumes implementation of the draft (CoCP).

Designated sites

- 11.3.16 The main ES reports that the loss of 14% of the semi-improved grassland at Grassland at North Lee BNS will result in a permanent adverse effect on the integrity of the site that is significant at county/metropolitan level. The amendment will result in the loss of an additional 400m² of grassland habitat. However, it will not change the level at which the resultant effect is significant.

Habitats

- 11.3.17 The loss of semi-improved grassland as reported in paragraph 2.3.16 will not change the level at which the effect on the conservation status of semi-improved grassland is significant.

Species

- 11.3.18 The main ES reports adverse construction effects at the county/metropolitan level on the conservation status of brown long-eared bat. Bat populations in the wider area may utilise habitats within the land required for the amendment. Although construction activities for the amendment will result in loss of some vegetation, the additional impact on bat commuting and foraging habitat is considered not to change the level at which the resultant effect is significant.

Effects arising from operation

- 11.3.19 No operational effects additional to those in the main ES have been identified for the revised scheme.

Mitigation and residual effects

- 11.3.20 No additional or different mitigation is required for the amendment. The main ES states that new areas of grassland will be created either side of the A4010 Stoke Mandeville bypass and within the ecology compensation area to the south-west of

Mill House Farm (150m from the BNS) to compensate for the loss of approximately 2.1ha (14%) of grassland from the Grassland at North Lees BNS. Blocks of semi-improved neutral grassland will also be planted in several of the other ecological compensation areas. The precautionary allocation of grassland compensation in the original scheme is sufficient to mitigate the additional loss of 400m² of BNS associated with the amendment. The amendment will result in no change to the likely residual significant effects reported in the main ES.

11.4 Landscape and visual assessment

Scope, assumptions and limitations

- 11.4.1 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.

Environmental baseline

- 11.4.2 The amendment is located within Stoke Mandeville Vale landscape character area (LCA). Any potential direct/indirect impacts associated with this amendment will be limited to this LCA. The baseline is as described in the main ES.
- 11.4.3 The amendment will be visible from residential receptors at the recently completed Fremantle Court care home which was not assessed for the main ES (see AP maps LV-03-038b and LV-04-038b in AP ES Volume 2 Map Book Part 2). The visual baseline for this receptor will be largely the same as that described in the main ES for nearby viewpoint 109.2.001 within CFA10 (Volume 2, CFA Report 10, Section 9.3).

Assessment of temporary impacts and effects

- 11.4.4 During construction, activities associated with the new A4010 Stoke Mandeville bypass will be visible in the left foreground of the view from Fremantle Court care home. In addition, the construction of the original scheme and maintenance loop will be visible in the middle ground, with foreground hedgerow vegetation partially screening views from ground level. Viewed alongside other built elements such as overhead power lines and pylons and the Triangle Business Park, this will represent a medium magnitude of change and will result in a moderate adverse effect for this new receptor (as reported in the main ES for viewpoint 109.2.001).
- 11.4.5 The amendment will not introduce construction activities that are substantially different to those assumed for the original scheme. Therefore the overall effects will be as reported for Stoke Mandeville Vale LCA in the main ES (Volume 2, CFA Report 11, Section 9.4 and Map LV-03-038b) of a moderate adverse effect.

Permanent effects arising during operation

- 11.4.6 During operation, views of the original scheme will be available in the middle ground. This will include views of the track level, overhead power line equipment and Footpath ELL/20 overbridge. Vegetation loss in the middle ground will also be noticeable and will allow more open views towards Triangle Business Park in the distance. Foreground hedgerow vegetation will, however, partially screen views from ground level. Overall, the magnitude of change is considered to be medium and will result in a

moderate adverse effect for this new receptor (as reported for in the main ES for viewpoint 109.2.001).

- 11.4.7 The revised scheme will represent a barely perceptible change to that assessed for the original scheme during operation. Therefore this will not alter the overall effects reported for Stoke Mandeville Vale LCA in the main ES (Volume 2, CFA Report 11, Section 9.5 and Map LV-04-038b) of a moderate adverse effect in Year 1 reducing to a non-significant effect by Year 15 of operation.

Mitigation and residual effects

- 11.4.8 No specific mitigation is required for this amendment. Therefore the mitigation will be as presented in the main ES.
- 11.4.9 As is commonplace with major works, the scale of the construction activities means that works will be visible in many locations and will have the potential to give rise to significant temporary effects which cannot be mitigated practicably. Such effects are temporary and vary over the construction period depending on the intensity and scale of the works at that time. As reported in the main ES, there will be a significant residual temporary effect on viewpoint 109.2.001 which, as a result of the additional receptor identified, will be experienced by Fremantle Court care home.
- 11.4.10 The residual significant operational effects are the permanent residual significant effects persisting after the mitigation included in the scheme design has reached its designed intent 15 years from opening i.e. when matured.
- 11.4.11 By year 15 and beyond to year 60 of operation, reinstated and proposed planting will have matured and will better integrate the original scheme into the landscape and will result in effects that are not considered to be significant. The magnitude of change will be low, resulting in a minor adverse effect (as reported in the main ES for viewpoint 109.2.001). The amendment will not result in any new or different significant effects.

11.5 Sound, noise and vibration

Scope, assumptions and limitations

- 11.5.1 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 11.5.2 Fremantle Court care home is a new receptor (opened in Spring 2014) which was not assessed for the main ES. Review of the use of the 90 unit care home has established that the primary function is residential care with on-site support. For this assessment this receptor has been treated as non-residential¹¹ sensitive receptor providing health care facilities. This is consistent with the approach used for the assessment reported in the main ES.
- 11.5.3 It has been assumed for the assessment of construction sound, noise and vibration, that the construction programme, hours of operation and construction plant used will

¹¹ In the assessment reported in the main ES the term residential is applied to permanent dwellings (i.e. houses, apartments etc.). Hotels, hospitals and other buildings where people sleep, along with buildings having other specific noise and vibration sensitive resources are considered as non-residential receptors. For further information, refer to main ES Volume 5 Appendix SV-001-000.

remain unchanged from that reported in the main ES. The assessment also includes the avoidance and mitigation measures described in the main ES.

- 11.5.4 The assumptions for the assessment of operational sound, noise and vibration are as described in the main ES (Volume 2, CFA Report 11, Stoke Mandeville and Aylesbury).

Environmental baseline

Existing baseline

- 11.5.5 The baseline sound, noise and vibration information for the area is described in the main ES (Volume 5 appendix SV-002-011). The assessment location at Risborough Road (assessment location 700331) is located adjacent to the Fremantle Court care home site and is shown in the main ES map series (Maps SV-03-021 and SV-04-021, Volume 5, Map Book). Baseline noise levels representative of this assessment location have been used in both the construction and operational assessments.

Effects arising during construction

- 11.5.6 The predicted noise levels at the assessment locations identified in the main ES are unchanged, given that the construction programme, hours of operation and construction plant used are unchanged from those reported in the main ES.
- 11.5.7 The construction noise levels have been predicted for Risborough Road (assessment location AL 700331), which is representative of the Fremantle Court care home site. No construction activities are scheduled during either the evening or night time periods at this location.
- 11.5.8 The predicted noise levels have been assessed using the significance criteria for a sensitive receptor providing health care facilities set out in the main ES (refer to Volume 5 Appendix SV-001-000).
- 11.5.9 On a reasonable worst case basis, a significant noise effect has been identified from the original scheme at the Fremantle Court care home during the daytime with noise levels rising at times to around 60dB over a period of approximately two years and six months estimated to begin in January 2018 during the construction of the A4010 Stoke Mandeville Overbridge & Bypass - New Southern Embankment. This construction effect was not reported in the main ES. There are, however, no new or different significant effects as a result of the amendment to the bypass to take account of the new access into the care home. The results of the detailed assessment for the care home are given in Table 6.

Effects arising from operation

- 11.5.10 An assessment is required for the care home since this receptor was not considered within the main ES. Fremantle Court care home has been assessed as a sensitive non-residential health care receptor, in line with other care homes assessed in the main ES.
- 11.5.11 An assessment has been undertaken to determine whether operational noise levels from the original scheme would result in a likely significant effect, using the significance criteria detailed in the main ES (Volume 5 Appendix SV-001-000). The results of the detailed assessment for the care home are given in Table 7.

- 11.5.12 The amendment to the alignment of the proposed A4010 Stoke Mandeville bypass is not sufficient to alter the predicted operational noise levels at those assessment locations identified in the main ES.
- 11.5.13 A moderate operational noise impact has been identified for the daytime and night time based upon the change in the airborne noise level outside this receptor. An assessment has been undertaken to determine if this impact would result in a likely significant effect at this non-residential receptor, using the significance criteria detailed in Volume 5, Appendix SV-001-000 of the main ES.
- 11.5.14 Fremantle Court care home is identified, on a reasonable worst case basis, as being subject to a significant adverse effect from the original scheme denoted by OSV11-No3 (Significant effect number on map series) (see AP map SV-05-021 and in AP ES Volume 2, Map Book Part 2 of 6 and AP maps SV-01-21 and SV-02-21 in AP ES Volume 5 Mapbook). This may take the form of disturbance and potential sleep disturbance to the occupants of the care home. This operational effect was not reported in the main ES. There are, however, no new or significant effects as a result of the amendment.
- 11.5.15 The amendment to the alignment of the proposed A4010 Stoke Mandeville bypass that is the subject of this AP is not sufficient to alter the predicted operational noise levels at those assessment locations identified in the main ES. There are, therefore, no new or different significant effects as a result of the amendment.

Mitigation and residual effects

- 11.5.16 Taking account of the avoidance and mitigation measures, Fremantle Court care home is identified, on a reasonable worst case basis, as being subject to a significant residual temporary adverse noise effect from specific construction activities and a significant residual adverse noise effect from operation of the original scheme. There are no new or different significant residual effects for both construction and operational noise as a result of the amendment. For construction and operational noise, HS2 Ltd will continue to seek reasonably practicable measures to further reduce or avoid these significant effects. In doing so HS2 Ltd will continue to engage with stakeholders to fully understand the receptor, its use and the benefit of the measures.

Volume 5 amendments

- 11.5.17 Table 8 and Table 9 set out the changes to the main ES, Volume 5, Appendix, SV-003-011 and SV-004-011, Sound, Noise and Vibration Assessment. Explanation of the information within these tables is provided in the main ES Volume 5, CFA 11.

Table 8: Assessment of construction noise at non-residential receptors

Assessment location		Impact criteria			Significance criteria										Significant effect
ID	Area represented	Typical/highest monthly outdoor LpAeq [dB] at the façade			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											
700331	Risborough Road, Stoke Mandeville	61/66	-	-	Day: Stoke Mandeville Overbridge & Bypass - New Southern Embankment, Link to Marsh Lane & Tie in to A4011	B	1	G4	T	-	-	-	D 30	-	CSV11-No1

Table 9: Operational noise – detailed results

Impact criteria												Significance criteria							Significant effect	
Assessment Location ID	Area represented	HS2 Only			Do minimum (Opening year)			Do something (Opening year +15)		Change		Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact		Mitigation of effect
		Day *	Night **	Max ***	Day *	Night **	Max ***	Day *	Night **	Day *	Night **									
700331	AP007: Fremantle Court care home, Risborough Road, Stoke Mandeville	58	50	70	54	45	53	59	51	5	6	A	1	N	T	-	-	-	-	OSV11-No3

11.6 Summary

- 11.6.1 Fremantle Court care home is a new receptor which was not included in the main ES. The care home has been identified, on a reasonable worst case basis, as being subject to a significant adverse residual effect from operational noise from the original scheme. This may take the form of disturbance to the occupants of the care home. HS2 Ltd will continue to seek reasonably practicable measures to further reduce or avoid these significant effects. In doing so, HS2 Ltd will continue to engage with stakeholders to fully understand the receptor, its use and the benefit of the measures. There are, however, no new or significant effects as a result of the amendment.
- 11.6.2 During construction, activities associated with the new A4010 Stoke Mandeville bypass and the original scheme and maintenance loop will be visible in the middle ground from Fremantle Court care home. Viewed alongside other built elements this will represent a medium magnitude of change and will result in a temporary moderate adverse residual effect for this new receptor (as reported in the main ES for viewpoint 109.2.001). The amendment will not however introduce construction activities that are substantially different to those assumed for the original scheme.
- 11.6.3 During operation, views of the original scheme will be available in the middle ground. Overall, the magnitude of change is considered to be medium and will result in a moderate adverse effect for this new receptor (as reported for in the main ES for viewpoint 109.2.001). By year 15 and beyond to year 60 of operation, reinstated and proposed planting will have matured and will better integrate the original scheme into the landscape and will result in residual effects that are not considered to be significant. The revised scheme will represent a barely perceptible change to that assessed for the original scheme during operation
- 11.6.4 The amendment does not change the significance of the residual environmental effects or mitigation as set out in the main ES (Volume 2, CFA Report 11) for any other topic.

12 Change to land required for reconfiguration of the roundabout junction of the proposed A4010 Stoke Mandeville bypass with B4443 Lower Road (AP1-011-008)

12.1 Overview of amendment

- 12.1.1 The Bill provides for an extended realignment of the A4010 Risborough Road, running to the south and west of Stoke Mandeville with a single crossing over the railway and forming a bypass to Stoke Mandeville, referred to in the main ES as the A4010 Stoke Mandeville bypass. The bypass will tie in with the B4443 Lower Road, south of Aylesbury, with a new roundabout. The alignment and junction arrangement will require the demolition of a residential property, Elmfield, 30 Lower Road. Since submission of the Bill, a new junction layout that avoids the need for the demolition

has been developed. The roundabout and the sections of the B4443 Lower Road approaching the roundabout will be moved south-west, with the existing length of the B4443 Lower Road retained to provide access to the adjacent properties. The new junction layout is outside the limits of the Bill and will require approximately 0.8ha of additional land, hence the need for this amendment (refer to AP maps CT-05-042 and CT-06-042 in the AP ES Volume 2 Map Book Part 2). However, as an area of 0.9ha land required for the original scheme is no longer required, there is an overall reduction of approximately 0.1ha. Traffic access to the residential properties on Lower Road will be maintained during construction.

- 12.1.2 The amendment is not considered to make changes that require a reassessment of the environmental effects or mitigation as set out in the main ES with respect to: air quality; ecology; land quality; socio-economics; traffic and transport; and water resources and flood risk assessment. However, there were changes where reassessment was considered to be required in respect of agriculture, forestry and soils; community; cultural heritage; landscape and visual assessment; and sound, noise and vibration.

12.2 Agriculture, forestry and soils

Scope, assumptions and limitations

- 12.2.1 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. The area of agricultural land required for the revised road layout is approximately 0.1ha less than identified in the Bill.

Environmental baseline

- 12.2.2 The land affected has soil in the Grove association. Grove soils comprise imperfectly drained (Wetness Class (WC)¹² III) clay loam soils developed on Gault Clay. The quality of land affected is assessed as Subgrade 3a or Subgrade 3b, dependent on whether the topsoil is of medium clay loam or heavy clay loam respectively and surveys undertaken locally have determined the Agricultural Land Classification in this location to be BMV agricultural quality Subgrade 3a.
- 12.2.3 The land affected forms part of holding CFA11/6 (Moat Farm) which is a 360ha holding engaged in arable, cattle and sheep farming. It is considered to be of medium sensitivity to change and in the main ES the original scheme was assessed as having a major/moderate temporary effect on the holding due to the proportion of the holding required and severance. There was a moderate permanent effect due to severance and the proportion of the holding required.
- 12.2.4 Holding CFA11/13 (Red House Farm) lies to the north of B4443 Lower Road and is a 42ha grazing holding. It is considered to be of medium sensitivity to change and the original scheme was assessed as having a negligible effect on the holding both during and after construction.

¹²The Wetness Class of a soil is classified according to the depth and duration of waterlogging in the soil profile and has six bands.

Effects arising during construction

- 12.2.5 The marginal reduction in the permanent area of agricultural land required in Subgrade 3a does not change the significance of the effect on BMV agricultural land as reported in the main ES (i.e. major/moderate adverse).
- 12.2.6 The temporary effect on Moat Farm was reported in the main ES as major/moderate due to the proportion of the holding required (20%) and severance. The marginal reduction (by 0.1ha) does not alter that assessment. The permanent effect on Moat Farm was assessed as moderate due to the proportion of the holding required (14%) and severance. The marginal reduction of 0.1ha does not alter that assessment either.
- 12.2.7 The permanent effect on Red House Farm was assessed in the main ES as negligible due to the small area of land that would be required. Moving the roundabout to the south-west (south of B4443 Lower Road) will remove any impact on Red House Farm.

Effects arising from operation

- 12.2.8 There are no additional impacts to agriculture, forestry and soil receptors during the operation of the scheme.

Mitigation and residual effects

- 12.2.9 No mitigation measures are required to mitigate this effect. The mitigation and residual effects will remain as reported in the main ES, with the exception of the Red House Farm, where the negligible effect during construction is removed altogether.

12.3 Community

Scope, assumptions and limitations

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

Environmental baseline

- 12.3.2 The baseline community information is described in the main ES (Volume 2, CFA11, section 5).

Effects arising during construction

- 12.3.3 The demolition of Elmfield, 30 Lower Road is identified in the main ES as a minor adverse effect on the community of Stoke Mandeville. The new junction layout avoids the demolition of Elmfield and therefore removes this minor adverse effect.
- 12.3.4 Access to the residential properties on Lower Road close to the amendment will not be restricted during construction and they will not experience in-combination effects. Therefore, no significant temporary or permanent effects arising from construction of the new junction layout have been identified.

Effects arising from operation

- 12.3.5 Access to the residential properties on Lower Road close to the amendment will not be restricted during operation and they will not experience in-combination effects.

Therefore, no significant effects arising from operation of the new junction layout have been identified. The community effects arising from operation will therefore be as reported in Volume 2 of the main ES.

Mitigation and residual effects

- 12.3.6 There will be no change to the mitigation and residual effects reported in Volume 2 of the main ES, with the exception of the minor adverse effect during construction on the community at Stoke Mandeville which is removed altogether.

12.4 Cultural heritage

Scope, assumptions and limitations

- 12.4.1 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.
- 12.4.2 It has been assumed that topsoil will be removed, as a minimum, for construction of the revised scheme and that all archaeological remains and earthworks within the land required for the revised scheme will be removed or disturbed.
- 12.4.3 Information on the potential archaeological remains at this location is based on desk based research sources including the historic environment record (HER), historic maps, aerial photographs and non-intrusive surveys comprising LiDAR¹³ and hyperspectral survey.

Environmental baseline

- 12.4.4 The works associated with the original scheme in this area were to be carried out within an area with a high potential for buried archaeology of moderate significance dating from the prehistoric, Roman, early medieval and medieval periods (Asset Reference Number SMA027). Fieldwalking survey across this extensive area has resulted in the retrieval of surface artefacts from all these periods.
- 12.4.5 Investigations in the area have located Bronze Age activity and evidence for Romano-British settlement and burials, which appear to be concentrated on terraces either side of a small valley.
- 12.4.6 The baseline resource is as described in the main ES.

Effects arising during construction

- 12.4.7 The main ES assessed the impact to this heritage asset as high adverse, with a major adverse effect as a consequence of the removal of a large part of the northern end of this area of archaeological potential.
- 12.4.8 The land required for the revised and original schemes is similar. The impacts can also be considered to be similar, since all of the works will take place in this area of archaeological potential. This is a high adverse impact on an asset of moderate value resulting in a major adverse effect.

¹³ Light detection and ranging (LiDAR) is a high resolution remote sensing technique to capture 3D data.

- 12.4.9 The revised scheme does not change the result of the assessment or mitigation as set out in the main ES with respect to cultural heritage.

Effects arising from operation

- 12.4.10 Operational effects were previously assessed as having a neutral effect on this heritage asset. There will be no change to the operational effects as a result of this amendment.

Mitigation and residual effects

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

12.5 Landscape and visual assessment

Scope, assumptions and limitations

- 12.5.1 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.

Environmental baseline

Existing baseline

- 12.5.2 The amendment is located within the Stoke Mandeville Vale LCA. Any potential direct/indirect impacts associated with this amendment will be limited to this LCA. The baseline for this LCA is as described in the main ES (Volume 2 CFA 11).
- 12.5.3 The amendment will remove the requirement for the demolition of an adjacent residential property, Elmfield, 30 Lower Road. This will therefore introduce a new residential receptor from this location (viewpoint AP1 114.2.003).
- 12.5.4 Views from AP1 114.2.003 are essentially rural and comprise a number of flat agricultural fields. Roadside vegetation along B4443 Lower Road in the foreground restricts lower level views. Traffic travelling along B4443 Lower Road results in a dynamic, busy visual characteristic within the foreground. The middle ground and background features a number of fields defined by hedgerows containing occasional mature trees, which combine to give the view a relatively well-wooded appearance. Two lines of overhead power lines are visible running from the foreground to the background in the centre of the view. To the right of the view, some built development is visible along Lower Road. Similar views are also available from residential properties on Lower Road to the south-east.
- 12.5.5 The location of viewpoint AP1 114.2.003 is shown on maps LV-03-039 and LV-04-039 (see AP ES Volume 2 Map Book, Part 2).

Effects arising during construction

- 12.5.6 The amendment will not introduce construction activities that are substantially different to those assumed for the original scheme. Therefore the overall effects will be as reported for the Stoke Mandeville Vale LCA in the main ES (Volume 2, CFA11, Section 9.4 and Map LV-03-038b) of a moderate adverse effect. Construction activities associated with the proposed A4010 Stoke Mandeville bypass and associated

roundabout will be clearly visible within the foreground of views from AP1 114.2.003. This will include the removal of hedgerow vegetation from the foreground and middle ground, which will open up views, as well as the introduction of temporary topsoil storage bunds and construction machinery close to the visual receptor. The magnitude of change is therefore considered to be high. The high magnitude of change, assessed alongside the high sensitivity of the receptor, will result in a major adverse effect.

Effects arising from operation

- 12.5.7 The proposed A4010 Stoke Mandeville bypass and associated roundabout will be clearly visible in the foreground of views from AP1 114.2.003, with the bypass traversing the agricultural land in the middle ground. This will introduce large scale infrastructure in close proximity to the view. However, viewed within the context of an existing busy road, the magnitude of change is considered to be medium. The medium magnitude of change, assessed alongside the high sensitivity of the receptor, will result in a moderate adverse effect.
- 12.5.8 The slight relocation of the proposed roundabout and a small section of the B4443 Lower Road will represent a barely perceptible change to the setting of this character area. Therefore, the overall operational effects for the Stoke Mandeville Vale LCA will be as reported in the main ES (Volume 2, CFA 11, Section 9.5 and Map LV-04-038b) of a moderate adverse effect in Year 1, reducing to a non-significant effect by Year 15 of operation.

Mitigation and residual effects

- 12.5.9 As is commonplace with major works, the scale of the construction activities means that works will be visible in many locations and will have the potential to give rise to significant temporary effects which cannot be mitigated practicably. Such effects are temporary and vary over the construction period depending on the intensity and scale of the works at that time. There will be a residual significant temporary effect on viewpoint 114.2.003 as a result of the amendment.
- 12.5.10 The residual significant operational effects are the permanent residual significant effects persisting after the mitigation included in the scheme design has reached its designed intent 15 years from opening i.e. when matured.
- 12.5.11 Reinstatement of hedgerow vegetation along the B4443 Lower Road and the introduction of planting along the eastern side of the A4010 Stoke Mandeville bypass and associated roundabout will be required to screen views from the new residential receptor (AP1 114.2.003). By Year 15 and beyond to Year 60 of operation, this planting will have matured to provide screening, resulting in effects that are not considered to be significant.

12.6 Sound, noise and vibration

Scope, assumptions and limitations

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

- 12.6.2 The operational noise assessment considers two aspects to the proposed change: the assessment of impacts for the residential property Elmfield (30 Lower Road), which the amendment avoids the need to demolish; and any implications for the impacts at properties 8-28 Lower Road and others in western Stoke Mandeville.

Environmental baseline

- 12.6.3 The baseline sound, noise and vibration information for the area is described in the main ES (Volume 5: appendix SV-002-011). Assessment locations 341103 and 341163, representing residential properties on Lower Road, are located to the north and south of Elmfield (refer to main ES Volume 5: Appendix SV-002-011) and provide representative baseline sound levels for this assessment.

Effects arising during construction

- 12.6.4 The construction noise levels with the new road alignment have been predicted at assessment location AL341163, which is taken as representative of Elmfield. No construction activities are scheduled during either the evening or night time periods at this location.
- 12.6.5 The predicted noise levels have been assessed using the significance criteria for residential receptors set out in the main ES (Volume 5 Appendix SV-001-000). Taking account of the avoidance and mitigation measures, the assessment has concluded that no significant adverse noise effect from construction is likely on the retained property (Elmfield) or as the result of the realignment works (see Table 10).

Effects arising from operation

- 12.6.6 The amendment will result in potential changes to operational noise impacts at 8-28 Lower Road and Elmfield. The detailed noise levels for these locations are set out in Table 11.
- 12.6.7 An assessment has been undertaken to determine whether noise levels from the revised scheme will result in a likely significant effect, using the significance criteria detailed in the main ES (Volume 5 Appendix SV-001-000). The results for assessment location AL341163 are applicable to both 8-20 Lower Road and Elmfield. No other receptors are anticipated to experience changes in noise level due to the amendment.
- 12.6.8 The assessment indicated that the predicted impacts at assessment location AL341163 are negligible in magnitude. There are therefore no additional significant effects from operational noise as a result of the amendment.

Mitigation and residual effects

- 12.6.9 There will be no change to the mitigation and residual effects reported in the main ES Volume 2, CFA 11, Section 11.

Volume 5 amendments

- 12.6.10 Table 10 and Table 11 set out the changes to the main ES, Volume 5, Appendix, SV-003-011 and SV-004-011, Sound, Noise and Vibration Assessment, as a result of the amendment. Explanation of the information within these tables is provided in the main ES Volume 5, CFA11.

Table 10: Assessment of construction noise at 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											
341103	Lower Road, Aylesbury	43/57 [A]	-	-	Day: Stoke Mandeville Overbridge & Bypass - Site Clearance	NA	1	R	T	-	-	-	-	-	-
341163	Lower Road, Stoke Mandeville	48/62 [A]	-	-	Day: Stoke Mandeville Overbridge & Bypass - Site Clearance	NA	13	R	T	-	-	-	-	-	-

Table 11: Operational noise – detailed results

Impact criteria											Significance criteria								Significant effect		
Assessment Location ID	Area represented	HS2 Only			Do minimum (Opening year)			Do something (Opening year +15)		Change		Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact		Mitigation of effect	
		Day *	Night **	Max ***	Day *	Night **	Max ***	Day *	Night **	Day *	Night **										
341163	APoo8: Lower Road, Stoke Mandeville	49	40	62/65	50	41	48	49	40	0	0	A	13	R	T	-	-	-	-	-	-

12.7 Summary

- 12.7.1 The amendment will remove the requirement for the demolition of a residential property, Elmfield, 30 Lower Road. This will therefore introduce a new residential receptor from this location (viewpoint AP1 114.2.003). Construction activities associated with the proposed A4010 Stoke Mandeville bypass and associated roundabout will be clearly visible within the foreground of views from AP1 114.2.003. This will include the removal of hedgerow vegetation from the foreground and middle ground, which will open up views, as well as the introduction of temporary topsoil storage bunds and construction machinery close to the visual receptor. The magnitude of change is therefore considered to be high. The high magnitude of change, assessed alongside the high sensitivity of the receptor, will result in a major adverse effect.
- 12.7.2 The proposed A4010 Stoke Mandeville bypass and associated roundabout will be clearly visible in the foreground of views from the new residential receptor, with the bypass traversing the agricultural land in the middle ground. This will introduce large scale infrastructure into the foreground of the view. However, taken within the context of a view containing an existing busy road, the magnitude of change is considered to be medium. The medium magnitude of change, assessed alongside the high sensitivity of the receptor, will result in a moderate adverse effect.
- 12.7.3 Reinstatement of hedgerow vegetation along the B4443 Lower Road and the introduction of planting along the eastern side of the A4010 Stoke Mandeville bypass and associated roundabout, will be required to screen views from AP1 114.2.003. By Year 15 and beyond to Year 60 of operation, this planting will have matured to provide screening, resulting in effects that are not considered to be significant.
- 12.7.4 The amendment does not change the significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA11) for any other topic.

13 Additional land required for utility access at Standall's Farm (AP1-011-009)

13.1 Overview of amendment

- 13.1.1 The original scheme provides for the permanent use of an existing farm access track from Bishopstone Road to Standall's Farm. Footpath SBH/28, omitted from the main ES, follows this track up to the farm, passing to the east of the farm to join Footpath SMA/16. At Standall's Farm there is provision for access both through the farmyard and around the periphery of the farm to the east, linking to the existing tracks north and south of the farm. This is to allow for temporary access for works to a pylon and for permanent maintenance access to a balancing pond and pumping station on the northern side of the route.
- 13.1.2 Since submission of the Bill, it has been identified that the access track from Bishopstone Road to Standall's Farm will need to be widened to a minimum of 5m to provide a sufficient width for temporary access. The wider access track will require approximately 0.4ha of additional land which is outside the limits of the Bill, hence the need for this amendment (refer to AP maps CT-05-041-L1 and CT-06-041-L1 in the AP

ES Volume 2, Map Book Part 2). For permanent access to the balancing pond and pumping station a 3.5m carriageway with 1.5m verges on both sides and passing bays is required and the track will be rebuilt to this standard. The additional land taken for the widening will be on the eastern side of the existing access track to avoid removal of a hedgerow. The revised scheme will also remove the need for land through the farmyard for maintenance access. The works will take approximately nine months to complete.

- 13.1.3 Footpath SBH/28 and Footpath SMA/16 will be temporarily closed during construction of the access track and diverted to follow the alignment of the new track, around and to the north of the farm, adding a negligible distance. Access for Standall's Farm will be maintained throughout the construction period.
- 13.1.4 The access track will be used intermittently for approximately nine months for construction access. The access track will continue to be used as a farm access and as Footpath SBH/28 and Footpath SMA/16 during and beyond this period.
- 13.1.5 The revised use of additional land 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: agriculture, forestry and soils; air quality; community; land quality; landscape and visual assessment; socio-economics; sound, noise and vibration; traffic and transport; and water resources and flood risk assessment. However there were changes where reassessment was considered to be required in respect of cultural heritage and ecology.

13.2 Cultural heritage

Scope, assumptions and limitations

- 13.2.1 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.
- 13.2.2 It is assumed that topsoil will be removed, as a minimum, for construction of the access track and that all archaeological remains and earthworks within the footprint of the access track will be removed or disturbed.
- 13.2.3 Information on the potential archaeological remains at this location are based on desk based research sources including the historic environment record (HER), historic maps, aerial photographs and non-intrusive surveys comprising LiDAR¹⁴ and hyperspectral survey.

Environmental baseline

- 13.2.4 The revised scheme will cross an area of well-preserved medieval ridge and furrow that surrounds Standall's Farm (Asset Reference Number SMA031). These remains are assessed as being of local importance and therefore of low overall significance.
- 13.2.5 The baseline resource is as described in the main ES.
- 13.2.6 Widening of the access track leading north-eastwards towards the farm from Bishopstone Road does not remove the extant medieval ridge and furrow earthworks.

¹⁴ Light detection and ranging (LiDAR) is a high resolution remote sensing technique to capture 3D data.

This is because the track is to be widened to the east, which appears to be an arable field, where ridge and furrow is not recorded.

- 13.2.7 The continuation of the access track along the south-eastern and eastern side of the farm buildings, as well as beyond them to the north, will cross areas of ridge and furrow recorded as extant earthworks. The stretches of new track on the south-eastern and northern sides of the farm buildings were included in the original scheme. The short north-south aligned connecting section of the new access track is a revised area of land now required for the scheme as part of this amendment.

Effects arising during construction

- 13.2.8 Construction of the revised scheme will completely remove ridge and furrow remains within the topsoil in this location. This will be a permanent high adverse change to these archaeological deposits of low value due to their loss, resulting in a permanent moderate adverse effect. This significant effect is in addition to those reported in the main ES. Further information on this change is provided in Table 12.

Effects arising from operation

- 13.2.9 The physical impacts on buried archaeological remains as a result of this amendment occur during construction and there will be no other impacts on heritage assets arising from the operation of the revised scheme

Mitigation and residual effects

- 13.2.10 The draft Heritage Memorandum and the draft CoCP sets out the provisions that will be adopted to control effects on the ridge and furrow (see Volume 5: Appendix CT-003-000 of the main ES). A programme of archaeological works will be prepared to investigate, analyse, report and archive this asset. There will be a residual permanent moderate adverse effect as a result of the amendment.

Volume 5 amendments

- 13.2.11 Table 12 sets out the changes to the main ES, Volume 5, Appendix CH-003-011, Cultural Heritage Assessment, as a result of the amendment.

Table 12: Changes to the Volume 5 Appendix for Cultural Heritage: Appendix CH-003-011 – Impact Assessment Table for AP1-011-009

Unique ID	Name	Designation(s)	Value	Construction impacts			Operation impacts		
				Nature of impact including mitigation	Scale of Impact	Effect	Nature of impact including mitigation	Scale of Impact	Effect
SMA031 (AP1-011-009)	Ridge and furrow around Standall's Farm	None	Low	Removal of part of the asset through widening the access track as part of amendment AP1-011-009.	High adverse	Moderate adverse	The construction effect remains and there will be no further impact.	No change	Neutral

13.3 Ecology

- 13.3.1 The assessment scope for ecology is as set out in Volume 1 of the AP ES. The key assumptions, limitations and the methodology for determining significance of effects are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/01) and the SMR Addendum (Volume 5: Appendix CT-001-000/02) of the main ES.
- 13.3.2 The ecological baseline of the land required for the amendment has been based on field data collated for the main ES on adjacent land, aerial photography and existing information gathered from relevant national organisations and from regional and local sources including: Buckinghamshire and Milton Keynes Environmental Records Centre; Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust and the North Bucks Bat Group.
- 13.3.3 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.
- 13.3.4 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.

Environmental baseline

- 13.3.5 A summary of the baseline information relevant to the assessment of the amendment is provided below. For those receptors described in the main ES, further details are provided in Volume 2, CFA11, Section 7.3 and in Volume 5, including Maps EC-01 to EC-12 of the Ecology Map Book.

Designated sites

- 13.3.6 There are no statutory or non-statutory designated sites for nature conservation or ancient woodland within 500m of the land required for the amendment or that are otherwise relevant to the assessment.
- 13.3.7 Statutory and non-statutory designated sites within the wider study area are described in the main ES, Volume 2, CFA11, Section 7.3 and are shown on Maps EC-01-021b to EC-01-025a of the Volume 5, Ecology Map Book.

Habitats

- 13.3.8 Habitats recorded within the land required for the amendment are arable land, improved grassland and defunct hedgerow¹⁵. A single pond and a species-poor hedgerow with trees are located adjacent to the land required for the amendment.
- 13.3.9 The hedgerows located both within and adjacent to the scheme qualify as a habitat of principal importance. A species-poor hedgerow with scattered trees is located adjacent to the western boundary of the land required for the amendment. One defunct hedgerow is located within the land required for the amendment to the north of Standall's Farm. As reported in the main ES, important hedgerows are frequent in

¹⁵ Hedges in which there are gaps and which are no longer stock-proof JNCC(2010) Handbook for Phase 1 habitat survey - a technique for environmental audit.

the area to the south of the A418 Oxford Road, although the connectivity of the network is limited due to the proximity of Aylesbury to the north. The hedgerow network is assessed as being of district/borough value.

- 13.3.10 A pond is located adjacent to the land required for the amendment; ponds are widespread throughout the Stoke Mandeville and Aylesbury area and are typical of the lowland arable landscape. Therefore it is of local/parish value.
- 13.3.11 Habitats surrounding the land required for the amendment are described in the main ES, Volume 2, CFA11, Section 7.3 and are shown on Maps EC-02-021b to EC-02-025a, in the Volume 5 Ecology Map Book.

Protected and/or notable species

- 13.3.12 The closest bat roosts include a maternity roost for brown long-eared bats recorded 1.23km west of the amendment and a day roost for brown long-eared bats recorded 1.18km west of the amendment. These are shown on Maps EC-05-021b to EC-05-025a in the Volume 5 Ecology Map Book.
- 13.3.13 The main ES identified a number of bat species using the wider landscape for foraging and commuting. Two populations/assemblages are likely to be using habitats within and adjacent to the land required for the amendment and are therefore relevant to the assessment. Land to the west of Stoke Mandeville included a maternity roost of brown long-eared bat and foraging *Myotis* bat species. This assemblage is of country/metropolitan value. Habitat associated with the Stoke Brook to the south of Stoke Mandeville supported common pipistrelle, soprano pipistrelle, *Myotis* species, noctule and serotine bats that are collectively of district/borough value.
- 13.3.14 A single pond at Standall's Farm is located adjacent to the land required for the amendment. As part of a precautionary assessment, it is assumed that a medium size-class great crested newt population is present and is of county/metropolitan value.
- 13.3.15 Species identified within the area surrounding the land required for the amendment are described in the main ES, Volume 2, CFA11, Section 7.3 and locations of species records are shown on Maps EC-01 to EC-12 of the Volume 5 Ecology Map Book.

Effects arising during construction

Avoidance and mitigation measures

- 13.3.16 There are no specific measures included as part of the amendment to avoid or reduce impacts to features of ecological value on the land required for the amendment.
- 13.3.17 The assessment assumes implementation of the draft CoCP.

Designated sites

- 13.3.18 The amendment will result in no impacts on designated nature conservation sites, or ancient woodland. There will be no change in the effects reported in the main ES.
- 13.3.19 Statutory and non-statutory designated sites within the wider local area are described in the main ES, Volume 2, CFA11, Section 7 and are shown on Maps EC-01-021b to EC-01-025a of the Volume 5 Ecology Map Book.

Habitats

- 13.3.20 As reported in the main ES, the loss of hedgerows during construction, including those to the south of Stoke Mandeville, will result in a permanent adverse effect on the conservation status of hedgerows that is significant at the district/borough level. The land required for the amendment will be on the eastern side of the previously proposed access track to avoid removal of a species poor hedgerow with trees. The amendment to the access track from Bishopstone Road to Standall's Farm will result in the additional loss of approximately 200m of a defunct hedgerow to the north of Standall's Farm. The additional loss of hedgerow does not change the significance of the effects reported in the main ES.
- 13.3.21 The main ES reports that the loss of habitat resulting from construction, including arable land and grassland, will result in adverse effects significant at no more than the local/parish level. The amendment to the layout of the access track will result in the additional loss of less than 0.4ha of arable land and improved grassland (approximately 0.2ha arable land and 0.2ha improved grassland). Due to the minor increase in the loss of this habitat, construction activities associated with the amendment are unlikely to change the significance of the effects that were reported in the main ES.

Species

- 13.3.22 The main ES reports adverse construction effects at county/metropolitan level on the conservation status of brown long-eared bat. Bat populations in the wider area may utilise habitats within the land required for the amendment for commuting and foraging. Although construction activities for the amendment will result in the loss of some vegetation, there will be no change to the adverse effects at county/metropolitan level reported in the main ES.
- 13.3.23 The main ES reports that the loss and fragmentation of breeding ponds and the loss of terrestrial habitat results in significant effects up to the county/metropolitan level on the conservation status of meta-populations of great crested newt in the wider landscape. The pond at Standall's Farm, containing an assumed great crested newt population, will be retained during the construction activities for the amendment.
- 13.3.24 Construction activities for the amendment will result in the additional loss of approximately 0.2ha of improved grassland. If great crested newt are present within the pond at Standall's Farm they will be removed from the area of works prior to site clearance in accordance with the draft CoCP and the ecological principles of mitigation contained within the SMR Addendum (see main ES, Volume 5: Appendix CT-001-000/2). Due to the limited extent of habitat loss and its low value as terrestrial habitat for great crested newts, there will be no change to the level at which the effects reported in the main ES are significant.

Mitigation and residual effects

Other mitigation measures

- 13.3.25 No other additional or different mitigation is required for the amendment

Residual effects

- 13.3.26 The amendment will result in no change in the residual likely significant effects reported in the main ES.

Effects arising from operation

- 13.3.27 There are no new or different operational effects for ecology as a result of the amendment.

13.4 Summary

- 13.4.1 Construction work within the land required for the revised scheme will completely remove ridge and furrow remains within the topsoil in this location. The loss of these remains will be a permanent high adverse change to these archaeological deposits of low value, resulting in a permanent moderate adverse effect. This significant effect is additional to those reported in the main ES for cultural heritage.
- 13.4.2 Although the amendment will not result in any change in the level of significance of environmental effects reported in the main ES with respect to ecology, the pond at Standall's Farm located adjacent to the land required for the revised scheme will be surveyed for great crested newts before construction of the revised scheme. If great crested newts are found to be present they would be cleared from the amendment area using the methods outlined in the ecological principles of mitigation (see main ES Volume 5: Appendix CT-001-000/2) and the small scale loss of terrestrial habitat).
- 13.4.3 The amendment does not change the significance of the environmental effects or mitigation as set out in the main ES (Volume 2, CFA Report 11) for any other topic.

14 Land no longer required for access to drainage ponds to the north of Bishopstone (AP1-011-010)

14.1 Overview of amendment

- 14.1.1 The Bill provides for a maintenance access track from Bishopstone Road to balancing ponds and a land drainage area adjacent to the original scheme. This access track is no longer required since a second access track to these drainage features from the A418 Oxford Road is also provided for in the Bill. Removal of the access track from Bishopstone Road will require approximately 0.8ha less land, which will be removed from the Bill, (refer to AP map CT-05-043 and CT-06-043 in AP ES Volume 2 Map Book Part 2).
- 14.1.2 The revised access road is not considered to make changes that require a reassessment of the environmental effects or 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 assessment. However there were changes where 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.

14.2 Agriculture, forestry and soils

Scope, assumptions and limitations

- 14.2.1 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.

Environmental baseline

Existing baseline

- 14.2.2 The area of land affected by these works has soil in the Aberford association and these soils are well drained (WC I), fine loamy and calcareous clay soils over limestone but with variable stone content, as described in the main ES (Volume 2, CFA11, Section 3). The quality of land affected is assessed as best and most versatile (BMV) agricultural land in either Grade 2 or Subgrade 3a.
- 14.2.3 The holding affected, CF11/8 (Calley Farm) is a tenanted 283ha dairy and arable farm. The permanent impact of the original scheme was assessed as a major adverse effect due to the loss of some 82.8ha of land, which is assessed as 29% of the holding.

Effects arising during construction

- 14.2.4 The removal of this area reduces the amount of BMV land (Grades 1, 2 and 3a) required by the original scheme by 0.8ha. This does not change the significance of the effect on BMV agricultural land as reported in the main ES (i.e. major/moderate adverse).
- 14.2.5 The removal of this area of land will reduce the permanent area of land required at Calley Farm to 82ha. However, this still represents 29% of the holding and remains a major effect and significant due to the proportion of the holding required and high sensitivity of the holding.

Effects arising from operation

- 14.2.6 There are no additional impacts to agriculture, forestry and soil receptors during the operation of the revised scheme.

Mitigation and residual effects

- 14.2.7 The mitigation and residual effects will remain as reported in the main ES.

14.3 Cultural heritage

Scope, assumptions and limitations

- 14.3.1 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.

- 14.3.2 It is assumed that topsoil will be removed, as a minimum, for construction of the original access track and that all archaeological remains and earthworks within the footprint of the access track would be removed or disturbed.
- 14.3.3 Information on the potential archaeological remains at this location is based on desk based research sources including the historic environment record (HER), historic maps, aerial photographs and non-intrusive surveys comprising LiDAR and hyperspectral survey.

Environmental baseline

Existing baseline

- 14.3.4 The revised scheme lies within an area with potential for buried archaeology of moderate significance dating from the prehistoric, Roman, early medieval and medieval periods (SMA034). Fieldwalking survey across this extensive area has resulted in the retrieval of surface artefacts from all these periods.
- 14.3.5 The baseline resource is as described in the main ES.

Effects arising during construction

- 14.3.6 The main ES assessed the impact to this heritage asset as high adverse, with a major adverse effect as a consequence of the removal of a large part of the northern end of this area of archaeological potential.
- 14.3.7 The reduction of the land required for the revised scheme as part of this amendment is beneficial in that a slightly smaller area will be impacted upon. However, a large area to the north will still be removed.
- 14.3.8 Therefore the revised scheme does not change the result of the assessment or mitigation as set out in the main ES with respect to cultural heritage.

Effects arising from operation

- 14.3.9 Operational effects were previously assessed as having a neutral effect on this heritage asset. There will be no change to the operational effects as a result of this amendment.

Mitigation and residual effects

- 14.3.10 There will be no change to the mitigation and residual effects reported in Volume 2, CFA11 of the main ES.

14.4 Ecology

- 14.4.1 The assessment scope for ecology is as set out in Volume 1 of the AP ES. The key assumptions, limitations and the methodology for determining significance of effects 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.
- 14.4.2 The ecological baseline of the land required for the amendment has been based on field data collated for the main ES on adjacent land, aerial photography and relevant existing information gathered from national organisations and from regional and local sources including: Buckinghamshire and Milton Keynes Environmental Records

Centre; Environment Agency; Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust, Buckinghamshire Bird Club and the North Bucks Bat Group.

- 14.4.3 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.
- 14.4.4 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.

Environmental baseline

- 14.4.5 A summary of the baseline information relevant to the assessment of the amendment is provided below. For those receptors described in the main ES, further details are provided in Volume 2, CFA11, Section 7.3 and in Volume 5, including Maps EC-01 to EC-12, Ecology Map Book.

Designated sites

- 14.4.6 There are no statutory or non-statutory designated sites for nature conservation within 500m of the land required for the amendment.
- 14.4.7 Statutory and non-statutory designated sites within the wider study area are described in the main ES, Volume 2, CFA11, Section 7.3 and are shown on Maps EC-01-021b to EC-01-025a, Volume 5, Ecology Map Book.

Habitats

- 14.4.8 The habitats recorded within the land required for the amendment are improved grassland with hedgerows, mixed plantation woodland, arable and a section of the Sedrup ditch watercourse. The woodland and Sedrup ditch are of local/parish value.
- 14.4.9 The two hedgerows located within the land required for the amendment are important hedgerows under the Hedgerows Regulations 1997. As stated in the main ES, all hedgerows within this area qualify as a habitat of principal importance of district/borough value. Hedgerows are common and widespread in the wider area. As such, the relatively small extent of hedgerow habitat within the amendment is assessed as part of the same resource and is of district/borough value.
- 14.4.10 Habitats surrounding the land required for the amendment are described in the main ES, Volume 2, CFA11, Section 7.3 and are shown on Maps EC-02-021b to EC-02-025a, Volume 5, Ecology Map Book.

Protected and/or notable species

- 14.4.11 A common pipistrelle bat roost was confirmed in a tree 800m to the east at Calley Farm shown on Maps EC-05-021b to EC-05-025a, Volume 5, Ecology Map Book. The bat population associated with Hartwell House Estate and land south of the A418 Oxford Road (common pipistrelle, soprano pipistrelle, Leisler's bat, noctule, serotine and *Myotis* species) is potentially relevant to the assessment. It is of county/metropolitan value, as identified in the main ES.
- 14.4.12 Species identified within the land surrounding the amendment are described in the main ES, Volume 2, CFA11, Section 7.3 and locations of species records are shown on Maps EC-01 to EC-12, Volume 5, Ecology Map Book.

Effects arising during construction

Avoidance and mitigation measures

- 14.4.13 There are no specific measures included as part of the revised scheme to avoid or reduce impacts to features of ecological value on the land required for the amendment.
- 14.4.14 The assessment assumes implementation of the draft CoCP.

Designated sites

- 14.4.15 No impacts on statutory or non-statutory sites will occur as a consequence of the amendment.

Habitats

- 14.4.16 Approximately 0.8ha of land is no longer required for the revised scheme therefore woodland, hedges and the Sedrup Brook will not be affected. However, this will not change the significant effects of local/parish level on these habitats that are reported in the main ES.

Species

- 14.4.17 As reported in the main ES, no significant effects are expected on the bat assemblage associated with Hartwell House Estate and the surrounding area. The retention of habitat associated with the amendment will result in no additional effects on these populations and will not change the effects reported in the main ES.

Effects arising during operation

- 14.4.18 There are no new or different significant operational effects for ecology as a result of the amendment.

14.5 Landscape and visual assessment

Scope, assumptions and limitations

- 14.5.1 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.

Environmental baseline

Existing baseline

- 14.5.2 The amendment is located within Haddenham Vale LCA. Any potential direct/indirect impacts associated with this amendment will be limited to this LCA. The baseline for this LCA is as described in the main ES.
- 14.5.3 The amendment will be visible from recreational receptors on the Midshires Way PRoW, Bishopstone (viewpoint 117.3.001). The baseline for these receptors is as described in the main ES (Volume 2 CFA11, Section 9.3).

Assessment of temporary impacts and effects

- 14.5.4 The amendment will slightly reduce the effect on landscape character within Haddenham Vale LCA compared to the original scheme, due to the removal of construction activities between Bishopstone and Aylesbury. However, this will represent a barely perceptible change in the context of the large scale construction activity proposed within the LCA. Therefore there will be no change to the overall effect on landscape character reported in the main ES (Volume 2, CFA 11, Section 9.4 and Map LV-03-040) of a moderate adverse effect.
- 14.5.5 In addition, the amendment will reduce the visual effects within views from viewpoint 117.3.001, due to the removal of construction activities associated with the access track. However, this will not alter the overall moderate adverse effect reported in the main ES for construction since the main source of impact will be the introduction of large scale plant and machinery required to construct the original scheme, including footpath SBH/27 overbridge and Bridleway SBH/1 overbridge.

Permanent effects arising during operation

- 14.5.6 The amendment will slightly reduce the effect on landscape character within Haddenham Vale LCA between Bishopstone and Aylesbury, due to the removal of the access road and associated maintenance traffic. However, this will not alter the overall effects reported for the wider LCA in the main ES (Volume 2, CFA11, Section 9.5 and Map LV-04-040) of a moderate adverse effect in Year 1 and 15 reducing to non-significant by Year 60. This is due mainly to the presence of engineered landforms, overhead power line equipment and overbridges within the flat landscape.
- 14.5.7 The absence of the access road will also slightly reduce visual effects from viewpoint 117.3.001 due to the removal of the access road and associated maintenance traffic. However, this will not alter the overall moderate adverse effects reported in the main ES, which were due mainly to the visibility of the original scheme, including noise fence barriers, overhead power line equipment and passing trains.

Mitigation and residual effects

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

14.6 Sound, noise and vibration

Scope, assumptions and limitations

- 14.6.1 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES. The assessment was undertaken for the construction phase only. No operational assessment was undertaken, since the amendment will not alter the predicted operational noise levels at the nearby assessment location. It was assumed that the construction works will remain unchanged from that reported in the main ES Volume 2, CFA11, Section 2, with the exception of the removal of works associated with the access road.

Environmental baseline

- 14.6.2 The baseline sound, noise and vibration information for the area is described in the main ES (Volume 5 Appendix SV-002-011).

Effects arising during construction

- 14.6.3 The removal of the access track may serve to reduce the construction noise levels at the nearest sensitive receptors (around 500m away in Sedrup). However, as no likely significant effect was reported for this area in the main ES (Volume 5 Appendix SV-002-011), the outcome of the assessment will not change.

Mitigation and residual effects

- 14.6.4 There will be no change to the mitigation and residual effects reported in the main ES Volume 2, CFA11, Section 11.

14.7 Summary

- 14.7.1 The land no longer required for access to drainage ponds to the north of Bishopstone does not change the significance of the environmental effects or mitigation as set out in the main ES (Volume 2, CFA11).

15 Additional land required for utility works adjacent to the A418 Oxford Road to the west of Aylesbury (AP1-011-011)

15.1 Overview of amendment

- 15.1.1 The Bill provides for the temporary diversion of a 400kV overhead power line, for a period of up to one year, with a permanent increase in overhead clearance and reinstatement along the original alignment. Since submission of the Bill, a requirement has been identified for an additional triangular area of land to access a pylon located immediately south of the A418 Oxford Road and west of Dormer Close, Aylesbury. The approximate additional 0.2ha of land required is outside the limits of the Bill, hence the need for this amendment (refer to map CT-05-043 in AP ES Volume 2, Map Book Part 2 of 6). An assessment of the impact of reconductoring (i.e. restringing) pylons over properties in Aylesbury is also provided below, since it was not included in the main ES.
- 15.1.2 The replacement of the overhead power lines is part of a series of works to raise the existing overhead power line between Great Missenden and Aylesbury to avoid the original scheme.
- 15.1.3 Temporary possession of land around houses in Dormer Close and Parrot Close, Aylesbury will be required for approximately one month to enable temporary scaffolding to be erected beneath the existing overhead power lines that cross these houses. These works can be undertaken without the need for residents to be relocated during the works.
- 15.1.4 A corridor of land 50m wide along the centre line of the conductor route will be required as part of the original scheme. Vegetation clearance will be required to

maintain a safe working area and to prevent the conductor being damaged during reconductoring.

- 15.1.5 These works will take six months in total to complete and are currently planned for 2018. Traffic access to the residential properties on Dormer Close and Parrot Close will not be restricted during construction or operation and residents will not need to be relocated.
- 15.1.6 The reconductoring and additional land is not considered to make changes that require a reassessment of the environmental effects or mitigation as set out in the main ES with respect to: agriculture, forestry and soils; air quality; cultural heritage; land quality; socio-economics; traffic and transport; and water resources and flood risk assessment. However there were changes where reassessment was considered to be required in respect of community; ecology; landscape and visual assessment; and sound, noise and vibration.

15.2 Community

Scope, assumptions and limitations

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

Environmental baseline

- 15.2.2 The baseline community information for Stoke Mandeville and Aylesbury is described in the main ES (Volume 2, CFA11, Section 5).

Effects arising during construction

- 15.2.3 Access to the residential properties on Dormer Close and Parrot Close will not be restricted during construction and residents will not need to be relocated. In addition these properties will not experience any in-combination effects. Therefore no significant temporary or permanent effects arising from the reconductoring or temporary additional land required for construction have been identified. The community effects arising during construction will therefore be as reported in Volume 2, CFA11 of the main ES.

Effects arising from operation

- 15.2.4 Access to the residential properties on Dormer Close and Parrot Close will not be restricted during operation and they will not experience any in-combination effects. Therefore no significant effects arising from operation of the original scheme have been identified. The community effects arising from operation of the revised scheme will therefore be as reported in Volume 2, CFA11 of the main ES.

Mitigation and residual effects

- 15.2.5 There will be no change to the mitigation and residual effects reported in Volume 2, CFA11 of the main ES.

15.3 Ecology

Scope, assumptions and limitations

- 15.3.1 The assessment scope for ecology is as set out in Volume 1 of the AP ES. The key assumptions, limitations and the methodology for determining significance of effects 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.
- 15.3.2 The land required for the amendment is bordered by the land already within the limits of the Bill which has been subject to desk-based ecological investigations as well as field survey and assessment for flora and fauna.
- 15.3.3 The ecological baseline of the land required for the amendment has therefore been based on field data collated for the main ES on adjacent land, aerial photography and relevant existing information gathered from national organisations and from regional and local sources including: Buckinghamshire and Milton Keynes Environmental Records Centre; Environment Agency; Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust; and the North Bucks Bat Group.
- 15.3.4 To address any limitations in data, a precautionary baseline has been considered according to the guidance reported in the main ES Volume 5: Appendix CT-001-000/2. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 15.3.5 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.

Environmental baseline

- 15.3.6 A summary of the baseline information relevant to the assessment of the amendment is provided below. For those receptors described in the main ES, further details are provided in Volume 2, CFA11, Section 7.3 and in Volume 5, including Maps EC-01 to EC-12, Ecology Map Book.

Designated sites

- 15.3.7 There is no statutory or non-statutory designated nature conservation site or ancient woodland that is within 500m of the land required for this amendment or otherwise relevant to the assessment. Statutory and non-statutory designated sites within the desk study extent are described in the main ES, Volume 2, CFA11 Section 7.3 and are shown on Maps EC-01-021b to EC-01-025a, Volume 5, Ecology Map Book.

Habitats

- 15.3.8 The habitats recorded within the land required for the amendment are improved grassland which is traversed by the Sedrup ditch watercourse. The habitat was assumed to be of similar value to grassland in neighbouring survey areas. Sedrup ditch has been heavily modified and supports little plant or animal diversity. As reported in the main ES, both the grassland and Sedrup ditch are of local/parish value.
- 15.3.9 Habitats surrounding the land required for the amendment are described in the main ES, Volume 2, CFA11, Section 7.3 and are shown on Maps EC-02-021b to EC-02-025a, Volume 5, Ecology Map Book.

Protected and/or notable species

- 15.3.10 The nearest surveyed bat roosts are located 500m south-west of the amendment in a woodland area that provides important foraging and commuting habitat. The bat assemblage associated with Hartwell House Estate and land south of the A418 Oxford Road is relevant to the assessment. This assemblage includes common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, Leisler's bat, brown long-eared bat, noctule, serotine and *Myotis* species. The main ES reports that this assemblage is of county/metropolitan value. As reported in the main ES, woodland and watercourses provide important foraging and commuting habitat for this assemblage and it is likely that these species will utilise the habitats near Sedrup ditch within the area of additional land required for the amendment.
- 15.3.11 As reported in the main ES, the fish population and the assemblage of aquatic invertebrates in the Sedrup ditch are of local/parish value.
- 15.3.12 Species identified within the land surrounding the land required for the amendment are described in the main ES, Volume 2, CFA11, Section 7.3 and locations of species records are shown on Maps EC-01 to EC-12, Volume 5, Ecology Map Book.

Effects arising during construction

Avoidance and mitigation measures

- 15.3.13 There are no specific measures included as part of the amendment to avoid or reduce impacts to features of ecological value on the land required for the amendment.
- 15.3.14 The assessment assumes implementation of the draft CoCP.

Designated sites

- 15.3.15 There are no designated sites or ancient woodland within 500m of land required for the amendment. Therefore, there will be no change to the assessment reported in the main ES.

Habitats

- 15.3.16 As stated in the ES, the significance of the effects on all habitats other than hedgerows is up to the local/parish level. The amendment will result in the loss of approximately an additional 0.2ha of improved grassland and a small section of the Sedrup ditch. An additional effect of this magnitude does not alter the conclusions reported in the main ES.

Species

- 15.3.17 As stated in the main ES, no significant effect on the bat assemblage associated with Hartwell House Estate and the surrounding area is expected. Although the amendment will result in the additional loss of a small amount of improved grassland and a section of the Sedrup ditch, this is not considered likely to adversely affect the conservation status of the bat assemblage concerned. As such, the conclusions reported in the main ES remain unchanged.
- 15.3.18 The main ES reports that it is considered unlikely that any other effects on the fish and aquatic invertebrate populations within the Sedrup ditch at more than the local/parish level will occur. Construction activities on land required for the amendment will not

have any additional impacts on these populations and will not change the assessment reported in the main ES.

Effects arising from operation

- 15.3.19 There are no new or different significant operational effects for ecology as a result of the amendment.

15.4 Landscape and visual assessment

Scope, assumptions and limitations

- 15.4.1 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.

Environmental baseline

- 15.4.2 The amendment is located within Haddenham Vale LCA. The baseline is as described in the main ES (Volume 2, CFA11, Section 9.3).

- 15.4.3 The amendment works will be visible from additional residential receptors on Parrot Close, Dormer Close and Roberts Way (viewpoint AP1 120.2.002) which were not assessed for the main ES. Existing views from this receptor look across amenity green space associated with the adjacent housing estate. The foreground of the view is dominated by the existing pylons and overhead power lines. Vegetation lining Bear Brook in the middle ground provides a near-distance horizon to the view, beyond which only glimpses of arable farmland are available.

Assessment of temporary impacts and effects

- 15.4.4 Construction activities associated with the reconductoring as part of the original scheme will temporarily introduce machinery and equipment, such as cranes and scaffolding, close to viewpoint AP1 120.2.002. (Viewpoint AP1 120.2.002 is shown on maps LV-03-400 and LV-04-040 in AP ES Volume 2 Map Book, Part 2). In addition, the removal of trees and tall vegetation will be clearly visible across the middle ground of the view and this will open up views to further construction activities in the background. This will include activities around the A418 Oxford Road overbridge and A418 Oxford Road overbridge satellite compound approximately 300m away. This will represent a change in the existing view close to the visual receptor. However, taken within the context of a view containing existing pylons and overhead power lines, the magnitude of change is considered to be medium. The medium magnitude of change, assessed alongside the high sensitivity of the receptor, will result in a moderate adverse effect.
- 15.4.5 The amendment will require additional land and will introduce additional construction plant and equipment into the landscape. This will, however, represent a barely perceptible increase in the construction activities anticipated for the original scheme. Therefore, this will not alter the overall moderate adverse effects reported for the Haddenham Vale LCA in the main ES (Volume 2, CFA 11, Section 9.4 and Map LV-03-040).

Permanent effects arising during operation

- 15.4.6 The pylons and overhead power lines will have been returned to their original position. Therefore the revised scheme will not alter the overall moderate adverse effects in Year 1 and 15 of operation reported for the Haddenham Vale LCA in the main ES (Volume 2, CFA11, Section 9.5 and Map LV-04-040).
- 15.4.7 The removal of vegetation during construction will be apparent within views from viewpoint AP1 120.2.002 during operation. This will result in more open views towards the original scheme to the south-west, including the A418 Oxford Road overbridge, approximately 400m from the receptor. This will represent a medium magnitude of change, resulting in a moderate adverse effect.

Mitigation and residual effects

- 15.4.8 As is commonplace with major works, the scale of the construction activities means that works will be visible in many locations and will have the potential to give rise to significant temporary effects which cannot be mitigated practicably. Such effects are temporary and vary over the construction period depending on the intensity and scale of the works at that time. The residual significant temporary effects are the effects persisting after the controls contained in Section 12 of the draft CoCP are implemented. There will be a residual significant temporary effect on viewpoint 120.2.002 as a result of the reconductoring works.
- 15.4.9 The residual significant operational effects are the permanent residual significant effects persisting after the mitigation included in the original scheme design has reached its designed intent 15 years from opening (i.e. when matured).
- 15.4.10 The reinstatement of vegetation lost during construction will be required to mitigate the significant visual effect identified for viewpoint AP1 120.2.002.
- 15.4.11 In year 15 and through to year 60 of operation, this vegetation will have matured to provide effective visual screening, resulting in effects that are not considered to be significant.

15.5 Sound, noise and vibration

Scope, assumptions and limitations

- 15.5.1 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES. The assessment was undertaken for the construction phase only. No assessment of operational sound, noise and vibration has been undertaken, since the amendment only involves temporary use of land.
- 15.5.2 It has been assumed that the construction works will remain unchanged from that reported in the main ES, Volume 2, CFA 11, Section 11, except for the works relating to the diversion and additional site area.

Environmental baseline

- 15.5.3 The baseline sound, noise and vibration information for the area is described in the main ES (Volume 5 Appendix SV-002-011).

Effects arising during construction

- 15.5.4 The closest sensitive receptors to the amendment are residential properties located on the southern edge of Aylesbury, such as Dormer Close and Parrot Close represented by Assessment Location 319422 (refer to the main ES Volume 5: Appendix SV-002-011).
- 15.5.5 Neither the works for the reconductoring nor the revised scheme will represent a significant intensification of the works reported in the main ES, given the short duration of the works and the size of the area to be cleared. The outcome of the assessment reported in the main ES remains unchanged.

Mitigation and residual effects

- 15.5.6 There will be no change to the mitigation and residual effects reported in the main ES, Volume 2, CFA 11, Section 11.

15.6 Summary

- 15.6.1 Construction activities associated with the reconductoring, as part of the original scheme, will temporarily introduce machinery and equipment, such as cranes and scaffolding, close to AP viewpoint 120.2.002. In addition, the removal of trees and tall vegetation will be clearly visible across the middle ground of the view and this will open up views to further construction activities in the background. This will represent a change in the existing view close to the visual receptor represented by AP viewpoint 120.2.002, resulting in a moderate adverse effect. The amendment will require additional land and will introduce additional construction plant and equipment into the landscape. This will, however, represent a barely perceptible increase in the construction activities anticipated for the original scheme
- 15.6.2 The removal of vegetation during construction will be apparent within views from AP viewpoint 120.2.002 during operation. This will result in more open views towards the original scheme to the southwest, resulting in a moderate adverse effect which is significant.
- 15.6.3 The reinstatement of vegetation lost during construction will be required to mitigate the significant visual effect identified for this viewpoint. In year 15 and through to year 60 of operation, this vegetation will have matured to provide effective visual screening, resulting in effects that are not considered to be significant.
- 15.6.4 The amendment does not change the significance of the residual environmental effects or mitigation as set out in the main ES (Volume 2, CFA11) for any other topic.

16 Additional land required for access to balancing pond from Lower Hartwell passing by Whaddon Hill Farm (AP1-011-012)

16.1 Overview of amendment

- 16.1.1 The Bill provides for a balancing pond north of Bridleway SBH/2 to the west of the original scheme and adjacent to the southern abutment of the proposed Thame Valley viaduct. Maintenance access to the balancing pond from Lower Hartwell is provided via an existing access track through Whaddon Hill Farm. Since submission of the Bill it has been identified that access through the farm for maintenance vehicles may not be wide enough. A new permanent maintenance access 3.5m wide, with 1.5m verges on both sides and passing bays, is to be provided around the farm to the north linking the access tracks east and west of the farm. This will take approximately nine months to complete. The access around the farm is outside the limits of the Bill and will require approximately 0.2ha of additional land, hence the need for this amendment (refer to maps CT-05-044 and CT-05-044 in AP ES Volume 2, Map Book Part 2 of 6). Land through the farm provided for maintenance access is to be removed.
- 16.1.2 The revised use of the additional land is not considered to make changes that require a reassessment of the environmental effects or mitigation as set out in the main ES with respect to: agriculture, forestry and soils; air quality; community; ecology; land quality; landscape and visual assessment; socio-economics; sound, noise and vibration; traffic and transport; and water resources and flood risk assessment. However there were changes where reassessment was considered to be required in respect of cultural heritage.

16.2 Cultural heritage

Scope, assumptions and limitations

- 16.2.1 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.
- 16.2.2 It is assumed that topsoil will be removed, as a minimum, for construction of the revised scheme and that all archaeological remains and earthworks within the footprint of the amendment would be removed or disturbed.
- 16.2.3 Information on the potential archaeological remains at this location is based on desk based research (sources including the historic environment record (HER), historic maps and aerial photographs) and non-intrusive surveys comprising LiDAR and hyperspectral survey.

Environmental baseline

- 16.2.4 The works in this area will be carried out within an area containing known medieval archaeological remains including a medieval settlement (house platforms and ditches

(SMAo62) to the north of the amendment and ridge and furrow (asset reference SMAo67) to the east. Neither of these sites will be physically affected.

16.2.5 The route of the original access track passed through the farm, adjacent to the Grade II listed 18th century Whaddon Hill Farmhouse (asset reference SMAo61). Principal views from the farmhouse are to the south, over its lawn and farmland. There are modern agricultural buildings on the northern side of the farm.

16.2.6 The baseline resource is as described in the main ES.

Effects arising during construction

16.2.7 The works will not affect any archaeological remains identified in the main ES, and there will be no additional effect on below ground archaeology.

16.2.8 The impact on the setting of Whaddon Hill Farmhouse is reported in the main ES as a temporary low adverse effect during construction. The amendment will take the access road to the north of the farm. This will not change the setting of the farmhouse reported in the original scheme, since the principal views from the farmhouse are to the south, with the access road to the north screened by modern agricultural buildings. The effect will therefore remain the same: temporary minor adverse during construction.

16.2.9 Therefore, the revised scheme does not change the result of the assessment or mitigation as set out in the main ES.

Effects arising from operation

16.2.10 Operational effects were previously assessed as having a neutral effect on the setting of Whaddon Hill Farmhouse. There will be no change to the operational effects as a result of the amendment.

Mitigation and residual effects

16.2.11 There will be no change to the mitigation and residual effects reported in Volume 2, CFA11 of the main ES.

16.3 Summary

16.3.1 The additional land required for access to a balancing pond from Lower Hartwell passing by Whaddon Hill Farm does not change the significance of the environmental effects or mitigation as set out in the main ES (Volume 2, CFA11).

17 Change to land required for access to balancing pond west of Putlowes Farm (AP1-011-013)

17.1 Overview of amendment

17.1.1 The Bill provides for a permanent access track, from the old A41 Bicester Road through Putlowes Drive and the yard of Putlowes Farm for maintenance access to a balancing pond on the west of the original scheme. The whole of Putlowes Drive will

be used for maintenance access. The new section of track at the northern end of the drive is therefore no longer required and is to be removed from the Bill. Putlowes Drive is to be improved and widened to a 3.5m carriageway with 1.5m verges on both sides and passing bays to accommodate maintenance vehicles. A new permanent maintenance access will also be provided around the periphery of Putlowes Farm to the north, 3.5m wide with 1.5m verges on both sides and passing bays, to join the existing tracks east and west of the farm. This is outside the limits of the Bill and will require approximately 0.7ha of additional land, hence the need for this amendment (refer to maps CT-05-046 and CT-06-046 in AP ES Volume 2, Map Book Part 2 of 6). Approximately 0.4ha of land through the farm provided for maintenance access is no longer required and will be removed from the Bill. The new access around Putlowes Farm will require the diversion of a watercourse through a realigned culvert requiring a diversion of approximately 5m from the existing watercourse alignment. These works will take approximately 12 months to complete.

- 17.1.2 The revised access road, the widening of Putlowes Drive and the new access around Putlowes Farm is not considered to make changes that require a reassessment of the environmental effects or mitigation as set out in the main ES with respect to: air quality; community; land quality; socio-economics; and traffic and transport. However there were changes where reassessment was considered to be required in respect of agriculture, forestry and soils; cultural heritage; ecology; landscape and visual assessment; sound, noise and vibration; and water resource and flood risk assessment.

17.2 Agriculture, forestry and soils

Scope, assumptions and limitations

- 17.2.1 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.

Environmental baseline

- 17.2.2 The area of land affected by the amendment has soil in the Denchworth association. Denchworth soils are poorly drained (WC IV) and characteristically comprise profiles of clay throughout. The quality of land affected is assessed as moderate quality Subgrade 3b.
- 17.2.3 The holding affected is CFA11/10 (Putlowes Farm) which is a 156ha mixed farm holding with arable and livestock enterprises. It is considered to be of medium sensitivity to change.

Effects arising during construction

- 17.2.4 The permanent requirement for a further 0.3ha of agricultural land in Subgrade 3b does not change the significance of the effect on BMV agricultural land as reported in the main ES (i.e. major/moderate adverse).
- 17.2.5 The amendment will require a further 0.3ha which will increase the area of productive agricultural land required from Putlowes Farm from 28.6ha to 28.9ha (19%). However, the effect on the farm remains the same, at moderate adverse.

Effects arising from operation

- 17.2.6 There are no additional impacts to agriculture, forestry and soil receptors during the operation of the revised scheme.

Mitigation and residual effects

- 17.2.7 No mitigation measures are required to mitigate this small increase in additional land. There will be no change to the mitigation and residual effects as reported in the main ES.

17.3 Cultural heritage

Scope, assumptions and limitations

- 17.3.1 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.
- 17.3.2 It is assumed that topsoil will be removed, as a minimum, to construct the access track and that all archaeological remains and earthworks within the footprint of the access track will be removed or disturbed.
- 17.3.3 Information on the potential archaeological remains at this location is based on desk based research (sources including the historic environment record (HER), historic maps and aerial photographs) and non-intrusive surveys comprising LiDAR and hyperspectral survey.

Environmental baseline

- 17.3.4 The works associated with the amendment will take place within an area of high potential for Roman period archaeological remains assessed as being of moderate and high significance. This comprises the probable site of Fleet Marston Romano-British small town, and three associated sections of Roman road (asset references SMA074, SMA076, SMA079, SMA080).
- 17.3.5 Part of the proposed new access track as part of the revised scheme skirts around the western edge of Putlowes Farm. This non-designated post-medieval 19th century farm house and outbuildings has been assessed as being of low significance (asset reference SMA088). Aerial survey reported in the main ES identifies both extant and levelled ditches in the area to be crossed by the revised access track to the west of the farm. These features are likely to relate to medieval settlement at this location, although it is also possible they may have some connection with the large quantity of Iron Age and Roman period finds from across this area. They have been grouped with asset reference SMA088.
- 17.3.6 The baseline resource is as described in the main ES.

Effects arising during construction

- 17.3.7 The temporary construction effects on the built heritage assets at Putlowes Farm will not differ as a result of the revised scheme since, although the proposed new access track will no longer pass through the farm itself, it will still run directly adjacent to it. However, the revised scheme may result in the loss of some of the possible medieval

earthworks to the immediate west of the farm buildings, which have been grouped with this asset. Therefore the construction impact of the revised scheme is assessed as altered from permanent medium adverse to permanent high adverse for this element of the asset. This will result in a permanent moderate adverse effect. Further information on this change is provided in Table 13.

- 17.3.8 The revised scheme does not change the result of the assessment or mitigation as set out in the main ES with respect to remains relating to the former Roman town, including the three sections of Roman road. The assessment of impact as high adverse, with a major adverse effect therefore still stands.

Effects arising from operation

- 17.3.9 The operational effects on the built heritage assets at Putlowes Farm will not differ as a result of the revised scheme since although the proposed new access track will no longer pass through the farm itself, it will still run directly adjacent to it. There will be no operational effects on the buried archaeological remains affected by the revised scheme, since the construction effect remains and there will be no further impact.

Mitigation and residual effects

- 17.3.10 The draft Heritage Memorandum and the draft CoCP set out the provisions that will be adopted to control effects on the heritage asset (see Volume 5: Appendix CT-003-000 of the main ES). A programme of archaeological works will be prepared to investigate, analyse, report and archive these assets. There will be a residual permanent moderate adverse effect as a result of the amendment.

Volume 5 amendments

- 17.3.11 Table 13 sets out the changes to the main ES, Volume 5, Appendix CH-003-011, as a result of the amendment.

Table 13: Changes to the Volume 5 Appendix CH-003-011 – Impact Assessment Table for AP1-011-013

Unique ID	Name	Designation(s)	Value	Construction impacts			Operation impacts		
				Nature of impact including mitigation	Scale of impact	Effect	Nature of impact including mitigation	Scale of Impact	Effect
SMA088 (AP1-011-013)	Putlowes Farm	None	Low	<p>Putlowes Farm lies adjacent to the land required, temporarily or permanently for construction of the original scheme. Construction activities will be visible and in addition the asset lies within an area identified as being subject to significant construction period noise (see main ES Volume 5: Appendix SV-001-011). These changes will have a noticeable impact on the ability to understand and appreciate this asset within its historic landscape context over a period of three years.</p> <p>The presence of the original scheme within the agricultural landscape associated with Putlowes Farm will effectively sever the farm from much of its setting and in particular the surviving elements of ridge and furrow (SMA093) that may be associated with a medieval township at Putlowes. The changes will be such that the setting will be noticeably different affecting the historical legibility and coherence of the asset within its setting and our ability to understand it within its historical context.</p> <p>Widening the access road as part of AP1-011-013 will remove archaeological remains associated with medieval earthworks at Putlowes.</p>	<p>Temporary medium adverse</p> <p>Permanent high adverse</p>	<p>Temporary minor adverse</p> <p>Permanent moderate adverse</p>	<p>Putlowes Farm will experience changes to its setting due to the movement and associated increase in noise of passing trains (see main ES, Volume 5, Appendix SV-001-011). This will have a noticeable impact on the ability to understand and appreciate this asset within its historic landscape context. This will constitute a medium adverse impact resulting in a minor adverse effect. In combination with the permanent construction impacts of the original scheme this will result in a medium adverse effect resulting in a minor adverse effect.</p>	<p>Operational medium adverse</p> <p>Combined medium adverse</p>	<p>Operational minor adverse</p> <p>Combined minor adverse</p>

17.4 Ecology

Scope, assumptions and limitations

- 17.4.1 The assessment scope for ecology is as set out in Volume 1 of the AP ES. The key assumptions and limitations, and the methodology for determining significance of effects are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 17.4.2 The ecological baseline of the land required for the amendment has been based on field data collated for the main ES on adjacent land, aerial photography and relevant existing information gathered from national organisations and from regional and local sources including: Buckinghamshire and Milton Keynes Environmental Records Centre; Environment Agency; Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust, Buckinghamshire Bird Club and the North Bucks Bat Group.
- 17.4.3 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.
- 17.4.4 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.

Environmental baseline

- 17.4.5 A summary of the baseline information relevant to the assessment of the amendment is provided below. For those receptors described in the main ES, further details are provided in Volume 2, CFA11, Section 7.3 and in Volume 5, including Maps EC-01 to EC-12, Ecology Map Book.

Designated sites

- 17.4.6 There is no statutory or non-statutory designated site for nature conservation or ancient woodland that is within 500m of the land required for the amendment, or otherwise relevant to the assessment.
- 17.4.7 Statutory and non-statutory designated sites within the wider study area are described in the main ES, Volume 2, CFA11, Section 7.3 and are shown on Maps EC-01-021b to EC-01-025a, Volume 5, Ecology Map Book.

Habitats

- 17.4.8 As reported in the main ES, the habitats recorded within the land required for the amendment are improved grassland with hedgerows, mixed plantation woodland, arable and a section of the Sedrup ditch watercourse. The woodland and Sedrup ditch are each of local/parish value.
- 17.4.9 The two hedgerows located within the land required for the amendment are important hedgerows under the Hedgerows Regulations 1997. As stated in the main ES, all hedgerows within this area qualify as a habitat of principal importance, and the wider hedgerow network is of district/borough value.

- 17.4.10 Habitats surrounding the land required for the amendment are described in the main ES, Volume 2, CFA11, Section 7.3 and are shown on Maps EC-02-021b to EC-02-025a, Volume 5, Ecology Map Book.

Protected and/or notable species

- 17.4.11 A common pipistrelle bat roost was confirmed in a tree 800m to the east at Calley Farm shown on main ES Maps EC-05-021b to EC-05-025a, Volume 5, Ecology Map Book. The bat assemblage associated with Hartwell House Estate and land south of the A418 Oxford Road (common pipistrelle, soprano pipistrelle, Leisler's bat, noctule, serotine and *Myotis* species) is relevant to the assessment. The main ES reports the assemblage is of county/metropolitan value.
- 17.4.12 Two potential otter holts were recorded 380m and 500m north-west in the Sedrup ditch at Calley Farm and suitable otter terrestrial habitat is located adjacent to the land required for the amendment. The otter populations within this area are considered to be of district/borough value, as stated in the main ES.
- 17.4.13 Species identified within the area surrounding the land required for the amendment are described in the main ES, Volume 2, CFA11, Section 7.3 and locations of species records are shown on Maps EC-01 to EC-12, Volume 5, Ecology Map Book.

Effects arising during construction

Avoidance and mitigation measures

- 17.4.14 There are no specific measures included as part of the revised scheme to avoid or reduce impacts to features of ecological value on the land required for the amendment.
- 17.4.15 The assessment assumes implementation of the draft CoCP.

Designated sites

- 17.4.16 No impacts on statutory or non-statutory sites will occur as a consequence of the amendment.

Habitats

- 17.4.17 The access road from Bishopstone Road is no longer required and therefore woodland, hedges and the Sedrup Brook will not be affected. An additional 0.7ha of improved grassland will be removed as a result of widening the access route, although this will not change the significant effects of local/parish level on these habitats that are reported in the main ES.

Species

- 17.4.18 As reported in the main ES, no significant effects are expected on the bat assemblage associated with Hartwell House Estate and the surrounding area for otters and badgers. The retention of habitat associated with the amendment will not result in any additional effects on these populations and will not change the effects reported in the main ES.

Effects arising from operation

Avoidance and mitigation measures

- 17.4.19 There are no specific measures included as part of the revised scheme to avoid or reduce impacts to features of ecological value in the area of land required for the amendment.

Assessment of impacts and effects

- 17.4.20 As stated in the main ES, it is unlikely that any operational effects on the bat assemblage associated with Hartwell House Estate and the surrounding area, otters or badgers will occur at more than the local/parish level. The removal of the proposed access road will result in no additional significant operational effects and will not change the effects reported in the main ES.

Mitigation and residual effects

Other mitigation measures

- 17.4.21 No additional or different mitigation is required for the amendment.

Residual effects

- 17.4.22 The amendment will result in no change in the residual likely significant effects reported in the main ES.

17.5 Landscape and visual assessment

Scope, assumptions and limitations

- 17.5.1 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.

Environmental baseline

- 17.5.2 The amendment is located within Fleet Marston Vale LCA. Any potential direct/indirect impact associated with this amendment will be limited to this LCA. The baseline is as described in the main ES.
- 17.5.3 The amendment will be visible from residential receptors at Putlowes (viewpoint 126.2.001). The baseline for these receptors is as set out in the main ES (Volume 2 CFA11).
- 17.5.4 The amendment will also be visible from additional residential receptors on Putlowes Drive (AP1 128.2.001). Views from this receptor are essentially rural with Putlowes Drive in the foreground and rising agricultural land in the middle ground. This largely blocks views to the background, although distant hills are visible to the right of the view.
- 17.5.5 The location of Viewpoint AP1 128.2.001 is shown on maps LV-03-042 and LV-04-042 (Volume 5 AP Map Book, Part 2).

Assessment of temporary impacts and effects

- 17.5.6 The amendment will have a localised impact on the setting of the landscape around Putlowes and Fleet Marston by introducing additional construction activities associated with the Putlowes Drive widening and new access road around Putlowes. However, this will represent a barely perceptible change in the context of the other large scale construction activity proposed within the Fleet Marston Vale LCA. Therefore there will be no change to the overall moderate adverse effect on landscape character reported in the main ES (Volume 2, CFA11, Section 9.4 and Map LV-03-042).
- 17.5.7 Views of the original scheme to the south-west from AP1 128.2.001 will be largely screened by intervening topography. However, construction activities associated with the widening of Putlowes Drive will be clearly visible within the foreground and middle ground of views from this receptor. This will represent a temporary change in the existing view by introducing construction plant and machinery into an essentially rural view. The magnitude of change is considered to be medium, which combined with the high sensitivity of the receptor, results in a moderate adverse effect.
- 17.5.8 In addition, the construction of the proposed section of access road around Putlowes will be clearly visible within the foreground of views from the residential receptor at Putlowes (126.2.001) and will increase the visual effects from this receptor. However, as the effect in the main ES was already major adverse, the amendment will not alter the overall effect.

Permanent effects arising during operation

- 17.5.9 The widening of Putlowes Drive and the presence of the new section of access track around Putlowes will represent a localised effect on the farmed landscape around Putlowes and Fleet Marston. However, this will not increase the overall moderate adverse effect in Year 1 reported in the main ES (Volume 2, CFA11, Section 9.5 and Map LV-04-042) for the wider Fleet Marston Vale LCA, since the main sources of effect are the alterations to the naturally flat landscape, and the presence of the large scale infrastructure including the proposed Thame Valley viaduct.
- 17.5.10 The new section of access track will be visible from Putlowes (126.2.001) and will represent an additional effect when compared to the original scheme. However, as the overall effect in the main ES was major adverse, the amendment will not alter the effect reported.
- 17.5.11 The widened Putlowes Drive will be visible in the foreground of views from AP1 128.2.001. However, this will be seen within a view containing an existing road. Therefore this will represent a negligible visual effect during operation.

Mitigation and residual effects

- 17.5.12 As is commonplace with major works, the scale of the construction activities means that works will be visible in many locations and will have the potential to give rise to significant temporary effects which cannot be mitigated practicably. Such effects are temporary and vary over the construction period depending on the intensity and scale of the works at that time. There will be a residual significant temporary effect on viewpoint 128.2.001 as a result of the amendment.

- 17.5.13 The residual significant operational effects are the permanent residual significant effects persisting after the mitigation included in the scheme design has reached its designed intent 15 years from opening (i.e. when matured).
- 17.5.14 There will be no change to the mitigation and residual effects reported in Volume 2, CFA11 of the main ES.

17.6 Sound, noise and vibration

Scope, assumptions and limitations

- 17.6.1 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES. The assessment was undertaken for the construction phase only. The noise associated with the access road will not materially affect the operational noise assessment when considered in conjunction with the operation of original scheme.
- 17.6.2 It has been assumed that the construction works will remain unchanged from that reported in the main ES, Volume 2, CFA11, Section 2, with the exception of the change of location of works associated with the access road.
- 17.6.3 It has been assumed that the access road will carry vehicles associated with the maintenance of the balancing pond only.

Environmental baseline

- 17.6.4 The baseline sound, noise and vibration information for the area is described in the main ES (Volume 5 appendix SV-002-011).

Effects arising during construction

- 17.6.5 The construction and use of the access track during the construction phase was assessed in the main ES (see CFA11, Section 11). The assessment concluded that noise from construction was unlikely to give rise to a significant effect in this area. The nearest noise sensitive receptors to the change are residential properties on Putlowes Drive, represented by assessment location 311158 (refer to main ES, Volume 5: Appendix SV-002-011).
- 17.6.6 The alteration to the location of the access track may alter noise levels at properties on Putlowes Drive due to vehicle movements on the track. However, the results of the assessment will not change, given the relatively low volume of traffic expected on the track during construction.

Mitigation and residual effects

- 17.6.7 There will be no change to the mitigation and residual effects reported in Volume 2 CFA11 of the main ES.

17.7 Water resources and flood risk assessment

Scope, assumptions and limitations

- 17.7.1 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.

17.7.2 The following has been assumed in undertaking the assessment:

- no diversion of the unnamed stream flowing east to the River Thames is required; and
- the unnamed stream appears to be culverted under the existing road and no further amendments to the culvert will be required.

17.7.3 The new access track around Putlowes intersects a stream to the north-west of Putlowes. Potential impacts to surface water flows flowing east into River Thames and its associated floodplain (Flood Zone 2 at nearest point to Putlowes) have been assessed.

Environmental baseline

17.7.4 The baseline water resources and flood risk information for the Stoke Mandeville and Aylesbury area is described in the main ES (Volume 2, CFA11, Section 13).

17.7.5 An unnamed stream, a tributary of the River Thames, will be crossed by the works under the amendment. The unnamed stream is an Ordinary Watercourse and the current overall status¹⁶, under the Water Framework Directive (WFD)¹⁷, is assumed to be Poor while the objective for 2027 is Good Potential/Status. The proposed crossing is outside Flood Zone 2 for the River Thames. No flood zones are associated with the unnamed stream.

17.7.6 The Buckinghamshire preliminary flood risk assessment (PFRA) shows that there are areas susceptible to groundwater flooding associated with local superficial deposits along the Stoke Brook, at the Aylesbury Park Golf Club and across the River Thames valley. These areas do not, however, include the tributary of the River Thames near Putlowes Farm. The Aylesbury Vale District Council strategic flood risk assessment (SFRA) states that there is a low risk of groundwater flooding in the study area.

Effects arising during construction

17.7.7 The proposed works will involve constructing minor foundations at watercourse crossings that penetrate the natural strata and construction of short culvert(s) on a ditch near Putlowes Farm. The assessment confirms the conclusion in Volume 2, CFA11 of the main ES that there will be no significant temporary or permanent adverse effects on water resources or flood risk.

Effects arising from operation

17.7.8 The amendment does not change the assessment reported in Volume 2, CFA11 of the main ES.

¹⁶ Environment Agency, Thames River Basin Management Plan.

¹⁷ Water Framework Directive – Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, Strasbourg, European Parliament and European Council.

Mitigation and residual effects

- 17.7.9 The draft CoCP sets out the measures and standards of work that will be applied to the construction of the original scheme (see the main ES, Volume 5, Appendix CT-003-000). These will provide effective management and control of the impacts during the construction period. The amendment will result in no change to the likely residual significant effects reported in the main ES.

17.8 Summary

- 17.8.1 The revised scheme may result in the loss of some of the possible medieval earthworks near to Putlowes Farm. This will increase the magnitude of effect from a permanent minor adverse effect to a permanent moderate adverse effect which is significant.

Views of the original scheme to the south-west from AP1 128.2.001 will be largely screened by intervening topography. However, construction activities associated with the widening of Putlowes Drive will be clearly visible within the foreground and middle ground of views from this receptor. This will represent a temporary change in the existing view by introducing construction plant and machinery into an essentially rural view. There will be a residual significant temporary effect on viewpoint 128.2.001 as a result of the amendment.

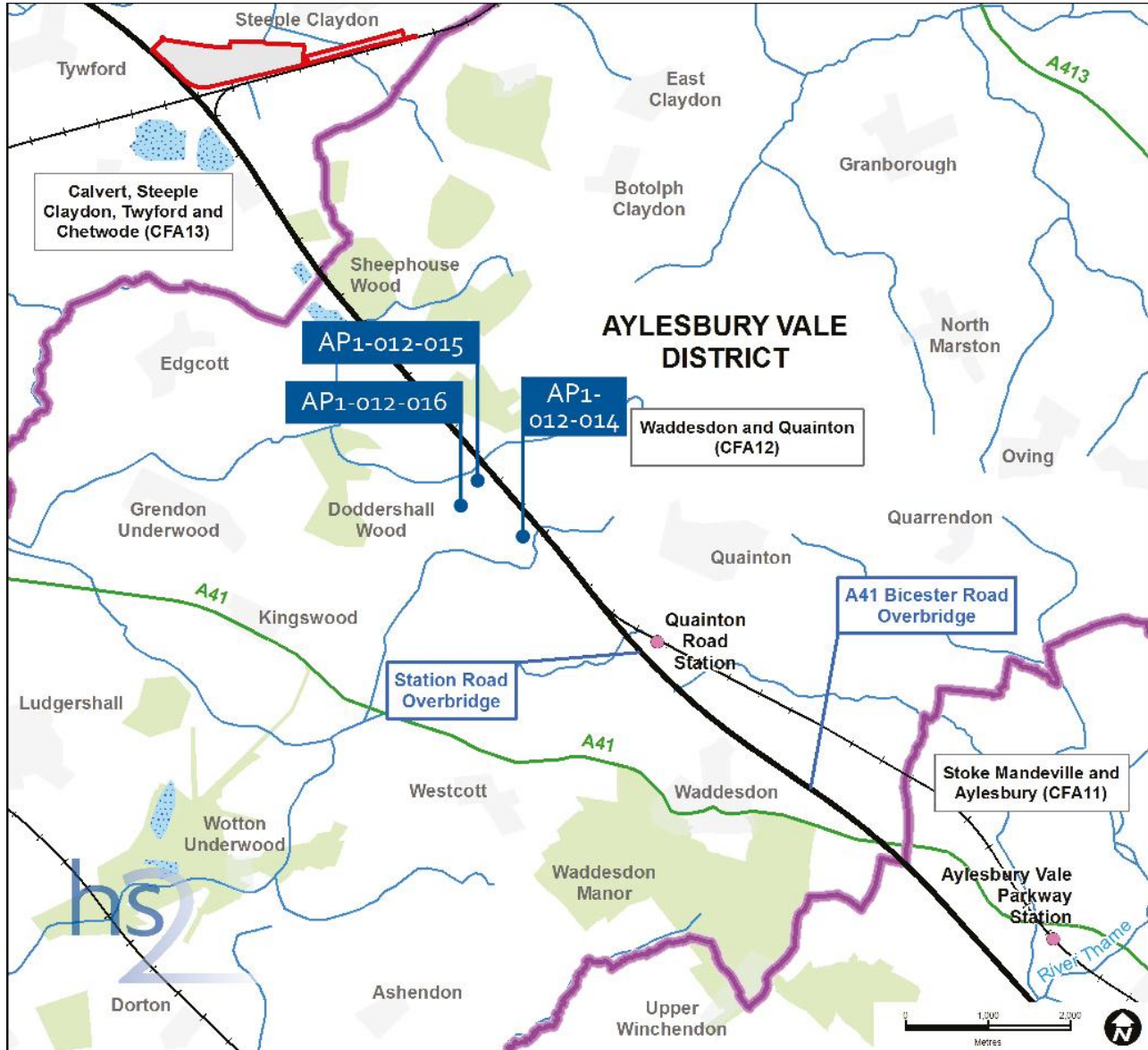
The change to land required for access to the balancing pond west of Putlowes Farm does not change the significance of the residual environmental effects or mitigation as set out in the main ES (Volume 2, CFA Report 11) for any other topic.

CFA12, Waddesdon and Quainton

18 Overview of the amendments

18.1.1 Table 14 provides a summary of the amendments in the Waddesdon and Quainton area (CFA12) and Figure 6 shows the locations.

Figure 6: Locations of amendments in the Waddesdon and Quainton area



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Table 14: Summary of amendments in the Waddesdon and Quainton area (CFA12)

CFA	Amendment	Description of the original scheme	Description of the revised scheme
12	Land required to mitigate the impact on the Doddershall Deserted Medieval Village AP1-012-014	The permanent provision of an area of grassland habitat mitigation and a drainage balancing pond within the boundary of Doddershall Deserted Medieval Village on the western side of the original scheme at Quainton.	The grassland habitat and land drainage area will be relocated to a new area of land outside Doddershall Deserted Medieval Village to avoid the partial loss of the asset.
12	Land required for pylon works near Quainton AP1-012-015	The permanent provision of a grid supply point near Quainton, on the east side of the rail corridor. Power will be drawn from the existing 400kVa overhead grid network through the grid supply point and will feed the auto-transformer feeder station located on the eastern side of the route to the north of Edgcott Road which will supply traction power to the original scheme.	An additional area of land is required to the west of the grid supply point to accommodate reconductoring and earthing works along the existing pylon route, from a pylon south of North Farm to a pylon south of Pear Tree Farm.
12	Reinstatement of private access to Edgcott Road at Woodlands Farm Cottages AP1-012-016	The permanent realignment of Edgcott Road, 50m to the east of its existing alignment, across the new Edgcott Road overbridge.	Provision has been made for reinstatement of a private access to 1 Woodlands Farm Cottages from the realigned Edgcott Road.

19 Additional land to mitigate the impact on the Doddershall Deserted Medieval Village (AP1-012-014)

19.1 Overview of amendment

19.1.1 The Bill provides for an area of grassland habitat creation and a land drainage area within the boundary of Doddershall Deserted Medieval Village (DMV) an unlisted cultural heritage asset, on the western side of the original scheme at Quainton (refer to main ES maps CT-05-051 and CT-06-051 in AP ES, Volume 2, CFA12 Map Book). This was predicted to result in a high adverse impact and major adverse effect on cultural heritage due to the partial loss of the asset. Since submission of the Bill, alternative locations have been identified for the grassland habitat and land drainage area, to avoid the partial loss of the asset (refer to AP maps CT-05-051 and CT-06-051 in AP ES Volume 2 Map Book, Part 3). The amendment provides for:

- the grassland habitat will be located to the north of its previously proposed position, outside the boundary of the DMV opposite the Quainton auto-transformer feeder station; and
- the land drainage area will be located 100m to the south of its previously proposed position, outside the boundary of the DMV.

19.1.2 The revised area of grassland habitat is adjacent and of a similar size (8.7 hectares) to that proposed in the original scheme. The area of grassland mitigation proposed in the original scheme is no longer required and has been removed from the Bill. The relocated grassland is outside the limits of the Bill, hence the need for this amendment.

19.1.3 The relocation of the grassland habitat and land drainage area is not considered to make changes that require a reassessment of the environmental effects or proposed mitigation as set out in the main ES with respect to: agriculture, forestry and soils; air quality; community; land quality; landscape and visual assessment; socio-economics; sound, noise and vibration; traffic and transport; and water resources and flood risk assessment. However, there were changes where reassessment was considered to be required in respect of cultural heritage and ecology.

19.2 Cultural heritage

Scope, assumptions and limitations

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

19.2.2 It is assumed that topsoil will be removed, as a minimum, for the installation of the land drainage area and grassland mitigation areas and that any archaeological remains and earthworks within the land required for the revised scheme will be removed or disturbed.

- 19.2.3 Information on the potential archaeological remains at this location is based on desk based research (sources including the historic environment record (HER), historic maps and aerial photographs) and non-intrusive surveys comprising LiDAR¹⁸ and hyperspectral survey.

Environmental baseline

- 19.2.4 The works required for the original scheme would have been carried out within an area containing evidence of extensive medieval activity with construction activities removing a significant proportion of the Doddershall DMV (Asset Reference Number WADo63). The DMV comprises a series of extant earthworks representing a well preserved medieval site. Associated below-ground archaeological remains were identified from LiDAR and aerial photographs. The remains of ploughed out ridge and furrow (Asset Reference Number WADo59) are located to the west of the DMV and an area called Chapel Hill (Asset Reference Number WADo65) possibly indicating the site of a post-medieval chapel, is located to the east.
- 19.2.5 The Grade II* listed Doddershall House is to the south of the DMV. It is a 16th century country house with associated gatepiers and wellhead (both Grade II listed). Doddershall House is set in its own grounds (Asset Reference Number WADo67) and along with the DMV, these form the principal aspect of the house's setting.
- 19.2.6 The baseline resource is as described in the main ES (see Volume 2, CFA 12, Section 6.3).

Effects arising during construction

- 19.2.7 Relocation of the grassland habitat creation area and the land drainage area will remove the impact from the southern part of the DMV. However, the impact on the DMV as a whole will still be high adverse since the construction of the original scheme will remove a significant portion of the DMV. This constitutes a major adverse effect to an asset of high value, as set out in the main ES.
- 19.2.8 There will now be a reduced impact from the revised scheme on the southern section of the DMV, where below-ground remains will be retained. This reduces the effect on the high value asset here from major adverse to minor adverse. However, the loss of the associated remains in the northern section of the DMV still has an overall major adverse effect on the assets. The additional land required for the grassland habitat creation area will remove more of the ridge and furrow (Asset Reference Number WADo59) to the west of the DMV. However, the section of the ridge and furrow impacted is ploughed out and therefore the works will not increase the impact on this asset. This will remain as a low adverse impact on a moderate value asset resulting in a minor adverse effect.
- 19.2.9 The land drainage area will be relocated to an area to the west of the DMV, within the existing land required for the original scheme and, as such, will not result in a change to the assessment.
- 19.2.10 The main ES reports a temporary medium impact and permanent medium impact on the setting of high value Grade II* listed Doddershall House (Asset Reference Number WADo66) resulting in both a temporary and permanent major adverse effect. The

¹⁸ Light detection and ranging (LiDAR) is a high resolution remote sensing technique to capture 3D data.

impact of the construction works on the setting of Doddershall House will remain as temporary medium since the earthworks will still be required for the construction of the original scheme. However, the permanent impact will be reduced to low, since the DMV earthworks immediately adjacent to the house, which is an important part of its setting, will not be removed. This will reduce the permanent adverse effect on Doddershall House from major to moderate. Further information on this change is provided in Table 15.

Effects arising from operation

- 19.2.11 Operational effects were previously assessed as having a neutral effect on the Doddershall DMV (Asset Reference Number WADo62) and the ridge and furrow (Asset Reference Number WADo59). The operational effect on Doddershall House is reported as major adverse in the main ES due to the movement of trains and associated increase in noise. There will be no change to the operational effects as a result of this amendment.

Mitigation and residual effects

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

Volume 5 amendments

- 19.2.13 Table 15 sets out the changes to the main ES, Volume 5, Appendix CH-003-012 as a result of the amendment.

Table 15: Changes to the Volume 5 Appendix for Cultural Heritage: Appendix CH-003-012 – Impact Assessment Table

Unique ID	Name	Designation(s)	Value	Construction impacts			Operation impacts		
				Nature of impact including mitigation	Scale of impact	Effect	Nature of impact including mitigation	Scale of Impact	Effect
WADo66 (AP1-012-014)	Doddershall House	Listed building	High	<p>Doddershall House lies close to the land required, temporarily or permanently, for the construction of the original scheme. The elements closest to the house are planting and the use of the access trackway around Doddershall House. A grassland habitat creation area will no longer be included adjacent to the house (AP1-012-014).</p> <p>The relationship between the building and the medieval earthworks of the associated deserted medieval village will be changed by the removal of some of the earthworks. The relationship between the building and its former estate will be changed and its peacefulness will be largely lost during the construction phase (through the movement of plant and material immediately adjacent to the house).</p> <p>The fabric of the building and its interior décor (including a 16th-century frieze, which makes a particular contribution to its value) will not be changed and screening bunds are proposed alongside the track.</p>	<p>Temporary medium adverse</p> <p>Permanent low adverse</p>	<p>Temporary major adverse</p> <p>Permanent moderate adverse</p>	<p>Doddershall House will experience a change in setting during the operational phase. This change will be caused by the movement of trains and the associated increase in noise. This will constitute a medium adverse impact resulting in a major adverse effect. In combination with the permanent construction effect, this is considered to result in a major adverse effect.</p>	<p>Medium adverse</p>	<p>Major adverse</p>

19.3 Ecology

Scope, assumptions and limitations

- 19.3.1 The assessment scope for ecology is as set out in Volume 1 of the AP ES. The key assumptions, limitations and the methodology for determining significance of effects is as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000) and the SMR Addendum (Volume 5: Appendix CT-001-000) of the main ES.
- 19.3.2 The majority of land required for the amendment is bordered to the east by land already within the limits of the Bill, which has been subject to desk-based ecological investigations.
- 19.3.3 The ecological baseline of the land required for the amendment has therefore been based on 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 and Bernwood Forest Bechstein's Project. 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.
- 19.3.4 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.

Environmental baseline

- 19.3.5 A summary of the baseline information relevant to the assessment of the amendment is provided below. For those receptors described in the main ES, further details are provided in Volume 2, CFA12, Section 7.3 and in Volume 5, including Maps EC-01 to EC-12, in the Ecology Map Book.

Designated sites

- 19.3.6 Finemere Wood Site of Special Scientific Interest (SSSI) is located approximately 450m north of the area of the amendment, north of the Edgcott Road. This SSSI is of national value.
- 19.3.7 There is one non-statutory designated site of county/metropolitan value located within 500m of the area of the amendment. This is Grendon and Doddershall Meadows Local Wildlife Site (LWS), which is designated for diverse grassland, scrub and pond habitats. The LWS is crossed by the original scheme and adjoins the amendment area.
- 19.3.8 There is no other statutory or non-statutory designated nature conservation site or ancient woodland that is within 500m of the land required for this amendment, or otherwise relevant to the assessment. Statutory and non-statutory designated sites are described in the main ES, Volume 2, CFA12, Section 7 and are shown on Maps EC-01-025b to EC-01-028a, in the Volume 5 Ecology Map Book.

Habitats

- 19.3.9 Habitats within the land required for the amendment are predominantly arable with a small clump of trees and a hedge with occasional trees along the north-western and southern boundaries. The grassland within Grendon and Doddershall Meadows LWS is of country/metropolitan value. As reported in the main ES, there are hedgerows in the vicinity of the amendment which are district/borough value, ponds which are evaluated as being of district/borough value and arable land and scrub along the Aylesbury Link railway line which is of local/parish value.
- 19.3.10 The land drainage area will be relocated a short distance south of its location in the original scheme. The location within the original scheme was in an area of improved grassland and the revised location is in species-poor semi-improved grassland, which was considered to be of up to local/parish value in the main ES.
- 19.3.11 Habitats surrounding the land required for the amendment are described in the main ES, Volume 2, CFA12, Section 7 and are shown on Maps EC-02-025b to EC-02-028a, in the Volume 5 Ecology Map Book.

Protected and/or notable species

- 19.3.12 Desk study data on the land required for the amendment and field surveys undertaken on adjacent land, as reported in the main ES, did not record any protected and/or notable species of flora or fauna.
- 19.3.13 Based on field surveys in the vicinity of land required for the amendment carried out in support of the main ES and information gathered from a range of local organisations, it is known that a population of Bechstein's bat of national value utilises habitats in the wider local area. The nearest known roost to the amendment is understood to be located in the grounds of Doddershall House approximately 500m south. The hedgerows and trees within the land required for the amendment are potentially suitable for use by the same population. It is possible that habitats within the land required for the amendment provide suitable foraging and commuting habitat for Bechstein's bats, and trees may be used for roosting.
- 19.3.14 The main ES (Volume 2, CFA12, Section 7) identified a number of further bat species using the wider landscape for foraging and commuting. The bat populations relevant to the assessment of the amendment are associated with farmland between Station Road and Edgcott Road. In addition to common and soprano pipistrelle, there was more limited activity of *Myotis* bats and noctule bats, as well as low activity of whiskered, Brandt's and Leisler's bats. This assemblage is of up to county/metropolitan value.
- 19.3.15 Due to the presence of large areas of rough grassland with ponds and hedges at Grendon and Doddershall Meadows LWS, the main ES states that this area is suitable for a medium population size class of great crested newt of up to county/metropolitan value. The nearest ponds are approximately 370m east of the area for grassland habitat creation and 300m from the revised location for the land drainage area. The hedgerows along the north-western and southern boundaries of the grassland creation area may provide a habitat corridor enabling this species to reach ponds and other suitable habitat to the south and west.

- 19.3.16 Habitat at Grendon and Doddershall Meadows LWS is also suitable for a large population of grass snake that would be of up to county/metropolitan value, as well as for other widespread reptile species. Habitat at the boundary of the area for grassland creation would also provide a corridor for reptiles to reach other local foraging and breeding habitat.

Effects arising during construction

Avoidance and mitigation measures

- 19.3.17 There are no specific measures included as part of the amendment to avoid or reduce impacts to features of ecological value on the land required for the amendment.
- 19.3.18 The assessment assumes implementation of the draft Code of Construction Practice (CoCP).

Designated sites

- 19.3.19 The main ES reports that no effects are anticipated on the integrity of Finemere Wood SSSI as a consequence of the original scheme. No impacts on the SSSI are expected to arise from construction activities associated with the amendment, as the SSSI is approximately 450m from the area of the amendment and separated by agricultural land, Edgcott Road and the River Ray. The assessment in relation to the SSSI is therefore unchanged by the amendment.
- 19.3.20 The main ES reports that the original scheme will result in habitat loss and disturbance at Grendon and Doddershall Meadows LWS which will result in a permanent adverse effect on site integrity, which will be significant at county/metropolitan level. The amendment will not result in any additional impacts on this site, as it solely involves relocation of an area for grassland creation required as mitigation for loss of habitat from the LWS.

Habitats

- 19.3.21 The loss of arable habitat resulting from construction of the original scheme is reported in the main ES as having an effect significant at up to the local/parish level. The amendment will involve the loss of approximately 8.7ha of arable land. Approximately 0.5ha of hedgerows and arable field margins at the boundary of this area and an approximately 0.1ha clump of trees within it will be retained. As a result of the amendment, the 8.7ha of semi-improved grassland of local/parish value that was lost as part of the original scheme will now be retained. While there is no difference in the extent of land required for grassland mitigation between the original scheme and the revised scheme, the amendment relocates the grassland mitigation area from semi-improved grassland to arable land. The retention of species-poor semi-improved grassland required for the grassland mitigation area will not change the level of effects on the conservation status of this habitat presented in the main ES. Arable land is widespread in the vicinity of the amendment, and the loss of this habitat associated with the creation of grassland mitigation will not have any adverse effect on the conservation status of arable land and will not change the level of significant effects reported in the main ES.
- 19.3.22 The loss of species-poor semi-improved grassland required for the land drainage area is unlikely to significantly change the conservation status of the species-poor semi-

improved grassland in which it will be situated. Activities associated with the amendment will not change the significant effects at the local/parish level that are reported in the main ES.

Species

- 19.3.23 As reported in the main ES, in the absence of mitigation, the fragmentation of foraging and commuting habitat associated with the construction of the original scheme will result in a permanent adverse effect on the conservation status of the Bechstein's bat population that is significant at the national level; a permanent adverse effect on the conservation status of the assemblage of woodland bats that is significant at the regional level and a permanent adverse effect on the conservation status of common pipistrelle and soprano pipistrelle populations that would be significant at up to the county/metropolitan level.
- 19.3.24 Bat populations in the wider area may utilise the hedges and trees within the land required for the amendment for roosting, commuting and foraging, but the limited extent and quality of suitable habitat and local abundance of similar habitat reduces its value. The original scheme provided for an area of grassland creation and a land drainage area entirely within species-poor grassland while the amendment provides for the same features in an area of arable land and species-poor grassland; both of which have limited value as bat foraging or commuting habitats. Therefore, the amendment will not have any additional effects on these bat populations and will not change the level of significant effects reported in the main ES.
- 19.3.25 The main ES states that the removal of medium-size populations would be an adverse effect on the conservation status of great crested newt that is significant at up to the county/metropolitan level. The populations of great crested newt associated with Grendon and Doddershall Meadows LWS will not be affected by the amendment as the closest breeding pond is more than 300m away. Construction on land required for the amendment will not have any additional effects on this population and will not change the effects reported in the main ES. Additionally, the new location of the mitigation area is adjacent to the assumed great crested newt metapopulation present at Grendon and Doddershall Meadows LWS, providing good habitat connectivity for this metapopulation.
- 19.3.26 The population of grass snake associated with Grendon and Doddershall Meadows LWS will not be affected by the amendment for similar reasons described above for great crested newt. Construction on land required for the amendment will not have any additional effects on this population and will not change the effects reported in the main ES.

Mitigation and residual effects

Other mitigation measures

- 19.3.27 The main ES identifies the need to mitigate the loss of grassland from the Doddershall Meadows LWS. The amendment will relocate the grassland creation to an area of equivalent size to the one proposed in the main ES. The revised location is sufficiently well connected to both Grendon and Doddershall Meadows LWS and areas of adjacent grassland to be of similar value to the habitat creation proposed in the original scheme. The assessment is therefore unchanged by the amendment.

- 19.3.28 All suitable habitat for bats will be retained in the area required for the amendment and will not affect the mitigation features provided for the assumed nearby crossing points for bats described in the main ES at Bridleway QUA/28A and Footpath QUA/26 accommodation underbridge to the south and Edgcott Road overbridge to the north.

Residual effects

- 19.3.29 The amendment will result in no change in the residual likely significant effects reported in the main ES.

Effects arising from operation

Avoidance and mitigation measures

- 19.3.30 There are no specific measures included as part of the amendment to avoid or reduce impacts to features of ecological value in the area required for the amendment.

Assessment of impacts and effects

- 19.3.31 Prior to mitigation the main ES reports adverse operational effects at the national level for Bechstein's bat and the regional level for an assemblage of other woodland bat species. The available information on Bechstein's bat indicates that this species occurs infrequently in the vicinity of the amendment area and low numbers only of whiskered and Brandt's bats, which are both woodland species, were recorded. The relocation of land for creation of species-rich grassland required for the amendment will result in no change in the operational impacts, and will not change the effects reported in the main ES

Mitigation and residual effects

Other mitigation measures

- 19.3.32 No additional or different mitigation is required for the amendment.

Residual effects

- 19.3.33 The amendment will result in no change in the residual likely significant effects reported in the main ES.

19.4 Summary

- 19.4.1 The amendment will remove the impact from the southern part of the Doddershall DMV. The impact on the DMV as a whole will still be high adverse since the construction of the original scheme and landscaping earthworks will still remove a significant portion of the DMV. This still constitutes a residual major adverse effect, since the asset is of high value.
- 19.4.2 However, as a result of the amendment there will now be a minimal adverse impact on the southern section of the DMV, where no below-ground remains will be removed. This will now reduce the residual effect on the high value asset here from major adverse to minor adverse.
- 19.4.3 The permanent impact on the setting of the high value Grade II* listed Doddershall House as a result of the amendment will be reduced from medium to low, since the earthworks immediately adjacent to the house, which is an important part of its

setting, will not be removed. This will reduce the permanent adverse residual effect on Doddershall House from major to moderate.

- 19.4.4 The amendment does not change the likely significance of the environmental effects or mitigation as set out in the main ES (Volume 2, CFA 12) for any other topic.

20 Additional land for pylon works near Quinton (AP1-012-015)

20.1 Overview of amendment

- 20.1.1 The Bill provides for an auto-transformer feeder station and new substation near Quinton, on the east side of the route to the north of Edgcott Road. Since submission of the Bill, a requirement for additional land has been identified for reconductoring (i.e. replacing wires) and earthing from a pylon south of North Farm to a pylon south of Pear Tree Farm along the existing pylon route (refer to AP ES maps CT-05-051, CT-05-052-L1, CT-05-052-L3, CT-05-052-L4, CT-06-051, CT-06-052-L1, CT-06-052-L3 and CT-06-052-L4 in AP ES Volume 2 Map Book, Part 3).
- 20.1.2 The land required for this reconductoring and earthing is outside the original limits of the Bill, hence the need for this amendment.
- 20.1.3 The reconductoring involves taking the overhead power line down and replacing it between the existing pylons using winches and a work platform. The reconductoring works will take up to one year to complete, are currently planned to start in autumn 2017 and require a total additional land area of approximately 11.4ha.
- 20.1.4 The works will extend for approximately 2km along the existing pylon line, from south of the Edgcott Road overbridge to the west of Lawn Farm Business Centre. The works will require a 50m wide corridor centred on the pylon line in this area. Works to four pylons from the south of Lawn Farm Business Centre to south of Pear Tree Farm will also be required, needing additional land around the pylons and land for access tracks to the pylons. Localised vegetation clearance will be required to maintain a safe working area and to prevent the conductor being damaged during reconductoring. Apart from the vegetation clearance, the amendment works will require no additional ground works to those described in the main ES.
- 20.1.5 A 40m by 40m winching site will also be cleared of vegetation. This site is located to the east of the Lawn Farm Business Centre.
- 20.1.6 The reconductoring and earthing works are not considered to make changes that require a reassessment of the environmental effects or mitigation as set out in the main ES with respect to: agriculture, forestry and soils; air quality; community; cultural heritage; land quality; socio-economics; sound, noise and vibration; traffic and transport; and water resources and flood risk assessment. However, there were changes where reassessment was considered to be required in respect of: ecology and landscape and visual assessment.
- 20.1.7 With regard to agriculture, forestry and soils, as the majority of the work simply requires access to land to lay out cabling underneath the existing power line prior to

aerial connections, it is not considered that there will be any significant impact on the landowners affected.

20.2 Ecology

Scope, assumptions and limitations

- 20.2.1 The assessment scope for ecology is as set out in Volume 1 of the AP ES. The key assumptions, limitations and the methodology for determining significance of effects are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000) and the SMR Addendum (Volume 5: Appendix CT-001-000) of the main ES.
- 20.2.2 Part of the land required for the amendment is bordered to the east by land already within the limits of the Bill, which has been subject to desk-based ecological investigations.
- 20.2.3 The ecological baseline of the land required for the amendment has been based on 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; the Amphibian and Reptile Group for Buckinghamshire; North Bucks Bat Group; and Bernwood Forest Bechstein's Project.
- 20.2.4 To address any limitations in data, a precautionary baseline has been considered, according to the guidance reported in the main ES Volume 5: Appendix CT-001-000/2. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 20.2.5 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.

Environmental baseline

- 20.2.6 A summary of the baseline information relevant to the assessment of the amendment is provided below. For those receptors described in the main ES, further details are provided in Volume 2, CFA12, Section 7.3 and in Volume 5, including Maps EC-01 to EC-12, in the Ecology Map Book.

Designated sites

- 20.2.7 Grendon and Doddershall Woods SSSI is of national value and is located approximately 150m to the north-west of the amendment area.
- 20.2.8 Ham Home-cum-Hamgreen Woods SSSI is of national value and is located approximately 400m south of the western extent of the amendment, north of the A41 between Bicester and Aylesbury.
- 20.2.9 Grendon and Doddershall Meadows LWS, which is approximately 400m east of the northern extent of the amendment, is of county/metropolitan value.
- 20.2.10 Knapp's Hook Wood, not described in the main ES, is an ancient woodland and a habitat of principal importance³⁹ located approximately 260m south of land required for the amendment. It is of county/metropolitan value.

³⁹ The Natural Environment and Rural Communities Act 2006 (Chapter 16), London, Her Majesty's Stationery Office.

- 20.2.11 There is no other statutory or non-statutory designated nature conservation site or ancient woodland that is within 500m of the land required for this amendment, or otherwise relevant to the assessment. Statutory and non-statutory designated sites are described in the main ES, Volume 2, CFA12, Section 7 and are shown on Maps EC-01-025b to EC-01-028a, in the Volume 5 Ecology Map Book.

Habitats

- 20.2.12 Habitats within land required for the amendment are predominantly arable with areas of improved grassland, shrubs and scattered trees. These habitats are part of the wider resource of arable land, improved grassland, shrubs and scattered trees, which are assessed in the main ES as being of local/parish value.
- 20.2.13 Surveys recorded a network of important hedgerows approximately 300m north of the amendment area near Woodlands Farm and Woodlands Farm Cottages. These hedgerows are considered to be part of the resource of hedgerows within the wider area, which are assessed in the main ES as being of district/borough value.
- 20.2.14 There are three ponds present within land required for the amendment, one at Lawn Farm and two at Knapps Hook Farm. Eighteen additional ponds are located at Woodlands Farm, North Farm, Knapps Hook Farm, Oving Hill Farm, the Lawn Farm Business Centre and Brick Kiln Farm within 500m of land required for the amendment. As reported in the main ES, ponds that have been identified as requiring habitat survey but where access has been unavailable have been assessed as being likely to support up to a medium population size class of great crested newt, which are considered likely to be of up to county/metropolitan value.

Protected and/or notable species

- 20.2.15 As reported in the main ES, a population of Bechstein's bat associated with Grendon and Doddershall Woods, Finemere Wood and Ham Home-cum-Hamgreen Woods, is of national value. Although not confirmed by surveys, as part of a precautionary approach it is assumed that suitable commuting and foraging habitat for this population occurs within the land required for the amendment, which is situated between these roosts. In addition, it is assumed that trees located within the amendment area may provide potential habitat for roosting Bechstein's bats.
- 20.2.16 A number of bat species and assemblages including populations of barbastelle bat and common and soprano pipistrelle bat, ranging from local/parish to regional value, were recorded using the wider landscape for foraging and commuting and these are reported in the main ES. Bat species relevant to this assessment were recorded in assemblages to the north at Finemere Wood SSSI and land around Woodlands Farm and Oak Tree Farm. Key areas for bat commuting and foraging located outside of, but close to the area of the amendment include Grendon and Doddershall Woods SSSI and the Aylesbury Link railway line between Edgcott Road and Calvert Jubilee LWS in the Calvert, Steeple Claydon, Twyford and Chetwode area (CFA13). Surveys also identified the Akeman Street disused railway, which passes through the amendment area on land between North Farm and Knapps Hook Farm, as a suitable foraging and commuting habitat for a number of bat species.

- 20.2.17 Surveys in support of the main ES confirmed the presence of two ponds containing small populations of great crested newt in the area of Woodlands Farm, approximately 350m north of land required for the amendment. One of these ponds is located within an area required solely for ecological mitigation. As reported in the main ES, the great crested newts in ponds on Woodlands Farm are part of a medium sized metapopulation spread across 13 ponds between the Finemere Wood nature reserve and the Calvert Landfill. The overall metapopulation, associated with breeding ponds in Woodlands Farm within 500m of the amendment area, is of county/metropolitan value. Suitable terrestrial habitat provides connectivity between the Woodlands Farm ponds and ponds within land required for the amendment between North Farm and Brick Kiln Farm, therefore it is likely that great crested newt is present in these unsurveyed ponds. If present, great crested newt in ponds on land required for the amendment are considered likely to be part of the Woodlands Farm metapopulation and are therefore assessed as being of county/metropolitan value.

Effects arising during construction

Avoidance and mitigation measures

- 20.2.18 There are no specific measures included as part of the revised scheme to avoid or reduce impacts to features of ecological value on the land required for the amendment.
- 20.2.19 The assessment assumes implementation of the draft CoCP.

Designated sites

- 20.2.20 The main ES states that no significant effects on site integrity are expected at Grendon and Doddershall Woods SSSI, Ham Home-cum-Hamgreen Woods SSSI and Finemere Wood SSSI. No additional impacts on these SSSI are expected to arise from the construction activities associated with the amendment and the assessment in relation to these sites is unchanged by the amendment.
- 20.2.21 The main ES reports that due to the extent of habitat loss and fragmentation there will be a permanent adverse effect on the integrity of the Doddershall Meadows LWS, which will be significant at the county/metropolitan level. No impacts are expected to arise from construction activities associated with the amendment as this LWS is located approximately 400m east of land required for the amendment. The assessment in relation to the LWS is therefore unchanged.
- 20.2.22 As stated in the main ES, loss of ancient woodland would result in a permanent adverse effect that is significant at the county/metropolitan level. No additional impacts on Knapp's Hook Wood, located approximately 260m south of land required for the amendment, are anticipated and the assessment in relation to this ancient woodland is unchanged.

Habitats

- 20.2.23 The main ES reports that the removal of important hedgerows and subsequent reduction in the proportion and extent of the hedgerow networks will result in an adverse effect significant at the district/borough level. The loss of hedgerows, if present, on land required for the amendment, will result in additional habitat loss but will not change the conclusions or significance of the effect reported in the main ES.

Species

- 20.2.24 As assessed in the main ES, the fragmentation of foraging and commuting habitat associated with the construction of the original scheme will, prior to mitigation, result in a permanent adverse effect on the conservation status of this Bechstein's bat population that is significant at the national level. Vegetation clearance in the area required for the amendment will result in the additional removal of sections of hedgerow potentially used by Bechstein's bats that would impede their movements between known roosts. Although the removal of hedgerows and subsequent fragmentation effect on Bechstein's bat is additional to that described in the main ES, the significance of the effect remains unchanged at the national level.
- 20.2.25 As reported in the main ES, the removal of vegetation and fragmentation of flightlines where the original scheme crosses the Akeman Street disused railway at Grendon Junction could disrupt the movement of barbastelle bat in this area. However, there will be no significant effect on the conservation status of the barbastelle bat population in this area and the assessment in relation to this species is unchanged by the amendment.
- 20.2.26 As reported in the main ES, fragmentation of potential commuting and foraging routes is likely to result in an adverse effect on the conservation status on populations of common and soprano pipistrelle, which will be significant the county/metropolitan level. It is unlikely that the localised vegetation clearance on land required for the amendment will result in significant additional effects on the conservation status of common and soprano pipistrelle. Therefore the assessment in relation to this species is unchanged by the amendment.
- 20.2.27 The conservation status of great crested newt depends on the presence of ponds with ample aquatic vegetation and suitable terrestrial habitats including woodland, scrub and grassland; and on the continuity of terrestrial habitats to provide links between breeding ponds. As stated in the main ES, without mitigation, habitat loss could result in a significant adverse effect on the conservation status of great crested newt at the county/metropolitan level. The temporary removal of vegetation around three ponds within the land required for the amendment will result in additional impacts on the metapopulation of great crested newt. However, the level at which this effect is significant will remain the same as that reported in the main ES. Through implementation of the draft CoCP it is assumed that, if required, great crested newt would be cleared from the amendment area using the methods outlined in the ecological principles of mitigation as provided in the SMR Addendum (see Volume 5: Appendix CT-001-000 of the main ES).

Mitigation and residual effects

Other mitigation measures

- 20.2.28 As set out in the main ES, mitigation measures including the use of movable screens to bridge gaps in flightlines during construction activities associated with the amendment and translocation of hedgerows will enable rapid re-establishment of hedges after construction to ensure that bat habitat connectivity is maintained. These mitigation measures will not require additional land.

Residual effects

- 20.2.29 The amendment will result in no change in the likely residual significant effects reported in the main ES.

Effects arising from operation

Avoidance and mitigation measures

- 20.2.30 There are no specific measures included as part of the revised scheme to avoid or reduce impacts to features of ecological value in the area of land required for the amendment.

Assessment of impacts and effects

- 20.2.31 Prior to mitigation the main ES reports adverse operational effects at the national level for Bechstein's bat and the regional level for an assemblage of other woodland bat species. The available information on Bechstein's bat indicates that this species occurs infrequently in the vicinity of the amendment area. The clearance of vegetation required for the amendment will result in no additional significant operational effects and will not change the effects reported in the main ES.

Mitigation and residual effects

Other mitigation measures

- 20.2.32 No additional or different mitigation is required for the amendment.

Residual effects

- 20.2.33 The amendment will result in no change in the residual likely significant effects reported in the main ES.

20.3 Landscape and visual assessment

Scope, assumptions and limitations

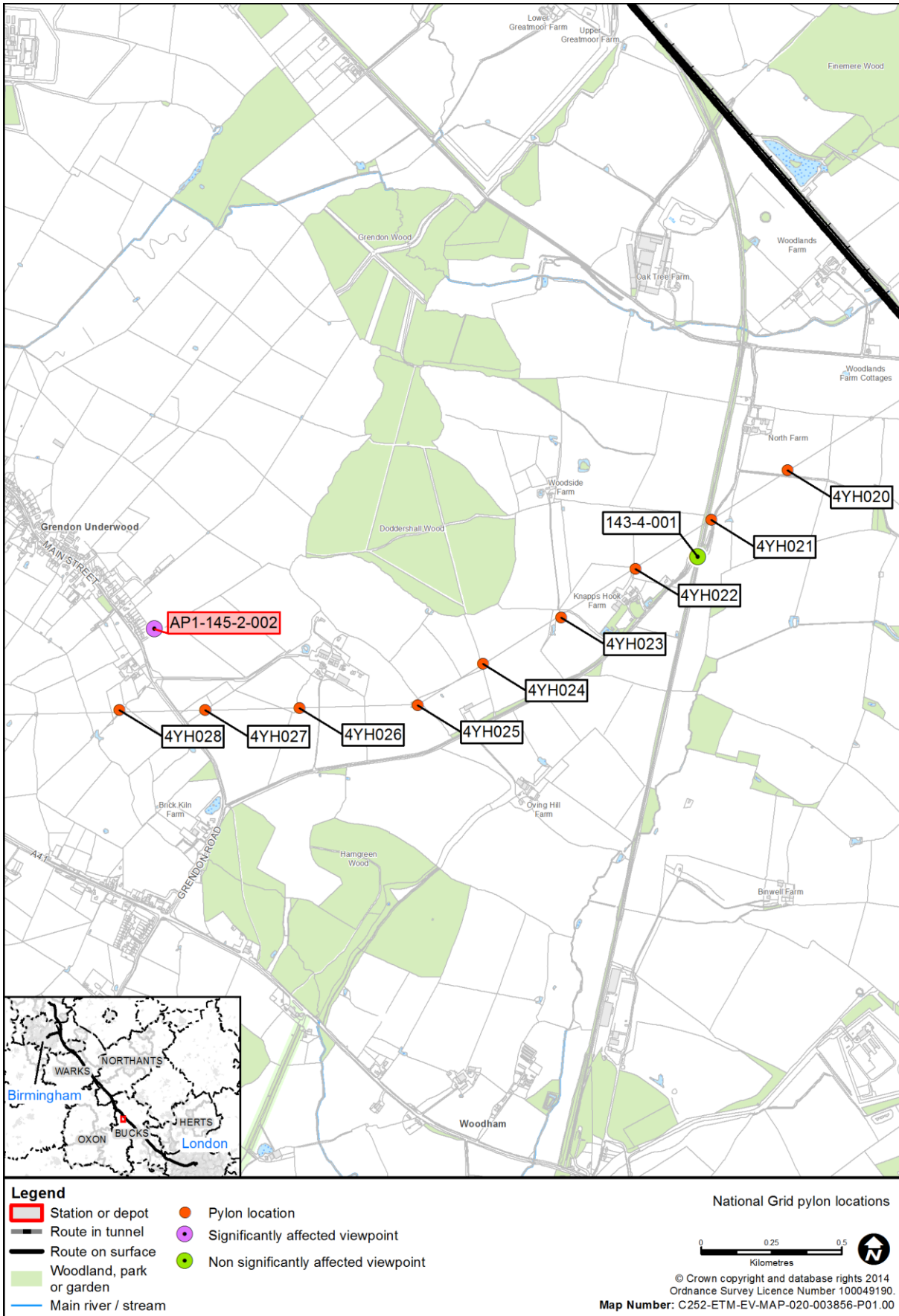
- 20.3.1 The assessment scope, key assumptions and limitations for the landscape and visual assessment are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.

Environmental baseline

- 20.3.2 The amendment is located within Kingswood Wooded Farmland landscape character area (LCA) and will be visible from transport receptors near Knapps Hook Farm (viewpoint 143.4.001, Volume 5: Appendix LV-001-012 of the main ES). The baseline is described in the main ES (Volume 2, CFA 12, Section 9.3).
- 20.3.3 The amendment will also be visible from new residential receptors on the eastern side of Grendon Underwood (viewpoint AP1 145.2.002, which is shown on map LV-03-046-L1 in AP ES Volume 2, Map Book, Part 3). Views from this receptor are across well-wooded agricultural land. The foreground and middle ground of the view is made up of relatively flat arable fields bounded by well-clipped hedgerows with occasional mature trees. A hedgerow in the right foreground restricts views to lower elements within the middle ground and background. The background of the view is well-wooded, with Doddershall Wood on the left of the view. The series of pylons and

overhead power lines are clearly visible across the view from the centre background to the right middle ground. This includes pylons 4YH022, 4YH023, 4YH024 and 4YH025 in the left and centre background and 4YH026 and 4YH027 in the right middle ground. The location of the pylons is shown in Figure 7.

Figure 7: Location of pylons near Quinton



Assessment of temporary impacts and effects

- 20.3.4 The proposed works at pylon 4YHo21 will be clearly visible in the middle ground of the view from viewpoint 143.4.001, with activities around pylon 4YHo20 partially visible in the right background. This will include the removal of tall vegetation from the dismantled railway in the centre middle ground. The amendment will represent an additional visual effect from viewpoint 143.4.001. However, the works will be seen within the context of the existing view, which contains three visually prominent pylons (4YHo27, 4YHo26 and 4YHo25) in the centre and right middle ground of the view. The overall minor adverse effect reported in the main ES will therefore not be altered.
- 20.3.5 Construction activities associated with the amendment will require additional vegetation removal around each pylon and along the seven access tracks that will connect the pylons with the nearby unnamed road to the south. This will have a localised effect on the landscape character of Kingswood Wooded Farmland LCA to the south and east of Doddershall Wood. However, taken within the context of the large scale construction activities occurring across the wider LCA, this will not alter the major adverse effect reported in the main ES (Volume 2, CFA 12, Section 9.4 and Maps LV-03-045 and LV-03-045-L1).
- 20.3.6 Views of the original scheme to the north-east and east from viewpoint AP1 145.2.002 will be largely screened by the mature vegetation of Doddershall Wood and intervening hedgerow vegetation.
- 20.3.7 Construction activities associated with the amendment, including scaffolding and construction machinery, will be visible from viewpoint AP1 145.2.002. Construction activities around pylons 4YHo27 and 4YHo26 will be clearly visible in the right middle ground of the view approximately 300m and 550m from the viewpoint, respectively. Works around pylons 4YHo25 and 4YHo24 will also be visible in the centre background of the view at over 1km distance. This will introduce plant and machinery into the existing view at relative proximity to the visual receptor. However, taken within the context of a view containing a number of existing pylons, the magnitude of change is considered to be medium. The medium magnitude of change, assessed alongside the high sensitivity of the receptor, will result in a moderate adverse effect during construction for this amendment.

Permanent effects arising during operation

- 20.3.8 The loss of vegetation will be apparent to the south and east of Doddershall Wood and will have a localised impact on the character of Kingswood Wooded Farmland LCA. However, considering that the main source of effect will be the presence of large scale infrastructure across the LCA, this will not alter the overall effects, which were significant in Year 1 and Year 15 of operation, reducing to minor adverse and not significant by Year 60. This is reported in the main ES (Volume 2, CFA 12, Section 9.5 and Maps LV-04-045 and LV-04-045-L1).
- 20.3.9 Pylons 4YHo21 and 4YHo20 will appear similar to those visible within existing views from viewpoint 143.4.001. There will therefore be no change to the minor adverse effects reported in the main ES.

- 20.3.10 Pylons 4YH027, 4YH026, 4YH025 and 4YH024 will appear similar to those visible in existing views from AP1 145.2.002. Therefore, the magnitude of change is considered to be negligible and will result in negligible effects.

Mitigation and residual effects

- 20.3.11 As is commonplace with major works, the scale of the construction activities means that works will be visible in many locations and will have the potential to give rise to significant temporary effects which cannot be mitigated practicably. Such effects are temporary and vary over the construction period depending on the intensity and scale of the works at that time. There will be a residual significant temporary effect on viewpoint 145.2.002 as a result of the amendment.
- 20.3.12 The residual significant operational effects are the permanent residual significant effects persisting after the mitigation included in the scheme design has reached its designed intent 15 years from opening i.e. when matured.
- 20.3.13 There are no significant residual permanent effects as a result of the amendment. The mitigation and residual effects will therefore remain as reported in Volume 2 of the main ES.

20.4 Summary

- 20.4.1 Construction activities associated with the amendment, including construction machinery, will be visible from viewpoint AP1 145.2.002. Construction activities around pylons 4YH027 and 4YH026 will be clearly visible in the right middle ground of the view approximately 300m and 550m from the viewpoint, respectively. Works around pylons 4YH025 and 4YH024 will also be visible in the centre background of the view at over 1km distance. This will introduce plant and machinery into the existing view at relative proximity to the visual receptor. However, taken within the context of a view containing a number of existing pylons, the magnitude of change is considered to be medium. The medium magnitude of change, assessed alongside the high sensitivity of the receptor, will result in a moderate adverse residual effect during construction.
- 20.4.2 The amendment does not change the significance of the environmental effects or mitigation as set out in the main ES (Volume 2, CFA 12) for any other topic.

21 Reinstatement of private access to Edgcott Road at Woodlands Farm Cottages (AP1-012-016)

21.1 Overview of amendment

- 21.1.1 The Bill provides for the permanent reinstatement of Edgcott Road, 50m to the east of its existing alignment, across the new Edgcott Road overbridge (refer to main ES maps CT-05-051, CT-052-L1, CT-06-051 and CT-06-052-L1 in main ES Volume 2, CFA12 Map Book). The land required to provide private access to 1 Woodlands Farm Cottages from the reinstated Edgcott Road is outside the limits of the Bill, hence the need for this amendment (refer to AP maps CT-05-051, CT-05-052-L1, CT-06-051 and

CT-06-052-L1 in the AP ES Volume 2 Map Book Part 3). The access will be 3.5m wide with either a loose or bound surface (tarmac, concrete or similar) to replace the existing surfacing. The total area of land required is approximately 350m². The duration of construction works is anticipated to be approximately two months.

- 21.1.2 The new access is not considered to make changes that require a reassessment of the environmental effects or mitigation as set out in the main ES with respect to: agriculture, forestry and soils; air quality; community; cultural heritage; ecology; land quality; socio-economics; sound, noise and vibration; traffic and transport; and water resources and flood risk assessment. However, there were changes where reassessment was considered to be required in respect of the landscape and visual assessment.

21.2 Landscape and visual assessment

Scope, assumptions and limitations

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

Environmental baseline

- 21.2.2 The amendment is located within Kingswood Wooded Farmland LCA. Any potential direct/indirect impacts associated with this amendment will be limited to this LCA. The baseline resources are as described in the main ES.
- 21.2.3 The amendment will be visible from residential receptors on Edgcott Road, south of Woodlands Farm (viewpoint 143.2.002, Volume 5: Appendix LV-001-012 of the main ES). The visual baseline is as described in the main ES (Volume 2 CFA 12, Section 9.3).

Assessment of temporary impacts and effects

- 21.2.4 The amendment will not introduce construction activities that are substantially different to those included in the original scheme. The major adverse effect will therefore be as reported for the Kingswood Wooded Farmlands LCA in the main ES (Volume 2, CFA Report 12, Section 9.4 and Maps LV-03-045).
- 21.2.5 The amendment will introduce additional construction activities into the foreground and middle ground of views from viewpoint 143.2.002 (Volume 5: Appendix LV-001-012 of the main ES). However, viewed alongside large scale activities associated with the construction of Edgcott Road overbridge in the foreground and middle ground, this will not alter the overall minor adverse effects reported in the main ES.

Permanent effects arising during operation

- 21.2.6 The revised scheme will represent a barely perceptible change to that assessed for the original scheme during operation. The amendment will not alter the overall effects which were significant in Year 1 and Year 15 of operation reducing to minor adverse and not significant by Year 60 as reported for Kingswood Wooded Farmlands LCA in the main ES (Volume 2, CFA 12, Section 9.5 and Maps LV-04-045).
- 21.2.7 The new access to Woodlands Farm Cottages will be visible in the right middle ground of the view from viewpoint 143.2.002 (see Volume 5: Appendix LV-001-012 of the

main ES). However, this will represent only a slight change to the view in the context of the large scale infrastructure, including Edgcott Road overbridge, within the middle ground of the view. Therefore, the overall minor adverse effects reported in the main ES will not be altered. The view of the revised scheme from this location during the winter of Year 1 of operation is illustrated on the photomontage shown in Figure LV-01-080 (see AP ES Volume 2 Map Book Part 3).

Mitigation and residual effects

- 21.2.8 As is commonplace with major works, the scale of the construction activities means that works will be visible in many locations and will have the potential to give rise to significant temporary effects which cannot be mitigated practicably. Such effects are temporary and vary over the construction period depending on the intensity and scale of the works at that time. The residual significant temporary effects are the effects persisting after the controls contained in Section 12 of the draft CoCP are implemented.
- 21.2.9 The residual significant operational effects are the permanent residual significant effects persisting after the mitigation included in the scheme design has reached its designed intent 15 years from opening i.e. when matured.
- 21.2.10 No specific mitigation is required for this amendment. The mitigation and residual effects will remain as reported in Volume 2 of the main ES.

21.3 Summary

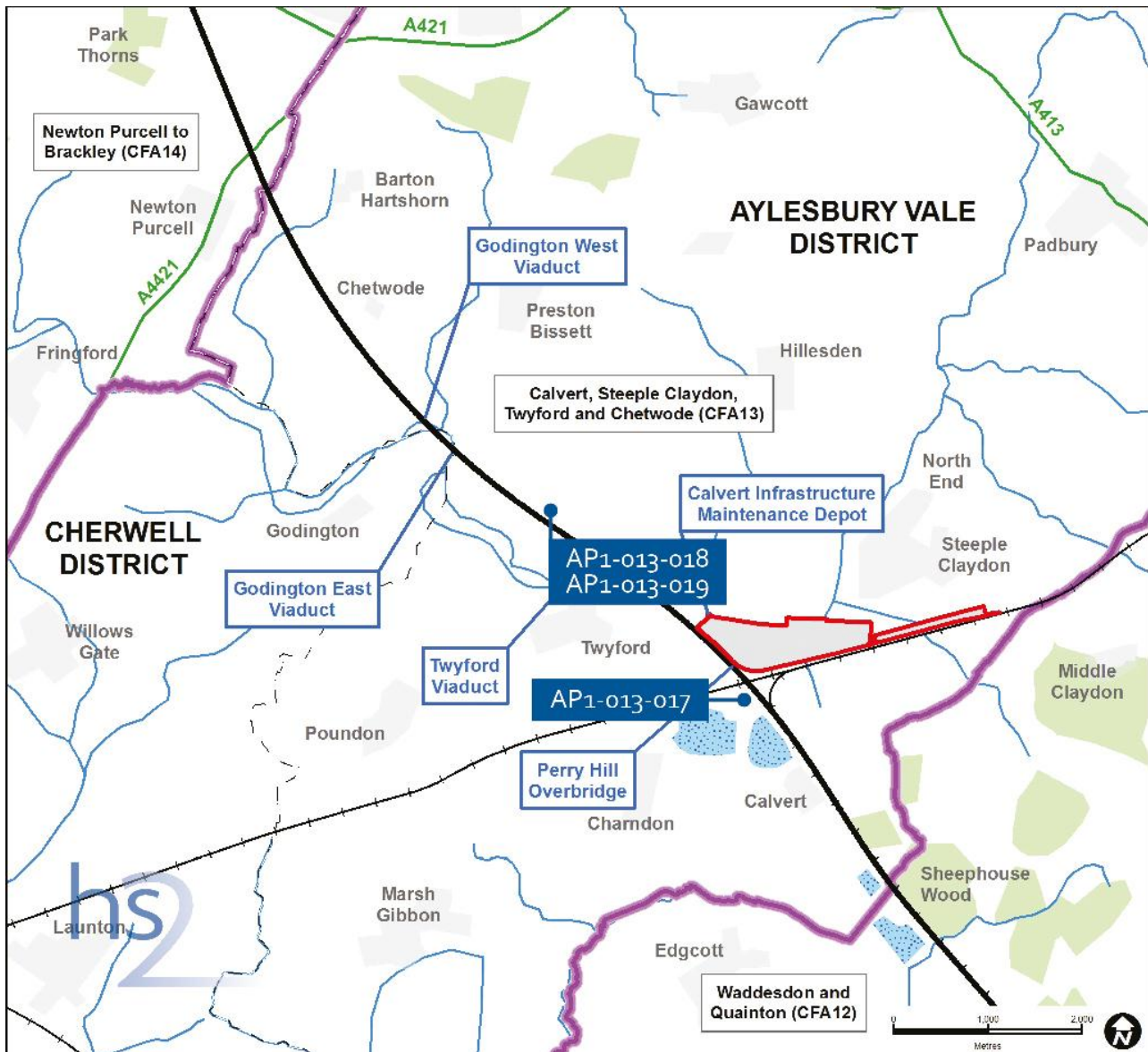
The reinstatement of private access to Edgcott Road at Woodlands Farm Cottages does not change the likely significance of the environmental effects or mitigation as set out in the main ES (Volume 2, CFA 12).

CFA13, Calvert, Steeple Claydon, Twyford and Chetwode

22 Overview of the amendments

22.1.1 Table 16 provides a summary of the amendments in the Calvert, Steeple Claydon, Twyford and Chetwode area (CFA13) and Figure 8 shows the locations.

Figure 8: Locations of amendments in the Calvert, Steeple Claydon, Twyford and Chetwode area



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Table 16: Summary of amendments in the Calvert, Steeple Claydon, Twyford and Chetwode area (CFA13)

CFA	Amendment	Description of the original scheme	Description of the revised scheme
13	Extension of ground anchors at Calvert Jubilee AP1-013-017	The Calvert cutting runs along the western side of the realigned Aylesbury Link railway line for approximately 2.2km, before continuing north-west parallel to the former Great Central Main Line rail corridor for approximately 1.8km. The cutting will include a retaining wall alongside the Calvert Jubilee Nature Reserve to reduce construction impacts on the lake and its ecological assets and to minimise incursion into the former landfill. The land required in the original scheme extended 25m from the face of the retaining wall to allow for the installation of 20m long ground anchors.	More detailed design has revealed the need for longer ground anchors on the west side of the Calvert cutting past Calvert Jubilee Nature Reserve. Therefore, the land required in this area has been extended up to 50m from the face of the wall.
13	Alternative maintenance and farm access for Cowley Farm AP1-013-018 and AP1-013-019	The permanent provision of a maintenance and accommodation access from Bicester Road to Cowley Farm and two balancing ponds on the eastern side of the original scheme. The access is routed south from the Bicester Road via Twyford Mill and the Restricted Byway PBI/5A accommodation overbridge. A temporary diversion of Restricted Byway PBI/5A over Footpath PBI/5 accommodation overbridge during construction.	Footpath PBI/5 accommodation overbridge is removed from the original scheme at the request of the landowner. As a consequence, Footpath PBI/6 is to be diverted south under the Twyford viaduct and Footpath PBI/5 is to be diverted north over the Restricted Byway PBI/5A accommodation overbridge. The temporary diversion of Restricted Byway PBI/5A over Footpath PBI/5 accommodation overbridge has now been removed. (AP1-013-018). The proposed access from Bicester Road through Twyford Mill from the south is of insufficient width and crosses the Padbury Brook at two locations. An alternative access from the north, via Perry Hill and the existing access through Cowley Farm has been identified (AP1-013-019).

23 Extension of land for ground anchors at Calvert Jubilee (AP1-013-017)

23.1 Overview of amendment

- 23.1.1 The Bill provides for the Calvert cutting to run along the western side of the realigned Aylesbury Link railway line for approximately 2.2km, before continuing north-west parallel to the former Great Central Main Line (GCML) rail corridor for approximately 1.8km (refer to main ES map CT-05-055 in main ES, Volume 2, CFA13 Map Book). As the route passes the Calvert Jubilee Nature Reserve (CJNR) the cutting will be retained on the west side to reduce construction impacts on the lake and its ecological assets and to minimise incursion into the historic landfill. In the Bill, the retaining wall will be supported by ground anchors²⁰ as described in the main ES. Since submission of the Bill, it has been identified that the provision for ground anchors for the retaining wall where the Calvert cutting is at its deepest, past the CJNR, will need to be extended. Rights are required for the installation of ground anchors of up to 50m from the face of the wall²¹ taking them outside the limits of the Bill, hence the need for this amendment (refer to AP map CT-05-055 in AP ES Volume 2 Map Book Part 3). The total duration of construction works including the amendment is anticipated to be approximately two years.
- 23.1.2 The amendment 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: agriculture, forestry and soils; air quality; community; cultural heritage; ecology; landscape and visual assessment; socio-economics; sound, noise and vibration; traffic and transport; and water resources and flood risk assessment. However there were changes where reassessment was considered to be required in respect of land quality.

23.2 Land quality

Scope, assumptions and limitations

- 23.2.1 The assessment scope, key assumptions and limitations for land quality are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 23.2.2 It has been assumed that no additional surface works will be required, since the installation of ground anchors would be below ground level.
- 23.2.3 Calvert cutting itself is not thought to intercept any landfill waste within the historical Buckingham Rural District Council Refuse Tip. The location of the edge of the landfill in relation to additional land adjoining the cutting in which anchors are to be formed is uncertain. The design of anchors will be finalised when confirmation of the location of the edge of the landfill is established by ground investigation, to ensure that there is no penetration of the landfill body or any lining.

²⁰ Ground anchors are drilled into a vertical surface in a sub-horizontal direction, typically to provide strength against sideways (lateral) loading or to strengthen unstable slopes or walls. In this case they are required to resist lateral loading from soil behind the proposed retaining wall.

²¹ The additional land will allow for the replacement of the ground anchors during the operational life of the railway.

- 23.2.4 The construction techniques have been assumed to be the same as reported in the main ES.

Environmental baseline

- 23.2.5 The baseline land quality information for the area is described in the main ES (Volume 2 CFA 13, Section 8).

- 23.2.6 The work proposed will adjoin and may overlap an area of infilled ground north of Calvert village, alongside the lake at Calvert Jubilee, part of the CJNR (see main ES, Map LQ-01-029, site 13-09, in the Volume 5 Land Quality Map Book). The site is the location of the historical Buckingham Rural District Council Refuse Tip landfill which was licensed to take industrial and commercial waste. The bedrock geology underlying the majority of the route of the original scheme through this area is the Ancholme Group, consisting of:

- the Oxford Clay Formation made up of the Peterborough Member and Stewart by Member, which comprise mudstone with a thickness of greater than 25m; and
- the Kellaways Formation, which comprises mudstone, siltstone and sandstone with a thickness of approximately 5m.

- 23.2.7 These groups are underlain by the Cornbrash Formation.

Effects arising during construction

- 23.2.8 The installation of ground anchors will be designed to avoid penetrating the landfill area. There remains a theoretical possibility of landfill gas and/or leachate migrating from the landfill, along a pathway formed by the anchors between the contamination source and the cutting. However, such an effect would be of very short duration since the anchors are sealed into place by grouting within days of being installed.

- 23.2.9 The assessment confirms the conclusion in Volume 2 of the main ES that there will be no significant temporary adverse effects on land quality.

Effects arising from operation

- 23.2.10 The amendment does not change the assessment reported in Volume 2 of the main ES.

Mitigation and residual effects

- 23.2.11 The draft Code of Construction Practice (CoCP) sets out the measures and standards of work that will be applied to the construction of the original scheme (see Volume 5: Appendix CT-003-000 of the main ES). Prior to construction, soil, groundwater and soil gases will be tested along with any wastes or leachates encountered, in order to mitigate the identified potential effect. This process will allow the design of the anchors to be completed so as to avoid interacting with any waste materials. In addition to these measures, grouting of the anchors into the natural soils will mitigate any potential effects from creation of ground gas or leachate pathways into the cutting.

- 23.2.12 The measures described will provide effective management and control of the potential impacts during the construction period.

23.3 Summary

- 23.3.1 The extension of ground anchors at Calvert Jubilee does not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA 13).

24 Alternative maintenance and farm access for Cowley Farm (AP1-013-018 and AP1-013-019)

24.1 Overview of amendments

- 24.1.1 The Bill provides for maintenance and accommodation access from Bicester Road to the south via Twyford Mill to Cowley Farm (via Restricted Byway accommodation overbridge) and two balancing ponds on the eastern side of the original scheme (refer to Maps CT-05-057 and CT-06-057 in main ES Volume 2, CFA13 Map Book).
- 24.1.2 Since submission of the Bill it has been identified that the access to Twyford Mill is of insufficient width and would need to be improved and widened to accommodate maintenance vehicles. Furthermore, vegetation clearance and two crossings of the Padbury Brook would be required. The proprietor of Cowley Farm has proposed that accommodation access be provided from the north via Perry Hill (the existing access through the farm and along the restricted byway). The landowner has also requested that Footpath PBI/5 accommodation overbridge be removed from the original scheme. The removal of the overbridge has resulted in approximately 1.5ha of land being removed from the Bill and is no longer required for the revised scheme (refer to AP maps CT-05-057, CT-05-057-L1 and CT-06-057 in the AP ES Volume 2 Map Book Part 3).
- 24.1.3 The access track along the byway from Cowley Farm will be improved and widened to 3.5m with 1.5m verges on both sides and passing bays on the north-eastern side of the track. The duration of construction works is anticipated to be approximately three months.
- 24.1.4 Access across the route to other parts of the farm holding is already provided for by Restricted Byway PBI/5A accommodation overbridge. The removal of the overbridge will require Footpath PBI/6 to be diverted south under the Twyford viaduct and Footpath PBI/5 to be diverted north over the Restricted Byway PBI/5A accommodation overbridge. These diversions are outside the limits of the Bill, hence the need for this amendment.
- 24.1.5 The temporary diversion of Restricted Byway PBI/5A over Footpath PBI/5 accommodation overbridge has been removed from the Bill.
- 24.1.6 The footpath diversions, removal of the overbridge and the removal of the access from the south and provision of the new access from the north are not considered to make changes that require a reassessment of the environmental effects or proposed mitigation as set out in the main ES with respect to: air quality; community; land quality; and socio-economics. However, there were changes where reassessment was considered to be required in respect of: agriculture, forestry and soils; cultural

heritage; ecology; landscape and visual assessment; sound, noise and vibration; traffic and transport; and water resources and flood risk assessment.

24.2 Agriculture, forestry and soils

Scope, assumptions and limitations

24.2.1 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. The amendment will have a marginal beneficial effect on agricultural interests compared to the original scheme due to a reduced requirement for agricultural land. Access to land to the west of the original scheme will be maintained via an alternative crossing included as part of the original scheme. The net area of land no longer required is estimated to be approximately 1.5ha.

Environmental baseline

- 24.2.2 The land in the area has soil in the Denchworth association which is poorly drained (Wetness Class²² IV) and characteristically comprises profiles of clay, clay loam or silty clay loam over clay soil, as described in the main ES (see Volume 2, CFA 13, Section 3). The land is moderate quality Subgrade 3b.
- 24.2.3 The holding affected is Cowley Farm (CFA13/8) which is a 170ha arable and sheep farm and is considered to be a holding of medium sensitivity to change.

Effects arising during construction

- 24.2.4 The main ES reported the permanent effect on agricultural land in this area as moderate adverse. The reduction in the area required for this amendment (by 1.5ha) does not alter this assessment.
- 24.2.5 The area of agricultural land permanently required at Cowley Farm is reduced from 16.2ha to approximately 14.7ha. However, this still represents 9% of the holding and as such, the effect on the holding remains as assessed in the main ES (i.e. minor adverse).

Effects arising from operation

- 24.2.6 There are no additional impacts to agriculture, forestry and soil receptors during the operation of the revised scheme.

Mitigation and residual effects

- 24.2.7 No mitigation measures are required. The amendment will result in no change to the likely residual significant effects reported in the main ES.

²² The Wetness Class of a soil is classified according to the depth and duration of waterlogging in the soil profile and has six bands.

24.3 Cultural heritage

Scope, assumptions and limitations

- 24.3.1 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.
- 24.3.2 It has been assumed that topsoil will be removed, as a minimum, for construction of the amendment and that all archaeological remains and earthworks within the footprint of the access road will be removed or disturbed.
- 24.3.3 Information on the potential archaeological remains at this location is based on desk based research (sources including the historic environment record (HER), historic maps and aerial photographs) and non-intrusive surveys comprising LiDAR²³ and hyperspectral survey.

Environmental baseline

- 24.3.4 The access road around Cowley Farm will cross the remains of a shrunken medieval village at Cowley Farm (Asset Reference Number CALo65) and will be adjacent to Grade II listed buildings, which potentially have medieval elements. The buried remains found within the site of the shrunken medieval village include a moated site, medieval pottery, the site of a chapel, a medieval stone coffin, medieval metalwork, house platforms and a fishpond. The site of the medieval shrunken village at Cowley Farm is assessed as being of moderate value.
- 24.3.5 The access road to the south of the original scheme skirts the edge of a field of ridge and furrow (Asset Reference Number CLAo62) identified by LiDAR and aerial photographs, as a heritage asset of low value.
- 24.3.6 The baseline resource is as described in the main ES.

Effects arising during construction

- 24.3.7 Construction of the access track will completely remove any archaeological remains associated with the shrunken medieval village at Cowley Farm (Asset Reference Number CALo65). This will be a permanent high adverse impact on archaeological deposits of moderate value, resulting in a permanent major adverse effect. This is a change to the assessment of impact within the main ES. Further information on this change is provided in Table 17.
- 24.3.8 There will be no effect on the field of ridge and furrow (Asset Reference Number CALo62).

Effects arising from operation

- 24.3.9 The access road will be used by farm machinery and occasional service vehicles. Therefore, there will be no change to the existing baseline conditions and as such no operational effects.

²³ Light detection and ranging (LiDAR) is a high resolution remote sensing technique to capture 3D data.

Mitigation and residual effects

- 24.3.10 The draft Heritage Memorandum and the draft CoCP sets out the provisions that will be adopted to control effects on the shrunken medieval village (see Volume 5: Appendix CT-003-000 of the main ES). A programme of archaeological works will be prepared to investigate, analyse, report and archive these assets. There will be a residual permanent major adverse effect as a result of the amendment.

Volume 5 amendments

- 24.3.11 Table 17 sets out the changes to the main ES, Volume 5, Appendix CH-003-013, Cultural Heritage Assessment, as a result of the proposed amendment.

Table 17: Amendments to the Volume 5 Appendix for Cultural Heritage: Appendix CH-003-013 – Impact Assessment Table

Unique ID	Name	Designation(s)	Value	Construction impacts			Operation impacts		
				Nature of impact including mitigation	Scale of Impact	Effect	Nature of impact including mitigation	Scale of Impact	Effect
CALo65 (AP1-013-18) (AP1-013-19)	Shrunken medieval village at Cowley Farm	Two Grade II listed buildings	Moderate	The nearest elements of the land required, temporarily or permanently, for the construction of the revised scheme comprise a new access road around Cowley Farm (AP1-013-18 and AP1-013-019). The revised scheme will remove archaeological features associated with the medieval earthworks within the footprint of the proposed access road.	High adverse	Major adverse	No impact on value	No change	Neutral

24.4 Ecology

- 24.4.1 The assessment scope for ecology is as set out in Volume 1 of the AP ES. The key assumptions and limitations, and the methodology for determining significance of effects are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000) and the SMR Addendum (Volume 5: Appendix CT-001-000) of the main ES.
- 24.4.2 The land required for the amendment is partially bordered by land already within the limits of the Bill, which has been subject to desk-based ecological investigations as well as field survey and assessment for flora and fauna.
- 24.4.3 The ecological baseline of the land required for the amendment has therefore been based on field data collated for the main ES on land within the amendment area and adjacent land, 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 (BBOWT); North Bucks Bat Group; and Bernwood Forest Bechstein's Project.
- 24.4.4 To address any limitations in the 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.
- 24.4.5 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.

Environmental baseline

- 24.4.6 A summary of the baseline information relevant to the assessment of the amendment is provided below. For those receptors described in the main ES, further details are provided in the main ES Volume 2, CFA13, Section 7.3 and in Volume 5, including Maps EC-01 to EC-12 in the Ecology Map Book.

Designated sites

- 24.4.7 There are three non-statutory designated sites of relevance to this amendment. Field A Cowley Farm Preston Bissett Local Wildlife Site (LWS) and the adjoining Field B Cowley Farm Preston Bissett Biological Notification Site (BNS) are located west of Cowley Farm. Both sites are adjacent to land required for the amendment and both are of county/metropolitan value. Field A Cowley Farm LWS (approximately 8ha) is designated for pasture. It contains several patches of damp, unimproved grassland with spike rush, jointed rush, meadow vetchling, water figwort, silverweed and marsh horsetail, while the northern edge of the field is dominated by great horsetail. Field B Cowley Farm BNS (2.4ha) is a pasture field. The majority of this BNS is semi-improved grassland and the southern corner contains a pocket of damp grassland with hard-rush, celandine and brooklime.
- 24.4.8 The Railway Cutting North of Twyford BNS is a non-statutory site located within the amendment area east of Twyford Mill. This site, which is of county/metropolitan value, is part of the former GCML disused railway and is designated for diverse grassland amongst hawthorn scrub.

24.4.9 There is no other statutory or non-statutory designated nature conservation site within 500m of the land required for this amendment, or otherwise relevant to the assessment. Statutory and non-statutory designated sites are described in the main ES, Volume 2, CFA13, Section 7 and are shown on Maps EC-01-028b to EC-01-031a of the Volume 5, Ecology Map Book.

Habitats

- 24.4.10 The majority of the land required for the amendment is arable with scattered trees and shrubs. These receptors are part of the wider resource of arable land, scattered trees and shrubs, which are each assessed in the main ES as being of local/parish value.
- 24.4.11 The Phase 1 habitat survey recorded the presence of species-rich hedgerows within the land required for the amendment area. These hedgerows are part of the wider hedgerow network, which is assessed as being of district/borough value within the main ES.
- 24.4.12 A section of Padbury Brook passes through the land required for the amendment. As stated in the main ES, the watercourse has been modified and its channel is characteristic of over-deepened rivers but it supports a variety of wildlife. It is the largest watercourse in the area and is a habitat of principal importance. It is assessed as being of district/borough value in the main ES.
- 24.4.13 There are two ponds within the amendment area, one is within the Cowley Farm complex approximately 40m south-east of the most northerly extent of the access track and a second pond is located approximately 100m south of Cowley Old House. Both are considered to be part of the wider resource of ponds assessed in the main ES as being of up to district/borough value.
- 24.4.14 All unnamed tributaries of Padbury Brook within the amendment area are assumed to be part of the wider resource of watercourses assessed in the main ES as being of up to local/parish value.
- 24.4.15 The main ES reports that the diverse grassland features, for which the Railway Cutting North of Twyford BNS was designated, are now degraded or absent and the site mainly contains species poor semi-improved grassland. The grassland is dominated by false oat grass. Grassland stands now lack sufficient diversity to qualify as habitats of principal importance. The grassland is therefore valued at local/parish level.
- 24.4.16 The amendment area includes a section of the GCML disused railway cutting comprising dense scrub and occasional trees. As stated in the main ES, this habitat type is common in the wider area and this site is assessed as being of local/parish value in the main ES.
- 24.4.17 A section of the land required for the amendment is located to the west of the GCML disused railway cutting between the Goddington East viaduct and the Twyford viaduct. Surveys identified this area as arable land and semi-improved grassland. As described in the main ES, each of these habitat types is of local/parish value.
- 24.4.18 To the east of the GCML, the land required for the amendment is predominantly arable, which is part of the arable land assessed in the main ES as being of local/parish value.

Protected and/or notable species

- 24.4.19 Desk study data on the land required for the amendment and field surveys undertaken on adjacent land, as reported in the main ES, did not record any protected and/or notable species of flora or fauna.
- 24.4.20 As reported in the main ES, the otter population on the Padbury Brook is of county/metropolitan value.
- 24.4.21 As part of a precautionary approach, it is assumed that a metapopulation of up to medium population size class of great crested newt may be present in the unsurveyed ponds and ditches within land required for the amendment. If present, metapopulations of this species are assumed to be of up to county/metropolitan value.
- 24.4.22 The assumed assemblage of bats present between Twyford and Chetwode are of district/borough value, as reported in the main ES. Common pipistrelle, soprano pipistrelle and brown long-eared bat populations associated with land at Twyford are reported in the main ES as being of local/parish value. The land required for the amendment includes features such as hedgerows, trees and scrub on the disused GCML that provide suitable commuting and foraging habitat for bats and may be utilised by these populations.
- 24.4.23 The main ES identifies the assemblage of notable plant species present on the GCML as being of district/borough value.
- 24.4.24 The fish population assemblages in tributaries of the Padbury Brook and minor watercourses are of local/parish value as identified in the main ES.

Effects arising during construction

Avoidance and mitigation measures

- 24.4.25 There are no specific measures included as part of the amendment to avoid or reduce impacts to features of ecological value on the land required for the amendment.
- 24.4.26 The assessment assumes implementation the draft CoCP.

Designated sites

- 24.4.27 Field A Cowley Farm Preston Bissett LWS and Field B Cowley Farm Preston Bissett BNS were not within the original scheme and were not assessed in the main ES. Retaining the extent of the habitat and its plant assemblage is important to the integrity of these sites. As widening will occur along the north-west boundary of the existing track, there will be no vegetation clearance associated with construction activities required for the amendment within these sites and the species-rich grassland for which these sites are designated will not be affected by the amendment. There will be no adverse impacts and no effect on the integrity of either of these non-statutory designated sites.
- 24.4.28 The main ES reports that no effects of relevance at more than the local/parish level are anticipated on the Railway Cutting North of Twyford BNS. The amendment will not result in any additional impacts on this site to those reported within the main ES. The assessment in relation to this site is unchanged by the amendment.

Habitats

- 24.4.29 Vegetation clearance associated with widening of the track to the west of the accommodation overbridge may result in the removal of a small area of important hedgerows. These hedgerows are assessed as part of the hedgerow network in the wider landscape, the loss of which was reported as an adverse effect at the district/borough level in the main ES. The assessment presented in the ES is unchanged by the amendment.
- 24.4.30 No significant effects are expected on the damp neutral grassland within the Field A Cowley Farm Preston Bissett LWS and Field B Cowley Farm Preston Bissett BNS. The grassland both within the designated sites and within the wider landscape will not be affected by construction activities associated with the amendment, therefore no significant effects on the conservation status of this habitat type will occur.
- 24.4.31 The main ES reports that construction activities associated with the amendment are unlikely to result in effects on Padbury Brook or unnamed ponds and watercourses within the amendment area. The amendment does not require removal of ponds or clearance of wetland vegetation and will not change the effects reported in the main ES. The assessment in relation to this site is unchanged by the amendment.
- 24.4.32 The main ES concludes that it is unlikely that adverse effects on habitat receptors such as scattered trees, shrubs and arable land will occur at more than the local/parish level. The extent of habitat loss associated with vegetation clearance within land required for the amendment is unlikely to change the significance effects reported for these receptors in the main ES.

Species

- 24.4.33 The main ES states that measures in the draft CoCP (see Volume 5: Appendix CT-003-000/1 of the main ES) will reduce the effect of disturbance from construction activity to the extent that there will not be a significant adverse effect on the conservation status of the otter population present on the Padbury Brook or its tributaries. Construction activities on land required for the amendment will not have any additional impacts on the otter population and will not change the effects reported in the main ES.
- 24.4.34 The main ES reports that, as part of a precautionary assessment, the loss of a breeding pond could result in an adverse effect on conservation status of potential great crested newt populations that is significant at up to the county/metropolitan level. No likely residual significant effects are expected on assumed great crested newt metapopulations within the land required for the amendment. Construction activities associated with the amendment will not affect ponds or wet ditches that may be potential breeding sites for great crested newt within the amendment area. There will be very limited loss of poor quality terrestrial habitat comprising a small area of arable habitat immediately adjacent to the pond and the connectivity between the ponds will not be affected. Through implementation of the CoCP it is assumed that, if required, great crested newt would be cleared from the amendment area using the methods outlined in the ecological principles of mitigation as provided in the SMR Addendum (Volume 5: Appendix CT-001-000 of the main ES). Consequently, no

effects are likely on the conservation status of populations of great crested newt within the land required for the amendment.

24.4.35 The main ES reports that the assumed assemblage of bats associated with the arable landscape between Twyford and Chetwode will be adversely affected at the district/borough level as a consequence of the severance of hedgerows, which are likely to be used by bats for both foraging and commuting. However, this amendment will not result in additional impacts on the bat assemblage and there will be no change to the effects at the district/borough level reported in the main ES.

24.4.36 The main ES states that no significant adverse effects are expected for the assemblage of notable plant species present on the GCML. Construction activities for the amendment may potentially remove notable species, if present, within a small area of the land required for the amendment, but this is unlikely to change the significant effects that were reported in the main ES.

Mitigation and residual effects

Other mitigation measures

24.4.37 No additional or different mitigation is required for the amendment.

Residual effects

24.4.38 The amendment will result in no change in the likely residual significant effects reported in the main ES.

Effects arising from operation

24.4.39 There are no new or different operational effects for ecology as a result of the proposed amendment.

24.5 Landscape and visual assessment

Scope, assumptions and limitations

24.5.1 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.

Environmental baseline

24.5.2 The amendments are located within Twyford Vale landscape character area (LCA) and Preston Bissett Plateau Edge LCA, and will be visible within viewpoints 157.3.001, 160.2.001 and 160.3.001 (see Volume 5: Appendix LV-001-013 of the main ES). The baseline descriptions for these receptors are as described in the main ES (see Volume 2 CFA 13, Section 9.3).

24.5.3 The amendments will be visible from recreational receptors on the public footpath between Twyford and Twyford Mill (viewpoint 157.3.001), residential receptors at Cowley Farm (viewpoint 160.2.001) and recreational receptors on the public footpath west of Cowley Farm (viewpoint 160.3.001.) (see Volume 5: Appendix LV-001-013 of the main ES). The visual baseline for these receptors is as described in the main ES (see Volume 2 CFA 13, Section 9.3 of the main ES).

Assessment of temporary impacts and effects

- 24.5.4 Amendment AP1-013-019 will introduce additional construction activities into the Preston Bissett Plateau Edge LCA, which will result in a localised reduction in tranquillity to the south-west of Cowley Farm. However, this will represent a barely perceptible change to landscape character in the context of the large scale construction activity within the LCA. There will therefore be no change to the likely significant effect on this LCA which was reported in the main ES as being major adverse.
- 24.5.5 Amendment AP1-013-018 will remove construction activities associated with the Footpath PBI/5 accommodation bridge to the north-east of Twyford Mill. However, for Twyford Vale LCA as a whole, this will represent a barely perceptible change considering the introduction of large scale construction activities associated with Twyford viaduct, Restricted Byway PBI/5A and Twyford embankment. There will therefore be no change to the likely significant effect which was reported in the main ES as being major adverse.
- 24.5.6 Amendment AP1-013-018 will remove the visibility of construction activities associated with the Footpath PBI/5 accommodation overbridge from viewpoints 157.3.001, 160.2.001 and 160.3.001. Amendment AP1-013-019 will, however, introduce additional construction activity associated with the accommodation access road into views from recreational and residential receptors around Cowley Farm (viewpoints 160.3.001 and 160.2.001). However, considering the visibility of other large scale construction activities, including those associated with Twyford viaduct, Restricted Byway PBI/5A and Twyford embankment, these amendments will represent a minor change and so there will be no change to the likely significant effect which was reported in the main ES as being major adverse.

Permanent effects arising during operation

- 24.5.7 Amendment AP1-013-019 will introduce maintenance traffic into the Preston Bissett Plateau Edge LCA, which will result in a localised reduction in tranquillity to the south-west of Cowley Farm. However, considering the introduction of large scale infrastructure and engineered landforms through the LCA, including Chetwode cutting, this will represent a barely perceptible change and will not alter the likely significant effect on landscape character which was reported in the main ES as being moderate adverse for Year 15 and minor adverse, for Year 60.
- 24.5.8 Amendment AP1-013-018 will slightly reduce the effect on landscape character within Twyford Vale LCA to the north-east of Twyford Mill when compared to the original scheme. However, considering the introduction of other large scale infrastructure into the LCA, including Twyford viaduct, Restricted Byway PBI/5A and Twyford embankment, this will not alter the likely significant effects which were reported in the main ES as being moderate adverse for Year 15 and minor adverse for Year 60.
- 24.5.9 Visual effects from viewpoints 157.3.001 and 160.3.001 reported in the main ES (volume 2 CFA13, Section 9.4) were the result of the visibility of a number of design elements, including Twyford viaduct and overhead power line equipment. The removal of Footpath PBI/5 accommodation overbridge, whilst reducing the visual

impacts from these viewpoints, will not alter the likely significant effects reported which were moderate adverse for Year 15 and minor adverse for Year 60.

- 24.5.10 Within the original scheme, Footpath PBI/5 accommodation overbridge was approximately 550m from viewpoint 160.2.001 and therefore represented the main source of visual effects. Considering its removal and despite the continued visibility of the overhead power line equipment, the magnitude of change will reduce from medium to low. The low magnitude of change, assessed alongside the high sensitivity of the receptor, will result in a minor adverse effect for Year 1 and a negligible effect for Years 15 and 60. This removes the significant effect on this viewpoint that was reported in the main ES which was moderate adverse for Year 1, minor adverse for Year 15 and negligible for Year 60 (refer to LV-04-049, AP ES Volume 2, Map Book, Part 3).

Mitigation and residual effects

- 24.5.11 As is commonplace with major works, the scale of the construction activities means that works will be visible in many locations and will have the potential to give rise to significant temporary effects which cannot be mitigated practicably. Such effects are temporary and vary over the construction period depending on the intensity and scale of the works at that time. The residual significant temporary effects are the effects persisting after the controls contained in Section 12 of the draft CoCP are implemented. There are no residual significant temporary effects as a result of this amendment.
- 24.5.12 The residual significant operational effects are the permanent residual significant effects persisting after the mitigation included in the scheme design has reached its designed intent 15 years from opening i.e. when matured.
- 24.5.13 No specific mitigation measures are required for these amendments. The mitigation and residual effects will remain as reported in the main ES, with the exception of viewpoint 160.2.001 which changes from a moderate adverse effect for Year 1, minor adverse effect for Year 15 and a negligible effect for Year 60 to a minor adverse effect for Year 1 and a negligible effect for Years 15 and 60.

Volume 5 amendments

- 24.5.14 Table 18 details the changes to the main ES, Volume 5: Appendix: LV-001-013, Landscape and visual assessment as a result of the amendment.

Table 18: Amendments to Volume 5: Appendix: LV-001-013 Landscape and visual assessment

Volume 5 paragraph No/Table Ref	Existing text	Amendment to text
Table 3	<p>160.2.001: View south-west from Cowley Farm.</p> <p>In Operation Year 1, Winter: Moderate adverse</p>	<p>160.2.001: View south-west from Cowley Farm.</p> <p>In Operation Year 1, Winter: Minor adverse</p>
Table 7	<p>160.2.001: View south-west from Cowley Farm. Description of effect- operation year 1 (2026)</p> <p>In Operation Year 1, Winter: Moderate adverse</p>	<p>160.2.001: View south-west from Cowley Farm. Farm. Description of effect- operation year 1 (2026)</p> <p>Restricted Byway PBI/5A accommodation overbridge will be visible in front of Twyford Mill, with views partly blocked by intervening topography. The overhead power line equipment will also be intermittently visible in front of the dismantled railway, through gaps in intervening hedgerows. Overall, the magnitude of change will be low and will result in a minor adverse effect.</p>
Table 7	<p>160.2.001: View south-west from Cowley Farm. Description of effect- operation year 15 (2041)</p> <p>Proposed planting along the eastern side of the original scheme will have established sufficiently to begin providing screening of Footpath PBI/5 accommodation overbridge, Restricted Byway PBI/5A accommodation overbridge and the overhead power line equipment. The magnitude of change will be low and will result in minor adverse effects.</p>	<p>160.2.001: View south-west from Cowley Farm. Description of effect- operation year 15 (2041)</p> <p>Proposed planting along the eastern side of the original scheme will have established sufficiently to begin providing screening of Restricted Byway PBI/5A accommodation overbridge and the overhead power line equipment. The magnitude of change will be negligible and will result in negligible effects.</p>
Table 7	<p>160.2.001: View south-west from Cowley Farm. Description of effect- operation year 60 (2086)</p> <p>Proposed planting will have fully matured and would largely screen views of the Footpath PBI/5 accommodation overbridge, Restricted Byway PBI/5A accommodation overbridge and the overhead power line equipment. The magnitude of change will be negligible and will result in negligible effects.</p>	<p>160.2.001: View south-west from Cowley Farm. Description of effect- operation year 60 (2086)</p> <p>Proposed planting will have fully matured and would largely screen views of the Restricted Byway PBI/5A accommodation overbridge and the overhead power line equipment. The magnitude of change will be negligible and will result in negligible effects.</p>

24.6 Sound, noise and vibration

Scope, assumptions and limitations

- 24.6.1 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES. No change to the predicted operational noise levels is likely from this amendment given that it consists of footpath diversions, removal of a proposed overbridge and use of an access road from the south. The assessment was therefore undertaken for the construction phase only.
- 24.6.2 It has been assumed that the construction works will remain unchanged from those reported in the main ES, Volume 2, CFA 13, Section 2, except for the works related to the widening of the existing track from Cowley Farm and removal of the footpath accommodation overbridge PB1/5.

Environmental baseline

- 24.6.3 The baseline sound, noise and vibration information for the area is described in the main ES (Volume 5: appendix SV-002-013).

Effects arising during construction

- 24.6.4 Although some new construction activities will result from the track widening it is not likely that these will result in significant adverse effects from construction noise or vibration.
- 24.6.5 Vehicle movements along the proposed access track during the construction phase are not likely to give rise to significant adverse effects.
- 24.6.6 The removal of footpath accommodation overbridge PB1/5 will result in the reduction of construction activities. This may lead to a reduction in reported construction noise levels at nearby residential receptors such as Mill Lane, Twyford and Preston Bissett, Buckingham (represented by Assessment Locations 287430 and 288684 – refer to main ES Volume 5: Appendix SV-002-013). However, no likely significant adverse effects were predicted in the main ES at the assessment locations in the vicinity of the bridge. The assessment set out in the main ES, Volume 2, CFA 13, Section 11 will therefore remain unchanged.

Mitigation and residual effects

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

24.7 Traffic and transport

Scope, assumptions and limitations

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

Environmental baseline

- 24.7.2 The following Public Rights of Way (PRoW) are within the area of the amendment, PBI/6, PBI/6/3, PBI/5A/3 and PBI/5(F)/7. PRoW surveys were undertaken in August and September 2012 to establish the nature of the PRoW and their use by pedestrians, cyclists and equestrians (non-motorised users). The surveys indicated that the routes are used by no more than three people per day.
- 24.7.3 A detailed report on traffic and transport and surveys undertaken within the area is contained in the main ES (see Volume 5: Appendix: TR-001-000, Transport Assessment).

Effects arising during construction

- 24.7.4 The amendment does not change the temporary diversions for any PRoW and therefore it does not change the significance of temporary traffic and transport effects as set out in the main ES.

Effects arising during operation

- 24.7.5 The amendment will require an additional permanent diversion of PRoW PBI/5(F)/7 that will result in a minor adverse effect caused by severance due to an increase in travel distance of 330m. This is an additional effect arising from the amendment, as indicated on AP map TR-04-068 (AP ES, Volume 5, Traffic and Transport Map Book).
- 24.7.6 The amendment does not change the permanent diversions for any other PRoW and therefore it does not change the significance of any other permanent traffic and transport effects as set out in the main ES.

Mitigation and residual effects

- 24.7.7 No mitigation has been identified for this amendment. The increase in travel distance caused by the diversion of PRoW PB1/5(f)/7 will cause a minor adverse residual permanent effect.

24.8 Water resources and flood risk assessment

Scope, assumptions and limitations

- 24.8.1 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.
- 24.8.2 The following has been assumed in undertaking the assessment:
- no diversion of the Padbury Brook or its tributaries is required;
 - the new access road to Cowley Farm will not intersect any surface water features; and
 - there will be no significant below ground works that penetrate the natural strata.

Environmental baseline

- 24.8.3 The baseline water resources and flood risk information for the area is described in the main ES (Volume 2, CFA 13, Section 13).
- 24.8.4 The amendments will not involve any additional crossings over the Padbury Brook, which is a Main River or its tributaries. The current overall status²⁴ under the Water Framework Directive (WFD) of the Padbury Brook is Good, while the objective for 2027 is Good Potential/Status.
- 24.8.5 The Padbury Brook has a catchment size of approximately 73.8km² near this crossing. According to the site-specific modelling of the Padbury Brook, the route of the original scheme crossed 60m of Flood Zone 3 on viaduct, with embankments occupying approximately 7,000m². According to the Buckinghamshire preliminary flood risk assessment (PFRA)²⁵ flooding was experienced from the Padbury Brook at Twyford, Twyford Mill and Three Bridges Mill in 2003.
- 24.8.6 The bedrock geology comprises the Ancholme Group consisting of the Oxford Clay Formation comprising mudstone and the Kellaways Formation comprising mudstone, siltstone and sandstone.
- 24.8.7 The Oxford Clay Formation is an aquitard (unproductive strata) and does not have any WFD classification. No significant groundwater is expected to be encountered within the Oxford Clay Formation. The Kellaways Formation, comprising mudstone, is a Secondary A aquifer. The limited publicly available borehole records indicate that groundwater levels can be within 1m of the ground surface at Barton Hartshorn. Groundwater flow is expected to be towards the local watercourses.

Effects arising during construction

- 24.8.8 The amendment will not involve any substantial changes to the above and below ground works already proposed in the Bill. There will be no change to the significance of temporary or permanent adverse or beneficial effects on water resources or flood risk reported in the main ES as a result of removing the accommodation overbridge and access road.

Effects arising from operation

- 24.8.9 The amendment does not change the assessment reported in the main ES.

Mitigation and residual effects

- 24.8.10 The draft CoCP sets out the measures and standards of work that will be applied to the construction of the original scheme (see the main ES, Volume 5, Appendix CT-003-000). These will provide effective management and control of the impacts during the construction period. The amendment will result in no change to the likely residual significant effects reported in the main ES.

²⁴ Environment Agency (2009) River Basin Management Plan, Thames River Basin District

²⁵ Jacobs and Buckinghamshire County Council (2011), Buckinghamshire County Council Preliminary Flood Risk Assessment.

24.9 Summary

- 24.9.1 Construction work within the land required for the revised scheme will completely remove any archaeological remains associated with the shrunken medieval village at Cowley Farm. This will be a permanent high adverse impact on archaeological deposits of moderate value due to their loss, resulting in a permanent major adverse effect. This is a change to the assessment of effects within the main ES.
- 24.9.2 Footpath PBI/5 accommodation overbridge was approximately 550m from viewpoint 160.2.001 in the original scheme and resulted in a significant visual effect. The removal of this footpath will remove the significant effect on this visual receptor (ie the effect will change from a moderate adverse effect for Year 1, minor adverse effect for Year 15 and a negligible effect for Year 60 to a minor adverse effect in Year 1 and a negligible effect for Years 15 and 60).
- 24.9.3 The permanent realignment of PRoW PBI/5(F)/7 was reported in the main ES as not resulting in a significant effect on traffic and transport. The amendment will result in an additional minor adverse effect as a result of severance due to increased travel distance.

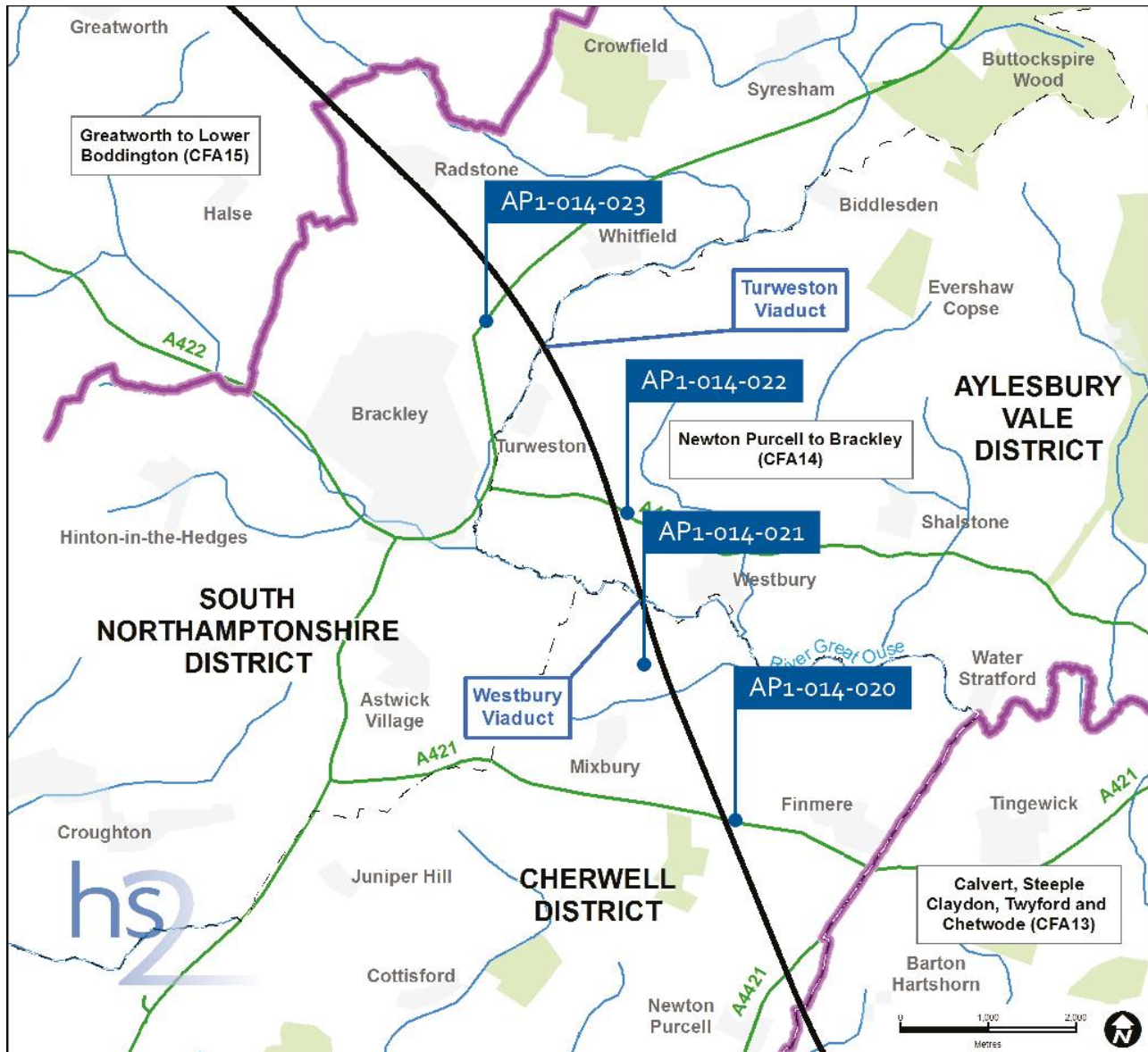
The amendment does not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA13) for any other topic.

CFA14, Newton Purcell to Brackley

25 Overview of the amendments

25.1.1 Table 19 provides a summary of the amendments in the Newton Purcell to Brackley area (CFA14) and Figure 9 shows the locations.

Figure 9: Locations of amendments in the Newton Purcell to Brackley area



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Table 19: Summary of amendments in the Newton Purcell to Brackley area (CFA14)

CFA	Amendment	Description of the original scheme	Description of the revised scheme
14	Replacement of private access to Warren Farm AP1-014-020	The permanent replacement of private access to the east of the original scheme for Warren Farm from the A421 London Road.	Realigned replacement access to Warren Farm to run parallel with the original scheme.
14	Provision of access to balancing pond near Mixbury AP1-014-021	The permanent provision of a maintenance access track to the west of the original scheme to provide access to a balancing pond located south of the River Great Ouse adjacent to the Westbury viaduct south abutment.	The access track is to be improved and widened along the originally proposed alignment to accommodate maintenance vehicles.
14	Additional land required to install safety barriers along the A422 Brackley Road AP1-014-022	The permanent provision of an accommodation access to Oatleys Farm and a maintenance access to a balancing pond, both with side road junctions off the A422 Brackley Road on the east side of the original scheme.	The proposed side road junctions off the A422 on the eastern approach to the A422 Brackley Road overbridge have been repositioned to enable a suitable length of safety barrier to be provided on the approaches to the bridge parapets.
14	Provision of an underpass under the A43 near Brackley AP1-014-023	The permanent provision of an underpass to maintain the connectivity of Bridleways BD7 and BD10 under the A43 Oxford Road.	More detailed design has revealed the need for additional land for earthworks to provide an underpass below the A43 Oxford Road associated with the realignment of Bridleways BD7 and BD10.

26 Replacement of private access to Warren Farm (AP1-14-020)

26.1 Overview of amendment

26.1.1 The Bill provides for a replacement private access to the east of the original scheme for Warren Farm from the A421 London Road (refer to CT-05-062 in the main ES Volume 2, CFA14 map book). Since submission of the Bill, a new layout for this access has been identified to reduce the impact on Warren Farm. The route of the access in the original scheme crossed a field and has been removed from the Bill (refer to CT-05-062 and CT-06-062 in AP ES Volume 2 Map Book, Part 3). This has resulted in approximately 0.6 hectares of land no longer being required for the revised scheme. The access in the revised scheme will be located around the perimeter of the field and alongside the railway. The revised access will be 3.5m wide, with 1.5m verges on both sides and passing bays. The revised access will be approximately 370m long and is expected to take up to six months to construct. The land required for the revised access, approximately 0.4ha, is partially outside the limits of the Bill, hence the need for this amendment. The revised scheme therefore requires an area of 0.2ha less than the original scheme.

26.1.2 The revised access 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; socio-economics; sound, noise and vibration; traffic and transport; and water resources and flood risk assessment. However, there were changes where reassessment was considered to be required in respect of agriculture, forestry and soils and cultural heritage.

26.2 Agriculture, forestry and soils

Scope, assumptions and limitations

26.2.1 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-001-000/01) and the SMR Addendum (Volume 5: Appendix CT-001-000/02) of the main ES. The realigned access track to Warren Farm is a permanent requirement. The length of the new access track is approximately 370m and would require an additional 0.4ha of agricultural land outside of land already within Bill limits for construction works. However, this will be offset by the removal of the currently proposed 240m long access track, which has a greater construction land requirement of 0.6ha as it does not run alongside the land already included within the Bill for the rail alignment of the original scheme. This assessment is based on the total permanent land requirement for the original access track of 0.16ha (based on a length of 240m and a width of 6.5m) and 0.24ha (based on a length of 370m and a width of 6.5m) for the amended track.

Environmental baseline

- 26.2.2 The land required for the revised scheme has soil in the Essendon association which comprises permeable seasonally waterlogged (Wetness Class²⁶ III) coarse loamy over clayey soils. The quality of the agricultural land affected is assessed as Grade 2.
- 26.2.3 The holding affected is CFA14/3 (Warren Farm) which is an 11.6ha equestrian grazing unit. It is considered to be a holding of medium sensitivity to change.

Effects arising during construction

- 26.2.4 The permanent requirement for approximately 0.24ha of agricultural land in Grade 2 is 800m² more than that previously assessed. This increase in agricultural land requirement does not change the significance of the effect on best and most versatile (BMV) agricultural land (Grades 1, 2 and 3a) as reported in the main ES (i.e. major adverse).
- 26.2.5 The construction of the realigned access track will remove permanently a further 0.08ha from the holding, taking the total area required to 1.7ha. This represents 15% of the holding, although the effect on the holding will be the same as that reported in the main ES, namely a moderate adverse effect. The revised alignment will reduce the number of fields severed by the track. However, the effect will again be the same as that reported in the main ES.

Effects arising from operation

- 26.2.6 There are no additional impacts to agriculture, forestry and soil receptors during the operation of the scheme.

Mitigation and residual effects

- 26.2.7 No mitigation measures are required. The mitigation and residual effects will remain as reported in the main ES.

26.3 Cultural heritage

Scope, assumptions and limitations

- 26.3.1 The assessment scope, key assumptions and limitations for cultural heritage are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/01) and the SMR Addendum (Volume 5: Appendix CT-001-000/02) of the main ES.
- 26.3.2 It is assumed that topsoil will be removed, as a minimum, for construction of the access track and that all archaeological remains and earthworks within the land required for the access track will be removed or disturbed.
- 26.3.3 Information on the potential archaeological remains at this location is based on desk based research (sources including the historic environment record (HER), historic maps, aerial photographs and non-intrusive surveys comprising LiDAR and hyperspectral survey).

²⁶ The Wetness Class of a soil is classified according to the depth and duration of waterlogging in the soil profile and has six bands.

Environmental baseline

- 26.3.4 The proposed access track will cross an area of high archaeological potential (Asset Reference Number NPBo19) relating to Bronze Age, Iron Age and Roman settlement activity, including Bronze Age cremations which were located during investigations at Finmere Quarry. Cropmarks suggest activity extends further than the extent of the quarry. These remains are assessed as being of moderate value.
- 26.3.5 The baseline resource is as described in the main ES.

Effects arising during construction

- 26.3.6 Construction work within the land required for the amended access track will completely remove any archaeological remains associated with the settlement activity (asset reference NPBo19). The main ES records a high adverse impact on these moderate value remains, resulting in a major adverse effect. As there is a high adverse impact on the remains already, the addition of the access track will not increase the impact and, as such, there is no change to the assessment of construction effects within the main ES.

Effects arising from operation

- 26.3.7 There will be no change in the operational effects reported in the main ES.

Mitigation and residual effects

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

26.4 Summary

- 26.4.1 The replacement of private access to Warren Farm does not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA14).

27 Provision of access to balancing pond near Mixbury (AP1-14-021)

27.1 Overview of amendment

- 27.1.1 The Bill provides for an access track to the west of the original scheme to a balancing pond located south of the River Great Ouse adjacent to the Westbury viaduct south abutment (refer to main ES maps CT-05-063-L1 and CT-06-063-L1 in the main ES Volume 2, CFA14 map book). Since submission of the Bill, the need for an improved and widened access track for maintenance vehicles on the same alignment has been identified (refer to AP maps CT-05-063-L1 and CT-06-063-L1 in AP ES Volume 2, Map Book Part 3). The revised access will be 3.5m wide, with 1.5m verges on both sides and passing bays. The revised access track will be approximately 700m long and is expected to take up to six months to construct. Land for the widened access track is outside the limits of the Bill, hence the need for this amendment.

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

27.2 Ecology

Scope, assumptions and limitations

- 27.2.1 The assessment scope for ecology is as set out in Volume 1 of the AP ES. The key assumptions and limitations, and the methodology for determining significance of effects are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/01) and the SMR Addendum (Volume 5: Appendix CT-001-000/02) of the main ES.
- 27.2.2 The land required for the amendment is bordered by land already within the limits of the Bill, which has been subject to desk-based ecological investigations as well as field survey and assessment for flora and fauna.
- 27.2.3 The ecological baseline of the land required for the amendment has been based on field data collated for the main ES on adjacent land, 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; Cherwell District Council; Thames Valley Environmental Records Centre; Bedfordshire, Cambridgeshire and Northamptonshire Wildlife Trust; Northamptonshire Biodiversity Records Centre; Northamptonshire Bat Group; and Oxfordshire Bat Group.
- 27.2.4 To address any limitations in data, a precautionary baseline has been considered according to the guidance reported in the main ES, Volume 5: Appendix CT-001-000/2. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 27.2.5 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.

Environmental baseline

- 27.2.6 A summary of the baseline information relevant to the assessment of the amendment is provided below. For those receptors described in the main ES, further details are provided in Volume 2, CFA14, Section 7.3 and in Volume 5, including Maps EC-01 to EC-12, in the Ecology Map Book.

Designated sites

- 27.2.7 The Old London and North Eastern Railway (LNER) District Wildlife Site (DWS) is designated for species-rich grassland, tall herb vegetation, rough grassland, small stands of woodland and some small areas of lowland calcareous grassland, a habitat of principal importance²⁷. This site is of district/borough value. The widened access track crosses this site between Newton Purcell and Mixbury.

²⁷ The Natural Environment and Rural Communities Act 2006 (Chapter 16), London, Her Majesty's Stationery Office.

- 27.2.8 Statutory and non-statutory designated sites within the wider study area are described in the main ES, Volume 2, CFA14, Section 7.3 and are shown on Maps EC-01-031b to EC-01-035a in the Volume 5 Ecology Map Book.

Habitats

- 27.2.9 As stated in the main ES, lowland calcareous grassland of district/borough value is rare in Northamptonshire and is the principal reason for the designation of the Old LNER DWS. The land required for the amendment includes a section of grassland within the Old LNER DWS. On the basis of available information and as part of a precautionary assessment it is assumed that this grassland habitat is lowland calcareous grassland of district/borough value.
- 27.2.10 As described in the main ES, the hedgerow network within the revised scheme is considered to be of district/borough value. Phase 1 habitat surveys have identified an important hedgerow approximately 450m south-west of the amendment area. The hedgerows within the additional land required for the amendment are part of the same hedgerow network evaluated for the main ES. The hedgerow network is of district/borough value.
- 27.2.11 Two areas of woodland are located at the most western point of the widened access track where it meets Mixbury Road. The woodland to the north of the track has an area of approximately 0.20ha and the smaller area to the south of the track is approximately 0.11ha in area. Both woodlands are located within the land required for the amendment. As stated in the main ES, this type of patchy woodland habitat is widespread locally and is of local/parish value. The two woodlands near Mixbury Road, on land required for the amendment are considered to be part of the wider resource of patchy woodland habitat available in the wider landscape and are therefore also assessed to be of local/parish value.
- 27.2.12 The land required for the amendment area is predominantly arable. As stated in the main ES, this habitat is of local/parish value.
- 27.2.13 At its closest point, near Mixbury Road, the amendment area is approximately 60m north of an unnamed drain located between Mixbury and Fulwell. This watercourse is assessed as part of the wider watercourse resources which is identified in the main ES as being of local/parish value.

Protected and/or notable species

- 27.2.14 The bat assemblage using the Old LNER DWS for commuting and foraging between Finmere Quarry and Mixbury is assessed in the main ES as being of county/metropolitan value. It is likely that this assemblage utilises the section of Old LNER within land required for the amendment for commuting and foraging.
- 27.2.15 As assessed in the main ES, potential reptile populations associated with habitat along the Old LNER DWS are assumed to be of up to county/metropolitan value. It is likely that suitable reptile habitat is present in the section of Old LNER within land required for the amendment.

- 27.2.16 As reported in the main ES, the otter population using the River Great Ouse and its tributaries is up to county/metropolitan value. Otter is a species of principal importance²⁸. Surveys have identified suitable terrestrial habitat that provides opportunities for otter breeding holts in woodland approximately 200m south-east of the amendment, in an area between the Old LNER DWS and Hollow Barn.
- 27.2.17 As stated in the main ES, great crested newt metapopulations in the wider landscape are valued at the county/metropolitan level. Surveys identified suitable terrestrial habitat for great crested newt at two sites located 300m east of land required for the amendment. Additionally, the unnamed drain between Mixbury and Fulwell, which passes 60m to the south of land required for the amendment potentially provides habitat to support great crested newt. Based on a reasonable worst case approach to the evaluation, it is assumed that suitable habitat in the vicinity of land required for the amendment could potentially support a medium population size class, potentially forming a metapopulation of great crested newt. If present, this population would be of up to county/metropolitan value.
- 27.2.18 As stated in the main ES, water vole is a species of principal importance and the potential presence of water vole along the River Great Ouse is assessed as being of county/metropolitan value. Field surveys in the vicinity of land required for the amendment in 2013 recorded no evidence of the presence of water voles, but habitat suitable for water voles is present along the Old LNER DWS and to the south-east of the amendment area between the Old LNER DWS and Hollow Barn. If present, water vole in the vicinity of land required for the amendment is assessed as part of the same breeding population identified in the main ES.

Effects arising during construction

Avoidance and mitigation measures

- 27.2.19 There are no specific measures included as part of the amendment to avoid or reduce impacts to features of ecological value on the land required for the amendment.
- 27.2.20 The assessment assumes implementation of the draft Code of Construction Practice (CoCP).

Designated sites

- 27.2.21 As described in the main ES, the function of the DWS as a wildlife corridor will be affected and the grassland habitat for which it is designated will be lost as result of construction activities associated with the original scheme. These impacts will result in a permanent adverse effect on the integrity of the Old LNER DWS that is significant at the district/borough level. The widening of the access track will potentially result in the loss of up to an additional 500m² (0.9% of the DWS) of trees and grassland from the Old LNER DWS. However, an adverse effect on the integrity of the DWS at the district/borough level was already reported in the main ES, and therefore there will be no change to the level at which these effects are significant.

²⁸ The Natural Environment and Rural Communities Act 2006 (Chapter 16), London, Her Majesty's Stationery Office.

Habitats

- 27.2.22 The main ES states that the loss of grassland habitat will result in a permanent adverse effect on the conservation status of grassland, that will be significant at the district/borough level for the Old LNER DWS. As part of a precautionary approach, vegetation clearance on land required for the amendment within the Old LNER DWS may result in the loss of an additional 0.5ha of grassland habitat. The additional loss of grassland will not change the significant adverse effect reported in the main ES.
- 27.2.23 As identified in the main ES, loss of hedgerow habitat will result in a permanent adverse effect on the conservation status of the hedgerow network that is significant at the district/borough level. As part of a precautionary approach, it is assumed that vegetation clearance will result in the removal of important hedgerows within the amendment area. The proportion and extent of the potential additional losses of important hedgerows within the amendment area is unlikely to result in any change to the significant adverse effect reported in the main ES.

Species

- 27.2.24 The main ES reported that no adverse significant effects are expected on the assemblages of bats that use the Old LNER DWS. Construction activities for the amendment will remove small areas of potential habitat, but are not expected to result in an adverse effect on conservation status of the populations concerned. There will be no change to the effects reported in the main ES.
- 27.2.25 The main ES reports that no significant effects are expected on the otter population using the River Great Ouse and its tributaries. Construction activities for the amendment may remove limited areas of potential terrestrial habitat, but the extent of habitat loss is unlikely to result in significant effects on the conservation status of this species. There will be no change to the effects reported in the main ES.
- 27.2.26 As part of the precautionary assessment, the main ES states that it is assumed impacts will result in a permanent adverse effect on the conservation status of the reptile populations associated with the Old LNER that would be significant up to the county/metropolitan level. Construction activities for the amendment may remove small additional areas of potential habitat, but will not change the significant effects reported in the main ES.
- 27.2.27 As reported in the main ES, as part of a precautionary assessment, it is assumed that removal of breeding ponds and suitable terrestrial habitat could result in a permanent adverse effect on the conservation status of an assumed great crested newt metapopulation, that would be significant at up to the county/metropolitan level. On the basis of available information, a possible metapopulation that was not referenced in the main ES may be present in the vicinity of land required for the amendment. Construction activities associated with the amendment will not result in the loss of aquatic habitat suitable for great crested newt, however, up to 500m² of suitable terrestrial habitat will be removed. In line with the draft CoCP, translocation will be undertaken if required. These works would be undertaken in accordance with the ecology principles of mitigation included within the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES). Considering the extent and availability of suitable terrestrial habitat in the wider landscape, it is unlikely that the extent of loss of habitat within land required for the amendment will result in additional effects on

the conservation status of an assumed metapopulation of great crested newt. This amendment will not result in a change to the level of significant effects reported in the main ES.

- 27.2.28 The main ES states that vegetation clearance would remove habitat potentially used by water voles for foraging and shelter. As part of the precautionary assessment, it is assumed that loss of these habitats could result in a permanent adverse effect on the conservation status of water voles at a county/metropolitan level. It is unlikely that vegetation clearance on land required for the amendment will impact the unnamed drain, which is located 45m south of the access track at its closest point. No likely significant effects are expected on the conservation status of water voles additional to those reported in the main ES. The assessment in relation to the conservation status of water voles is therefore unchanged by the amendment.

Mitigation and residual effects

Other mitigation measures

- 27.2.29 No additional or different mitigation is required for the amendment.

Residual effects

- 27.2.30 The amendment will result in no change in the likely residual significant effects reported in the main ES.

Effects arising from operation

- 27.2.31 There are no new or different significant operational effects for ecology as a result of the proposed amendment.

27.3 Summary

- 27.3.1 The provision of access to the balancing pond near Mixbury does not change the significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA14).

28 Additional land required to install safety barriers along the A422 Brackley Road (AP1-14-022)

28.1 Overview of amendment

- 28.1.1 The Bill provides for an accommodation access to Oatley's Farm and a maintenance access to a balancing pond (for railway drainage) on the east side of the route adjacent to the Westbury viaduct north abutment. Both accesses have side road junctions off the A422 Brackley Road on the eastern approach to the A422 Brackley Road overbridge (refer to main ES maps CT-05-064 and CT-06-064 in the main ES Volume 2, CFA14 Map Book). Since submission of the Bill, the proposed side road junctions have been repositioned to enable a suitable length of safety barrier to be provided on the approaches to the overbridge parapets (refer to AP maps CT-05-064

and CT-06-064 in AP ES Volume 2 Map Book Part 3). The duration of construction works is anticipated to be approximately three months.

- 28.1.2 The repositioned junctions are not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics.

28.2 Summary

- 28.2.1 The additional land required to install safety barriers along the A422 Brackley Road does not change the significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA14).

29 Provision of an underpass under the A43 near Brackley (AP1-14-023)

29.1 Overview of amendment

- 29.1.1 The Bill provides for an underpass to maintain the connectivity of Bridleways BD7 and BD10 under the A43 Oxford Road. Since submission of the Bill, the need for additional earthworks associated with the realignment for the Bridleway BD10 underpass below the A43 has been identified (refer to AP maps CT-05-066 and CT-06-066 in the AP ES Volume 2 Map Book Part 3). The duration of construction works is anticipated to be approximately six months.
- 29.1.2 The additional earthworks are not considered to make changes that require a reassessment of the environmental effects or mitigation as set out in the main ES with respect to: agriculture, forestry and soils; air quality; community; cultural heritage; ecology; land quality; landscape and visual assessment; socio-economics; traffic and transport; and water resources and flood risk assessment. However, there were changes where reassessment was considered to be required in respect of sound, noise and vibration.

29.2 Sound, noise and vibration

Scope, assumptions and limitations

- 29.2.1 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES. The assessment was undertaken for the construction phase only. It has been assumed that the construction programme, hours of operation and construction plant used will remain unchanged from that reported in the main ES (see Volume 2, CFA14, Section 2).

Environmental baseline

- 29.2.2 The baseline sound, noise and vibration information for the area is described in the main ES (Volume 5: Appendix SV-002-014). The residential properties on Northampton Road, which are the nearest sensitive receptor to the proposed works have been assessed (Assessment Location 270079) and provide a representative baseline for this assessment.

Effects arising during construction

- 29.2.3 The construction noise levels were predicted for residential properties on Northampton Road (Assessment Location 270079, refer to main ES map SV-03-033 in main ES, Volume 5, Sound, Noise and Vibration Map Book – Country South) and reported in the main ES (Volume 2, CFA14). The predicted levels reached 55dB²⁹ during the daytime during construction activities associated with movements along the main site haul route. No construction activities are scheduled during either the evening or night time periods at this location.
- 29.2.4 The construction activities associated with this amendment do not represent a substantial change in the works detailed in the main ES (see Volume 2, CFA14, Section 11). The predicted noise levels and impacts are therefore as reported in the main ES.

Mitigation and residual effects

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

29.3 Summary

The provision of an underpass under the A43 near Brackley does not change the significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA14).

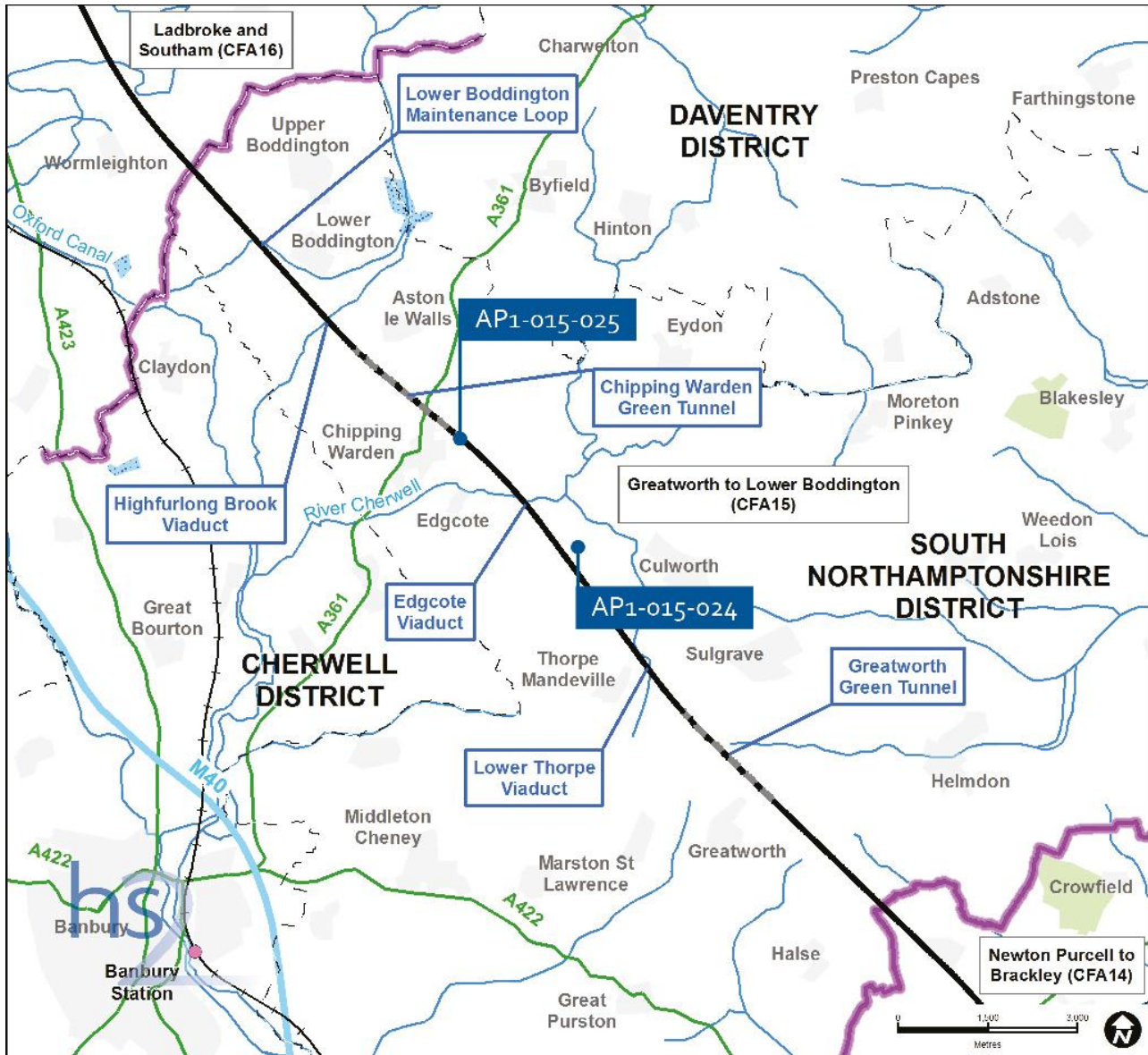
²⁹ Equivalent continuous sound level at the facade, LpAeq, 0700-1900.

CFA15, Greatworth to Lower Boddington

30 Overview of the amendments

30.1.1 Table 20 provides a summary of the amendments in the Greatworth to Lower Boddington area (CFA15) and Figure 10 shows the locations.

Figure 10: Locations of amendments in the Greatworth to Lower Boddington area



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Table 20: Summary of amendments in the Greatworth to Lower Boddington area (CFA15)

CFA	Amendment	Description of the original scheme	Description of the revised scheme
15	Revised access to Danes Moor auto-transformer station AP1-015-024	The permanent provision of Danes Moor auto-transformer station and associated maintenance access track approximately 700m south of Welsh Road on the east side of the original scheme. Permanent realignment of Bridleway AG10 across the overbridge south of Welsh Road, approximately 5m above existing ground level, which will also provide accommodation access for West Mill Farm and maintenance access to balancing ponds (for railway drainage).	The permanent access to Danes Moor auto-transformer station and to the balancing ponds will be realigned to coincide with an existing accommodation access off Welsh Road to West Mill Farm, which will be partially improved and widened.
15	Revision of bridleway and access provision at Chipping Warden AP1-015-025	The permanent reinstatement of Footpaths AE20 and AE12 over Chipping Warden green tunnel incorporating a new (Culworth) bridleway to maintain connectivity along Culworth Road for pedestrians, cyclists and equestrians. Access to Calves Close Spinney, which is the location for activities run by R. I. F. T Airsoft Ltd, would be maintained through the provision of a temporary and permanent access during construction and operation of the original scheme.	Since submission of the Bill, the alignment of the private access to Calves Close Spinney over the green tunnel has been revised to provide a gentler gradient so it will provide an accessible route for all users of the Culworth Road bridleway, including cyclists.

31 Revised access to Danes Moor auto-transformer station (AP1-015-024)

31.1 Overview of amendment

31.1.1 The Bill provides for:

- the construction of Danes Moor auto-transformer station and associated maintenance access track approximately 700m south of Welsh Road on the east side of the original scheme; and
- realignment of Bridleway AG10 across the overbridge south of Welsh Road, approximately 5m above existing ground level, which will also provide accommodation access for West Mill Farm and maintenance access to balancing ponds (for railway drainage) on the west side of the original scheme (refer to main ES maps CT-05-073 and CT-06-073 in the main ES, Volume 2, CFA15 Map Book).

31.1.2 Since submission of the Bill, it has been identified that a new access for West Mill Farm has been constructed in close proximity to the proposed maintenance access. Utilising this new access and the existing access with which it connects will avoid using land between the proposed and existing accesses (refer to AP maps CT-05-073 and CT-06-073 in the AP ES Volume 2 Map Book Part 3). Part of the existing access needs to be improved and widened to make it suitable for maintenance vehicles. The revised access will be 3.5m wide, with 1.5m verges on both sides and passing bays taking it outside the limits of the Bill, hence the need for this amendment. The duration of construction works is anticipated to be approximately three months. The additional area required is approximately 0.2 hectares.

31.1.3 The realigned accesses 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; traffic and transport; and water resources and flood risk assessment. However, there were changes where reassessment was considered to be required in respect of agriculture, forestry and soils.

31.2 Agriculture, forestry and soils

Scope, assumptions and limitations

31.2.1 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.

Environmental baseline

- 31.2.2 The land affected by these works has soil in the Denchworth association which is poorly drained (Wetness Class³⁰ IV) and characteristically comprises profiles of clay throughout. The land is assessed as moderate quality Subgrade 3b.
- 31.2.3 The holding affected is CFA15/14 (West Mill Farm), which is a 243ha arable and sheep farm. It is considered to be a holding of medium sensitivity to change.

Effects arising during construction

- 31.2.4 The marginal increase in the area of lower quality agricultural land required for the scheme of approximately 0.2ha, does not change the significance of the effect on best and most versatile (BMV) agricultural land (Grades 1, 2 and 3a) reported in the main ES (i.e. moderate adverse).
- 31.2.5 The effect on the holding has been reported in the main ES as minor adverse and this assessment remains valid, even after this marginal increase in land area has been taken into account.

Effects arising from operation

- 31.2.6 No additional impacts to agriculture, forestry and soil receptors are predicted to arise from the operation of the revised scheme.

Mitigation and residual effects

- 31.2.7 No additional mitigation measures are required. The amendment will result in no change to the likely residual significant effects reported in the main ES.

31.3 Summary

- 31.3.1 The revised access to Danes Moor auto-transformer station does not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA 15).

32 Revision of bridleway and access provision at Chipping Warden (AP1-015-025)

32.1 Overview of amendment

- 32.1.1 The Bill provides for:
- reinstatement of Footpaths AE20 and AE12 over Chipping Warden green tunnel incorporating a new bridleway to maintain connectivity along Culworth Road for pedestrians, cyclists and equestrians; and
 - access to Calves Close Spinney, which is the location for activities run by R. I. F. T Airsoft Ltd, maintained through the provision of temporary and permanent track during the construction and operation of the original scheme (refer to

³⁰ The Wetness Class of a soil is classified according to the depth and duration of waterlogging in the soil profile and has six bands.

main ES maps CT-05-075 and CT-06-075 in main ES, Volume 2, CFA15 Map Book).

- 32.1.2 Since submission of the Bill, the alignment of the private access to Calves Close Spinney over the green tunnel has been revised to provide a gentler gradient, so it will provide an accessible route for all users of the Culworth Road bridleway, including cyclists. The duration of construction works is anticipated to be approximately six months. The revised arrangements are partially outside the limits of the Bill, hence the need for this amendment (refer to AP map CT-05-075 and CT-06-075 in the AP ES Volume 2 Map Book Part 3). The area of additional land required is approximately 500m². The area of land that will be removed from the Bill is approximately 0.2ha.
- 32.1.3 The revised arrangements are not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics.

32.2 Summary

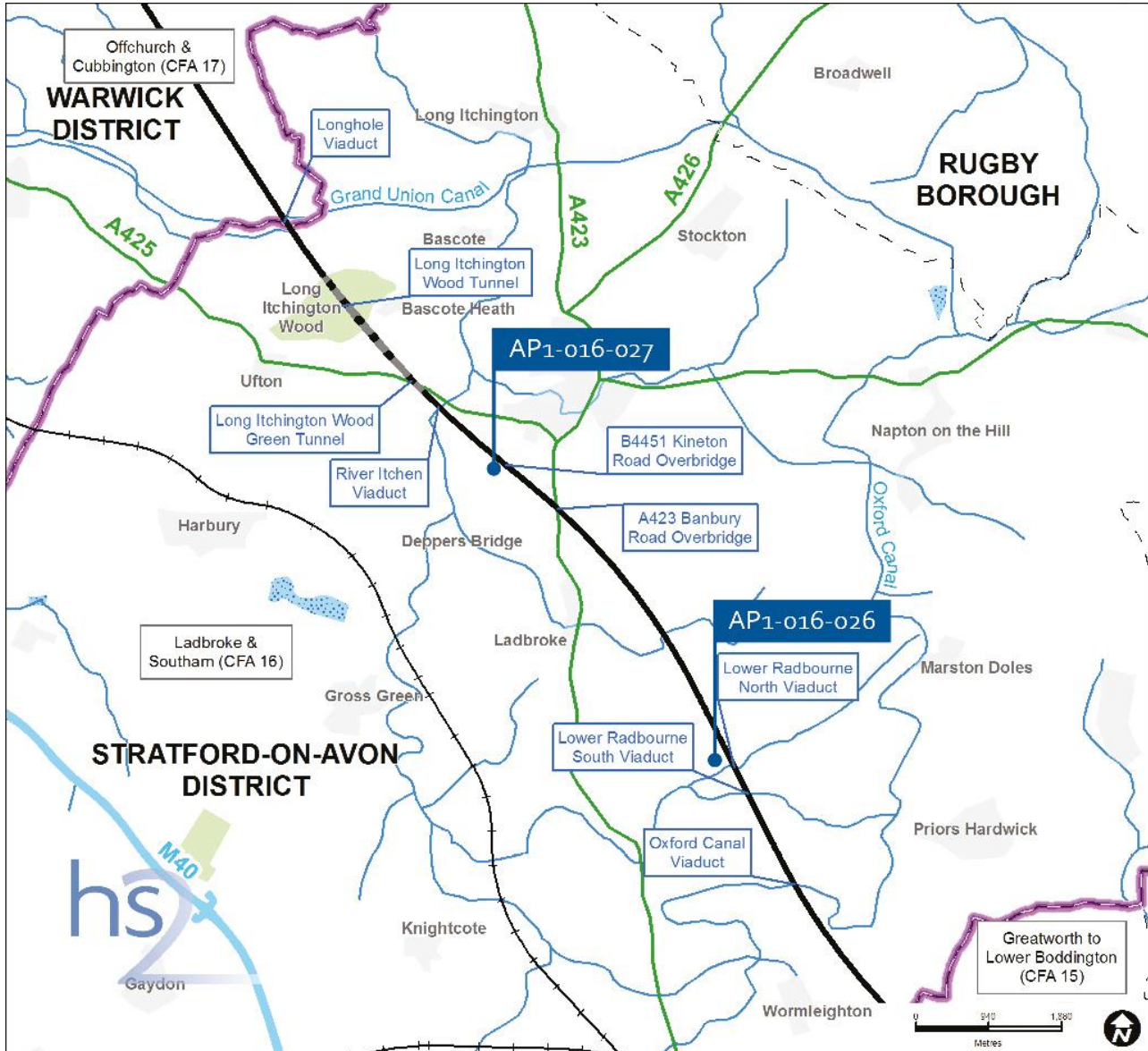
The revision of bridleway and access provision at Chipping Warden does not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA15).

CFA16, Ladbroke and Southam

33 Overview of the amendments

33.1.1 Table 21 provides a summary of the amendments in the Ladbroke and Southam area (CFA16) and Figure 11 shows the locations.

Figure 11: Locations of amendments in the Ladbroke and Southam area



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Table 21: Summary of amendments for the Ladbroke and Southam area (CFA16)

CFA	Amendment	Description of the original scheme	Description of the revised scheme
16	Amendment of Radbourne Lane realignment. AP1-016-026	The permanent realignment of Radbourne Lane on the west side of the original scheme.	This amendment is required for the following: <ul style="list-style-type: none"> - stopping up of Radbourne Lane between Lower Radbourne Farm accommodation overbridge and Lower Radbourne north viaduct; - the addition of a section of Radbourne Lane omitted from the Bill plans between Lower Radbourne Farm and Lower Radbourne north viaduct, and a small area of land to allow a connection to be made to the realigned Radbourne Lane; and - the stopping up of a section of the existing alignment of Radbourne Lane between Lower Radbourne north viaduct and the balancing pond access track and its permanent diversion onto the balancing pond access track, now added to the Bill plans.
16	B4451 Kineton Road to The Fields House access link. AP1-016-027	Temporary use of parts of the access track from B4451 Kineton Road to The Fields House as an access for construction traffic.	The extension of temporary rights of access for construction traffic over an additional 10m length of the access track between B4451 Kineton Road and The Fields House. This will join the temporary use of other parts of this access track already in the Bill, enabling construction traffic to travel along this route.

34 Amendment of Radbourne Lane realignment (AP1-016-026)

34.1 Overview of amendment

- 34.1.1 This amendment is required for a section of Radbourne Lane between the Lower Radbourne Farm accommodation overbridge and Lower Radbourne north viaduct which should have been shown as stopped up on the Bill plans. The existing alignment of Radbourne Lane between Lower Radbourne north viaduct and Lower Radbourne Farm was also omitted from the Bill plans (refer to AP maps CT-05-82 and CT-06-82, AP ES Volume 2 Map Book Part 4 of 6). The section of the existing alignment of Radbourne Lane between Lower Radbourne north viaduct and the balancing pond access track will be stopped up and diverted on to the balancing pond access track. An additional area of land (approximately 240m²) is required to link the existing Radbourne Lane between Lower Radbourne Farm and the balancing pond access track.
- 34.1.2 The revision to the Radbourne Lane realignment and the small additional area of land required are not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics.

34.2 Summary

- 34.2.1 The amendment to the Radbourne Lane realignment and the small additional area of land required do not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES, Volume 2, CFA16: Ladbroke and Southam.

35 B4451 Kineton Road to The Fields House access link (AP1-016-027)

35.1 Overview of amendment

- 35.1.1 The Bill provides rights over an access track for construction traffic from the B4451 Kineton Road to The Fields House (refer to main ES map CT-05-085 in the main ES, Volume 2, CFA16 Map Book) along an existing private access. Since submission of the Bill it has been identified that a 10m extension of access rights is required for construction traffic along this access track. The land required (approximately 25m²) for this extension is outside the original limits of the Bill, hence the need for this amendment. The land required for this extension will be used by construction traffic temporarily during the construction phase of the works, after which the track will revert to being a private access (refer to AP map CT-05-085 in the AP ES Volume 2 Map Book Part 4 of 6). The extension of rights along this access track will not require any additional vegetation clearance or ground works to that described in the main ES.
- 35.1.2 The revised extension of rights over this private access track is not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics.

35.2 Summary

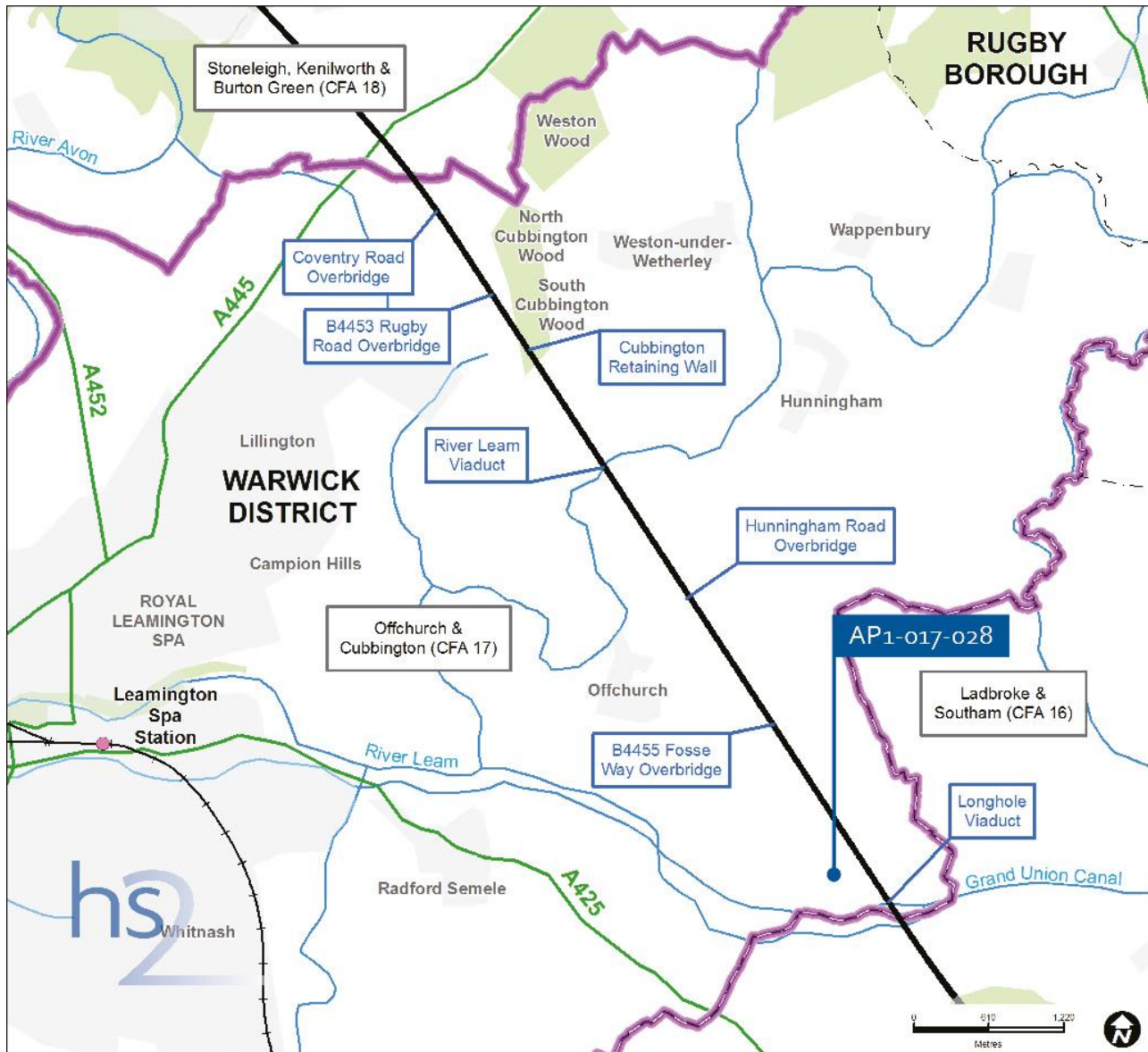
The revised extension of rights over this private access track does not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES, Volume 2, CFA16: Ladbroke and Southam.

CFA17, Offchurch and Cubbington

36 Overview of the amendments

36.1.1 Table 22 provides a summary of the amendment in the Offchurch and Cubbington area (CFA17) and Figure 12 shows the locations.

Figure 12: Locations of amendments in the Offchurch and Cubbington area



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Table 22: Summary of amendment for the Offchurch and Cubbington area (CFA 17)

CFA	Amendment	Description of the original scheme	Description of the revised scheme
17	Additional temporary land and permanent access rights at Burnt Heath Farm. AP1-017-028	The permanent diversion of a high pressure gas main across land at Burnt Heath Farm in order to avoid the route of the original scheme at Welsh Road, west of Ridgeway Lane, close to Welsh Road Farm.	The temporary use of land at Burnt Heath Farm as an additional working area for sections of gas pipe to be welded, tested and commissioned prior to installation to form the high pressure gas pipeline diversion. Amendment to part of the diversion route to avoid the need for a 90 degree bend in the diverted pipeline. Permanent access rights for the asset owner for maintenance purposes to the land across which the high pressure gas pipeline diversion would run.

37 Additional temporary land and permanent access rights at Burnt Heath Farm (AP1-017-028)

37.1 Overview of amendment

- 37.1.1 Following submission of the Bill, a requirement for an additional area of land to be used as a temporary work area for the diversion of a 900mm high pressure gas transmission pipeline, which crosses the route (refer to main ES map CT-05-088b Volume 2, CFA17 Map Book) has been identified.
- 37.1.2 The amendment requires a parcel of land of approximately 1.6ha during the construction phase, outside the limits of the Bill on Burnt Heath Farm (as shown on AP map CT-05-088b, in the AP ES Volume 2 Map Book Part 4 of 6), adjacent to land within the Bill. The change is required to provide a working area for pipes to be welded, tested and commissioned prior to installation. The construction period for these works will be approximately five months.
- 37.1.3 In addition, a change to the route for the diversion of the high pressure gas transmission pipeline has been made to remove the requirement for a 90 degree bend in the pipeline. This revised diversion route would cross a small part of the land required temporarily for the pipe working area, and a permanent right of access will be required over the new high pressure gas main route. The land is currently in agricultural use, and the extension of this working area will not require substantial additional clearance of vegetation or ground works to that reported in the main ES for the Offchurch and Cubbington area (CFA 17).
- 37.1.4 The revised construction working area, and the revised permanent right of access to the route of the diverted high pressure gas main, as shown on AP map CT-05-088b are not considered to make changes that require reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics.

37.2 Summary

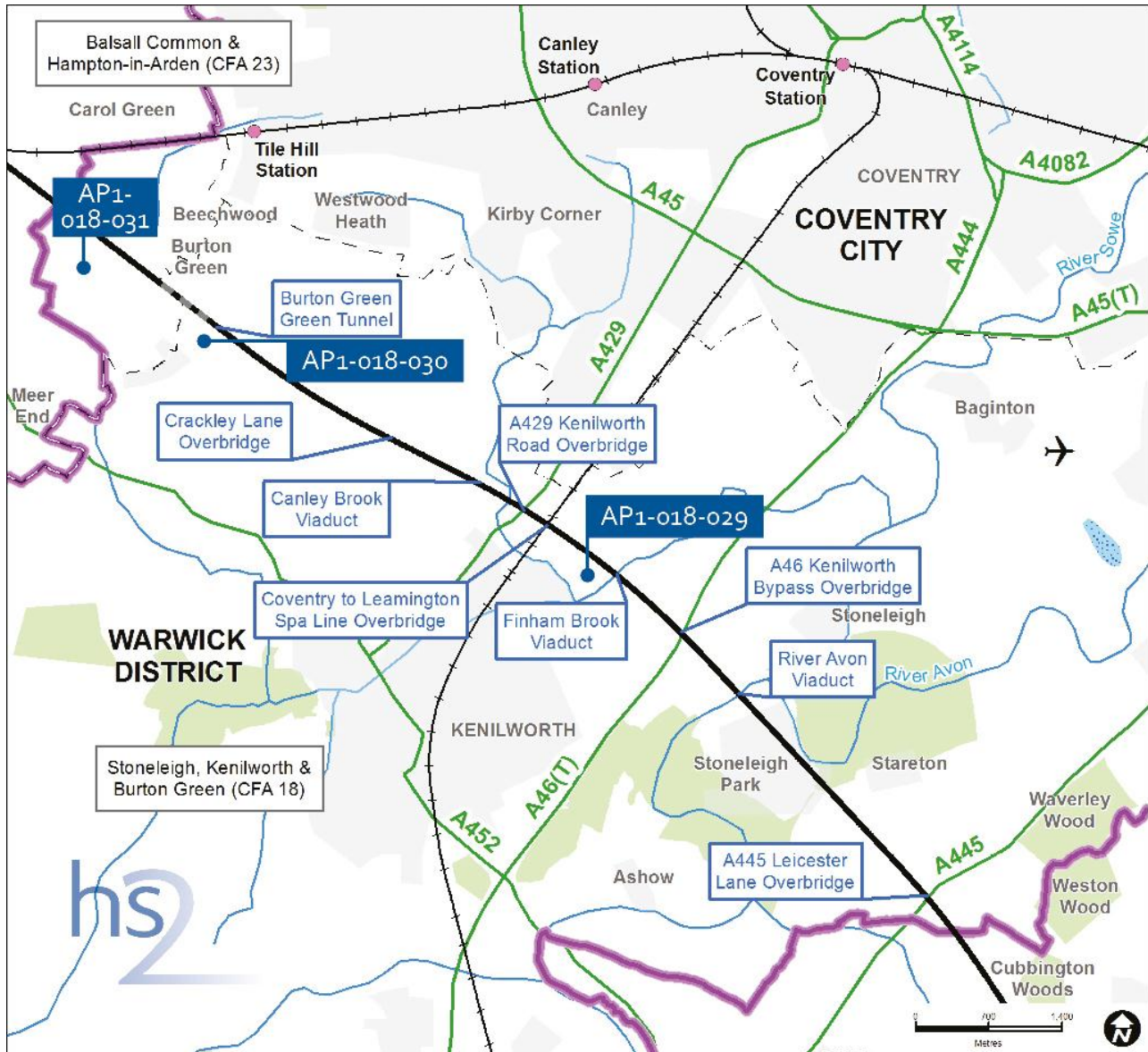
The revised construction working area, and the revised permanent right of access to the route of the diverted high pressure gas main, do not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES, Volume 2, CFA 17: Offchurch and Cubbington.

CFA18, Stoneleigh, Kenilworth and Burton Green

38 Overview of the amendments

38.1.1 Table 23 provides a summary of the amendments in the Stoneleigh, Kenilworth and Burton Green area (CFA 18) and Figure 13 shows the locations.

Figure 13: Locations of amendments in the Stoneleigh, Kenilworth and Burton Green area



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Table 23: Summary of amendments for the Stoneleigh, Kenilworth and Burton Green area (CFA 18)

CFA	Amendment	Description of the original scheme	Description of the revised scheme
18	Land to access replacement floodplain near Finham Brook. AP1-018-029	The provision of a permanent replacement floodplain area near to Finham Brook as part of the mitigation works related to the construction of Finham Brook viaduct.	Additional land is required temporarily for an access track near to Finham Brook to enable construction of the replacement floodplain area.
18	Land to facilitate pipeline diversion adjacent to Burton Green green tunnel. AP1-018-030	The permanent diversion of a fuel pipeline which crosses the route of the original scheme to allow construction to proceed safely. In order to undertake the diversion, land is required temporarily for construction purposes adjacent to Burton Green green tunnel (south portal) satellite compound, off Red Lane near Hob Lane, Burton Green.	An additional working area is required temporarily between land identified in the Bill and Red Lane and adjacent property boundaries, for sections of pipe to be welded, tested and commissioned prior to installation of the diversion. Permanent access is required to allow access in case of emergency or potential future maintenance requirements.
18	Temporary diversion of Kenilworth Greenway. AP1-018-031	The temporary diversion of Kenilworth Greenway through Little Beanit Farm during construction.	A revised route for the temporary diversion of Kenilworth Greenway during construction, more closely following existing boundaries, to reduce disruption to agricultural operations at Little Beanit Farm.

39 Land to access replacement floodplain near Finham Brook (AP1-018-029)

39.1 Overview of amendment

- 39.1.1 The construction of an area of replacement floodplain associated with Finham Brook viaduct was assessed in the main ES and included in the Bill. Construction access to the replacement floodplain was not previously shown in the Bill (refer to main ES map CT-05-096 in Volume 2, CFA 18 Map Book). Therefore additional land outside the limits of the Bill is required for a construction access track from the existing construction haul road, adjacent to the route, to the replacement floodplain area.
- 39.1.2 As shown on AP map CT-05-096 in Volume 2 Map Book Part 4 of 6, the access track will cross agricultural land, extending from land already identified as being required for construction along the original scheme, southward along an existing field boundary to the floodplain area. The area of land required is approximately 0.5ha. The track will avoid Dalehouse Farm, and will be located to avoid tree removal, the existing pond, and impacts on the hedgerow adjacent to the access track. Construction of the track will require topsoil removal and storage and placement of suitable temporary surfacing. Following construction of the replacement floodplain area, the track will be removed and the land restored to its former agricultural use.
- 39.1.3 The construction of the access track is not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to: air quality; community; land quality; landscape and visual assessment; socio-economics; sound, noise and vibration; traffic and transport; and water resources and flood risk assessment. However there are changes where reassessment is considered to be required in respect of agriculture, forestry and soils, cultural heritage and ecology and these are considered further below.

39.2 Agriculture, forestry and soils

Scope, assumptions and limitations

- 39.2.1 The assessment scope, key assumptions and limitations for the agriculture, forestry and soils assessment are the same as those for the main ES, as set out in Volume 1, the SMR (Appendix CT-001-000/1) and the SMR Addendum (Appendix CT-001-000/2) of the main ES.

Environmental baseline

- 39.2.2 The land affected by the amendment has soil in the Bromsgrove association, comprising well drained sandy loam soils, along with some clay loam soils that experience slight seasonal waterlogging. The quality of the additional agricultural land affected is predicted to be mainly Grade 2, with a small proportion of Subgrade 3a on lower, wetter ground nearest Finham Brook.
- 39.2.3 The land forms part of Millburn Grange (Holding CFA18/11 - as described in the main ES (Volume 2, CFA 18, Section 3)), which is an 89ha mixed arable and livestock enterprise. The holding is considered to be of medium sensitivity to change.

Effects arising during construction

- 39.2.4 The main ES indicated that, during the construction phase, the total area of agricultural land required will be 248.5ha in CFA18, of which 76.6ha will be restored and available for agricultural use following construction. Of the total of 248.5ha, 244.6ha is classified as the best and most versatile land (BMV) in Grades 2 and 3a.
- 39.2.5 The new temporary loss of 0.5ha of Grade 2 and Subgrade 3a land will increase the area required during construction in this CFA to 249.0ha, of which 245.1ha is BMV land. The disturbance during construction to 245.1ha of BMV land remains an impact of high magnitude and, as the presence of BMV land is a receptor of low sensitivity in this local area, the effect on BMV land remains moderate adverse, which is significant.
- 39.2.6 The area of land temporarily required at Millburn Grange (Holding CFA18/11 - as described in the main ES (Volume 2, CFA 18, Section 3)) during the construction of the revised scheme will increase from 17.5ha to 18.0ha. The area of land to be restored at Millburn Grange will increase from 2.6ha to 3.1ha. Following the methodology in the main ES, as a result of the new, additional, temporary loss of 0.5 ha, the magnitude of the impact will increase from medium to high, which will increase the significance of the temporary effect from moderate adverse to moderate/major adverse.

Effects arising from operation

- 39.2.7 There are no new effects on agriculture, forestry and soil receptors during the operation of the original scheme as a result of the amendment. The permanent effect on the holding will therefore remain as reported in the main ES.

Mitigation and residual effects

- 39.2.8 The amendment will result in a temporary residual moderate/major adverse effect on Holding CFA18/11.
- 39.2.9 Following construction the land will be restored to its former agricultural use. Restoration will be undertaken following the best practice guidance for handling soil, as set out in the draft Code of Construction Practice (CoCP) (Volume 5: Appendix CT-003-000 of the main ES). The soil handling will involve stripping, storing and reinstating topsoils on the land required for the temporary works. Therefore, it is predicted there will be no permanent residual effects to agriculture, forestry and soil receptors as a result of the amendment.

Volume 5 amendments

- 39.2.10 Table 24 sets out the changes to the main ES, Volume 5 Appendix, AG-01-018, as a result of the amendment.

Table 24: Volume 5 amendments

Paragraph no./Table ref.	Existing agriculture, forestry and soil assessment text	Amendment to agriculture, forestry and soil assessment text
Appendix AG-01-018, Table 14 (Summary of assessment of effect on holdings).	The original table entry for Millburn Grange (Holding CFA18/11) is provided below (Table 25).	The table entry for Millburn Grange needs amending to account for the increase in land required and the magnitude of the impact increasing from medium to high. The amended table row is provided below (see Table 26).

Table 25: Existing text in Appendix AG-01-018, Table 14 for Millburn Grange

Holding reference, name and description	Construction effects	Residual effects post restoration of land
CFA18/11 Milburn Grange 9oha mixed arable and livestock enterprise (cereal and potatoes, sheep and pedigree shorthorn cattle). Medium sensitivity to change.	Land required: 17.5ha; 20% of holding required for construction. Medium Impact. Severance: eastern two quarters of farm severed from the west. Daily access will need to be arranged under CoCP. Low Impact. Disruptive effects: farm house close to HS2 alignment. Medium Impact.	Land required: 14.9ha; 17% of holding taken in close proximity to farm hub. Medium Impact. Severance: eastern two quarters of farm severed from the west. Access provided by Milburn Grange farm accommodation overbridge and retention of existing crossing of Warwick to Coventry railway line. Low Impact. Infrastructure: drainage and drinking trough water supply systems would need reconnecting. Farm infrastructure (e.g. silage clamp ³¹ and fencing) to be replaced. Note farm house and traditional farm buildings have shallow foundations. High Impact.

³¹ Silage is a form of conserved grass or other crop. A silage clamp is used for the formation and storage of silage and comprises a concrete base, with or without walls where the crop is placed, covered by plastic sheeting and then weighed down to compress and keep the silage airtight.

Table 26: Amendments to Appendix AG-01-018, Table 14 - Amendment for Millburn Grange

Holding reference, name and description	Construction effects	Residual effects post restoration of land
CFA18/11 Milburn Grange 90ha mixed arable and livestock enterprise (cereal and potatoes, sheep and pedigree shorthorn cattle). Medium sensitivity to change.	Land required: 18.0ha; 20% of holding required for construction. High Impact. Severance: eastern two quarters of farm severed from the west. Daily access will need to be arranged in accordance with the draft CoCP. Low Impact. Disruptive effects: farm house close to HS2 alignment. Medium Impact.	Land required: 14.9ha; 17% of holding taken in close proximity to farm hub. Medium Impact. Severance: eastern two quarters of farm severed from the west. Access provided by Milburn Grange farm accommodation overbridge and retention of existing crossing of Warwick to Coventry railway line. Low Impact. Infrastructure: drainage and drinking trough water supply systems would need reconnecting. Farm infrastructure (e.g. silage clamp and fencing) to be replaced. Note farm house and traditional farm buildings have shallow foundations. High Impact.

39.3 Cultural heritage

Scope, assumptions and limitations

- 39.3.1 The assessment scope, key assumptions and limitations for the cultural heritage assessment are the same as those for the main ES, as set out in Volume 1, the SMR (Appendix CT-001-000/1) and the SMR Addendum (Appendix CT-001-000/2).
- 39.3.2 Topsoil removal will be required for construction of the temporary access track and it is assumed that all archaeological remains and earthworks within the footprint of the track will be removed or disturbed.
- 39.3.3 Information on the potential archaeological remains at this location is based on desk based research (sources including the historic environment record (HER), historic maps and aerial photographs) and non-intrusive surveys comprising LiDAR and hyperspectral survey.

Environmental baseline

- 39.3.4 Detailed information on the environmental baseline and the assets is summarised below and is contained within Volume 2, CFA 18, Section 6 and Volume 5, CFA 18, Appendices CH-001-018, 002-018, 003-018 and 004-018 and associated Map Books of the main ES.
- 39.3.5 Assets within the study area are referenced with a unique reference code STNXXX and where any assets are affected by this amendment the reference is included. Further detail on these assets can be found in the Gazetteer in Volume 5, CFA 18, Appendix CH-002-018 of the main ES.
- 39.3.6 The revised scheme containing works associated with the construction of the access track to the floodplain area are located within an area of potential archaeological

deposits associated with a former medieval / post medieval settlement, mill, fields and wider water management system, which have been identified in the area south of Dale House Farm (Asset Reference Number STNo41 - as referenced in the main ES Volume 5 Appendix CH-003-018). This complex of archaeological remains is of low value.

- 39.3.7 Works associated with the revised scheme are located approximately 200m from the Grade II listed Dale House Farm, an asset of moderate value (Asset Reference Number STNo42 - as referenced in the main ES Volume 5 Appendix CH-003-018). The rural setting of the asset makes a strong contribution to its significance.

Effects arising during construction

- 39.3.8 Construction work as a result of the original scheme could completely remove a substantial portion of archaeological deposits, if present, associated with a former settlement, mill, fields and wider water management system to the south of Dale House Farm house. Further archaeological deposits, if present, would be removed prior to construction of the temporary access track as part of the amendment. The main ES reported a permanent high adverse impact to these archaeological deposits of low value due to their loss, resulting in a permanent moderate adverse effect. The construction of the access track will also affect these archaeological deposits (Asset Reference Number STNo41 - as referenced in the main ES Volume 5 Appendix CH-003-018), but the overall impact assessment will remain unaltered from the main ES (i.e. a permanent high adverse change, resulting in a permanent moderate adverse effect).
- 39.3.9 The original scheme will result in a temporary high adverse impact to the setting of Dale House Farm, a Grade II Listed Building of moderate value (Asset Reference Number STNo42 - as referenced in the main ES Volume 5 Appendix CH-003-018). The construction of the access track will further alter the key characteristics of this building's setting due to the location and presence of the construction activities for the temporary access track and severance of the building from its associated surrounding farmland. Although the revised scheme will increase the impact on this asset, the assessment will remain unaltered as a temporary high adverse change, resulting in a temporary major adverse effect.

Effects arising from operation

- 39.3.10 The temporary nature of the access track means there will be no new or different operational impacts as a result of the amendment.

Mitigation and residual effects

- 39.3.11 Impacts on any archaeological remains will be addressed in accordance with the provisions set out in the draft Heritage Memorandum and draft CoCP, which will be adopted to control impacts on cultural heritage assets (see Volume 5, Appendix CT-003-000 of the main ES).
- 39.3.12 The original scheme includes a number of design measures to address potential impacts and likely significant effects. No additional mitigation measures beyond those included within the original scheme are considered to be necessary.

- 39.3.13 The amendment will not result in any change in the likely residual significant effects reported in the main ES.

39.4 Ecology

Scope, assumptions and limitations

- 39.4.1 The assessment scope for ecology is as set out in Volume 1 of the AP ES. The key assumptions and limitations, and the methodology for determining significance of effects are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 39.4.2 Ecological surveys undertaken for the main ES included the additional land required for this amendment. Therefore, the ecological baseline of the area has been based on field data collated for the main ES on the land required for the amendment as well as land immediately adjoining the area, aerial photography, and relevant existing information gathered from national organisations and from regional and local sources including Warwickshire County Council (Warwickshire Biological Records Centre).
- 39.4.3 To address any limitations in data, a precautionary baseline has been built up according to the guidance reported in Volume 5: Appendix CT-001-000/2. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 39.4.4 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.

Environmental baseline

- 39.4.5 A summary of the baseline information relevant to the assessment of the amendment is provided below. For those receptors described in the main ES, further details are provided in Volume 2, CFA18, Section 7.3 and in Volume 5, including Maps EC-01 to EC-12, Map Book Ecology.

Designated sites

- 39.4.6 There are no statutory or non-statutory designated nature conservation sites or ancient woodland within 500m of the amendment, or otherwise relevant to the assessment.
- 39.4.7 Statutory and non-statutory designated sites in the wider local area are described in the main ES (Volume 5, CFA18, Section 2) and are shown on Map EC-01-048, Volume 5, Map Book Ecology.

Habitats

- 39.4.8 The land required for the amendment consists of arable land and semi-improved grassland. The access track runs alongside a species-poor hedgerow with trees, which has a patch of tall ruderal plant species to the north. There are two water bodies at the northern end of the access track.
- 39.4.9 The arable land and semi-improved grassland within the area were reported as having negligible value in the main ES. Ponds were assessed in the main ES as having local/parish value and the hedgerow network was assessed as having district/borough value.

- 39.4.10 Phase 1 habitats in this area are described in the main ES (Volume 5, CFA18, Section 4) and shown on Map EC-02-048, Volume 5, Map Book Ecology.

Protected and/or notable species

- 39.4.11 There are two ponds at the northern end of the access track. At one pond, surveys were undertaken to determine presence/absence of great crested newt; however, surveys have not confirmed their absence. The second pond was considered unsuitable for great crested newt following the walkover surveys. A medium sized population of great crested newt was recorded in a third pond (030-AA-141002) 150m to the north of the amendment area and within the original scheme (shown on EC-04-048, Volume 5, Map Book Ecology). This pond is part of a group of ponds that form a meta-population considered to be of county/metropolitan value. If great crested newt are present in the suitable pond at the northern end of the access track, they would form part of the same meta-population. Great crested newts from this pond could be using the hedge and tall ruderal plants within the land required for the amendment as terrestrial habitat.
- 39.4.12 Small numbers of pipistrelle and Myotis bat of local/parish value were recorded using the hedge immediately adjacent to the northern end of the amendment for foraging and commuting (EC-06-096, Volume 5, Map Book Ecology). These bats are part of the bat assemblage identified within the main ES as '...using foraging and commuting habitats associated with land between Dalehouse Lane and A429 Kenilworth Road' which is of district/borough value.
- 39.4.13 Habitat within the land required for the amendment is sub-optimal for reptiles. Habitat immediately to the north of the amendment was identified as being suitable for reptiles but no further survey of this area in support of the main ES was possible. Reptile surveys in other nearby areas and covering similar habitat recorded small numbers of the common reptile species: grass snake and common lizard which are considered to be of local/parish value. On a precautionary basis it is assumed that the land required for the amendment is also of local/parish value for common reptiles.
- 39.4.14 Locations of species records are illustrated on Maps EC-01 to EC-12, Volume 5, Map Book Ecology.

Effects arising during construction

Avoidance and mitigation measures

- 39.4.15 There are no specific measures included as part of the amendment to avoid or reduce impacts to features of ecological value on the land required for the amendment.
- 39.4.16 The assessment assumes implementation of the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES).

Designated sites

- 39.4.17 There are no designated sites within 500m of the land required for amendment. Therefore, no impacts are anticipated, and the assessment is unchanged by the amendment to the Bill.

Habitats

- 39.4.18 The amendment will result in the loss of arable land and semi-improved grassland which have negligible value. There were no significant effects on these habitat types reported in the main ES.
- 39.4.19 The total additional vegetation losses are likely to be approximately 0.5ha and are from habitat types that are of negligible value. The track will avoid direct impacts on ponds and hedgerows.
- 39.4.20 Overall, the amendment will not give rise to any new or different likely significant effects on habitat receptors to those reported in the main ES.

Species

- 39.4.21 The loss of a great crested newt breeding pond 030-AA-141002 and associated terrestrial habitat was reported in the main ES as being significant at the county/metropolitan level.
- 39.4.22 There would be no loss of great crested newt breeding ponds due to the amendment. If great crested newt are present in the pond at the northern end of the access track, then great crested newts from this pond and from 030-AA-141002 could utilise terrestrial habitats within the area of the amendment. However, additional habitat lost as a result of the amendment is approximately 0.5ha and the arable and semi-improved grassland habitat is considered to be sub-optimal for great crested newt. Overall, the amendment will not give rise to any likely significant effects on great crested newt populations beyond those reported in the main ES.
- 39.4.23 The loss of bat commuting and foraging habitat within the area of the amendment was assessed in the main ES as being of significance at a district/borough level. The bat assemblage using foraging and commuting habitats associated with land between Dalehouse Lane and A429 Kenilworth Road utilise habitats within the land required for the amendment for commuting and foraging, though only small numbers were recorded. No trees will be lost and there are no likely effects on roosts at Milburn Grange Farm. There will be no effects on the bat assemblage using foraging and commuting habitats associated with land between Dalehouse Lane and A429 Kenilworth Road additional to those reported within the main ES.
- 39.4.24 The main ES reports that following translocation of species in line with the commitment in the draft CoCP there will be no likely adverse significant effects on the conservation status of populations of reptiles. Construction activities for the access track will remove approximately 0.5 ha of habitat but, due to the small scale of the works and the sub-optimal nature of arable land and semi-improved grassland for reptiles, the amendment is unlikely to change the effects that were reported in the main ES.

Mitigation and residual effects

Other mitigation measures

- 39.4.25 No additional mitigation measures have been identified for this revised scheme.

Residual effects

- 39.4.26 The amendment will result in no change in the likely residual significant effects reported in the main ES.

Effects arising from operation

- 39.4.27 There are no new or different operational effects for ecology as a result of the proposed amendment.

39.5 Summary

- 39.5.1 The temporary access track will alter the magnitude of temporary impact and effect for agriculture, forestry and soils at Millburn Grange (Holding CFA18/11 - as described in the main ES (Volume 2, CFA 18, Section 3)). The magnitude of the impact will increase from medium (as reported in the main ES) to high, which will increase the significance of the temporary effect from moderate adverse to moderate/major adverse.
- 39.5.2 The temporary access track does not change the significance of environmental effects or proposed mitigation as set out in the main ES for ecology or cultural heritage.

40 Land to facilitate pipeline diversion adjacent to Burton Green green tunnel (AP1-018-030)

40.1 Overview of amendment

- 40.1.1 The Bill provides land for the purposes of diverting a fuel pipeline (refer to main ES map CT-05-099 in Volume 2 CFA18 Map Book).
- 40.1.2 Since submission of the Bill, it has been identified that additional land is required for the pipeline connection and construction working area. The additional land will provide a greater working area for lengths of pipe to be welded, tested and commissioned prior to installation. The expected duration of works is approximately five months. The land would be restored and returned to its former use following the works. In addition, permanent access rights are required to allow access to the pipeline in case of emergency or potential future maintenance requirements.
- 40.1.3 As shown on AP map CT-05-099 in Volume 2 Map Book Part 4 of 6, the land required covers approximately 0.9ha and is outside the original limits of the Bill, hence the need for this amendment. The additional land required is immediately adjacent to properties on Red Lane near Hob Lane, Burton Green, and adjoins Burton Green green tunnel (south portal) satellite compound and adjacent land required for construction.
- 40.1.4 The amendment is not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to: agriculture, forestry and soils; air quality; community; cultural heritage; ecology; land quality; landscape and visual assessment; socio-economics; and water resources and flood risk assessment. However, there are changes where reassessment is considered

to be required in respect of sound, noise and vibration; and traffic and transport and these are considered further below.

40.2 Sound, noise and vibration

Scope, assumptions and limitations

- 40.2.1 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out 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.
- 40.2.2 The sound, noise and vibration impacts arising from the revised scheme have been assessed at locations, which are considered representative of a number of dwellings or other sensitive receptors, in the vicinity of the amendment.
- 40.2.3 As set out in the traffic and transport section of this amendment, a minor significant effect on traffic movement on Red Lane has been identified, that was not reported in the main ES. As a consequence the noise effects associated with this traffic were also not reported in the main ES. The assessment of the noise effects associated with this traffic is therefore included here, and is based on the information included in the traffic and transport section.
- 40.2.4 For the amendment, the assessment has been undertaken for the enabling works to construct the worksite for the utility works only. It has been assumed that any impacts associated with activities occurring within the pipeline connection and construction worksite will be limited. Such works do not generally require large quantities of construction equipment, are limited to the daytime and progress at a reasonably rapid rate. The environmental effects of the works will be controlled and reduced by the management processes set out in the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES).
- 40.2.5 The construction programme, hours of operation and construction equipment associated with the construction phase of the revised scheme will remain unchanged from that reported in the main ES.

Environmental baseline

- 40.2.6 Baseline sound level data has been collected at locations representative of the airborne sound-sensitive receptors in the vicinity of the amendment, namely a group of nine properties on Red Lane (ID 204647), a group of 13 properties on Red Lane (ID206392), and a group of six properties on Cromwell Lane (ID 204255). [Note, the IDs are as set out in the main ES Volume 5 Appendix SV-002-018.]
- 40.2.7 The existing baseline airborne sound levels derived at the assessment locations from these measurements are given in Volume 5: Appendix SV-002-018 of the main ES. Details of the baseline data collection and the methodology are given in Volume 5: Appendix SV-001-000 and specifically for this study area in Volume 5: Appendix SV-002-018 of the main ES.

Effects arising during construction

- 40.2.8 The indirect impacts of airborne sound on receptors on Red Lane caused by temporary changes to road or traffic patterns on the existing road network during construction were not reported in the main ES.
- 40.2.9 The worksite is expected to generate up to 50 vehicle movements a day during its operation. Within the traffic and transport assessment it is assumed that Red Lane has a low volume of traffic and that there would be an increase of up to 60% for HGVs. Other roads that the construction traffic would use to reach this site are on construction routes already assessed within the main ES and would not be affected by the amendment.
- 40.2.10 On this basis the change in traffic noise level on Red Lane resulting from the presence of construction traffic has been predicted as being less than 3dB. Significant noise effects at receptors, arising from construction traffic on Red Lane, are therefore unlikely to occur.
- 40.2.11 The main ES reported a likely significant effect during construction at the group of thirteen properties on Red Lane (ID206392), and the group of six properties on Cromwell Lane (ID 204255), due to noise from earthwork activities associated with the Brockenden cutting. The additional land requirement and associated construction activities will further affect these properties; however, the magnitude of the impact will remain unaltered from the main ES (i.e. a likely significant adverse effect from construction noise).
- 40.2.12 The main ES reported that the noise impacts at the group of nine properties on Red Lane (ID 204647) would not result in a significant effect. The construction activities associated with the additional land resulting from this amendment will be closer to these properties (ID 204647), which has the potential to increase construction noise impacts due to changes in noise levels outside dwellings. Based on the assumptions set out above, the duration of the impact at any one receptor will be limited and any potential adverse noise effects will be controlled and reduced by the management processes set out in the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES). Significant noise effects at these receptors are therefore unlikely to occur and there is no change to the significant effects reported in the main ES for this area as a result of the amendment.

Effects arising from operation

- 40.2.13 No likely significant effects arising from the amendment have been identified for the operational phase. The sound, noise and vibration effects arising from operation will therefore be as reported in Volume 2 of the main ES.

Mitigation and residual effects

- 40.2.14 Mitigation relating to construction sound, noise and vibration is set out in the main ES. No additional mitigation is considered necessary as a result of the amendment.
- 40.2.15 The amendment will result in no change in the likely residual significant effects reported in the main ES.

40.3 Traffic and transport

Scope, assumptions and limitations

- 40.3.1 The assessment scope, key assumptions and limitations for the traffic and transport assessment are set out in Volume 1, the SMR (see Volume 5: Appendix CT-001-000/1) and the SMR addendum (see Volume 5: Appendix CT-001-000/2) of the main ES.

Environmental baseline

- 40.3.2 There are a number of construction compounds and associated construction routes on the roads close to the area of the amendment, the closest being Hob Lane, which connects to Red Lane.
- 40.3.3 A detailed report on traffic and transport and surveys undertaken in the area is contained in Volume 5: Appendix: RT-001-000, Transport Assessment of the main ES.

Effects arising during construction

- 40.3.4 Works and construction vehicle movements associated with the additional land required for the pipeline connection and construction will not lead to increased traffic since the activity itself remains unchanged. However since the submission of the main ES it has been identified that the pipeline diversion works could lead to a minor significant adverse effect in traffic movement on Red Lane that was not reported in the main ES. All other roads that construction traffic would use to reach this site are on construction routes already assessed within the main ES and would not be affected by the amendment.
- 40.3.5 The worksite associated with the pipeline diversion works is expected to generate up to 50 vehicle movements a day during its operation; the trigger for the significance criteria is a change of 30% in either total vehicle flows or HGVs. It is not expected that there would be an increase of 30% in total flow, but on a precautionary basis, and because Red Lane has a low volume of traffic, it has been assessed that there might be an increase of up to 60% for HGVs during peak site operation, leading to a minor significant adverse effect. This effect has resulted from further information related to the original scheme, and is not caused by the amendment itself. Following completion of these works there will be no other significant adverse effects associated with HGV traffic movements on Red Lane.
- 40.3.6 AP map TR-03-103 in the Volume 2 Map Book Part 4 of 6 details the likely revised construction significant effects in the location of the amendment that were not reported in the main ES.

Effects arising from operation

- 40.3.7 The temporary nature of the works means there will be no operational effects as a result of this amendment.

Mitigation and residual effects

- 40.3.8 No additional mitigation has been identified to that reported in the main ES.
- 40.3.9 A minor residual significant adverse effect has been identified associated with the pipeline diversion works. No residual effects have been identified for this amendment.

40.4 Summary

- 40.4.1 Although the amendment itself will not result in a new significant traffic effect it has been identified that there will be a minor significant adverse effect associated with the pipeline diversion works that was not reported in the main ES. Traffic flows arising from the worksite are likely to lead to a minor significant adverse effect in terms of severance on Red Lane due to an increase in HGV traffic, on a road with relatively low existing flows.
- 40.4.2 The amendment does not change the significance of effects or proposed mitigation for sound, noise and vibration that were reported in the main ES for the Stoneleigh, Kenilworth and Burton Green area (CFA18).

41 Temporary diversion of Kenilworth Greenway (AP1-018-031)

41.1 Overview of amendment

- 41.1.1 The Bill provides for the temporary diversion of Kenilworth Greenway through Little Beanit Farm (refer to main ES maps CT-05-99 and CT-05-100a in Volume 2, CFA18 Map Book). Since submission of the Bill it has been identified that an alternative route will be preferable in terms of minimising disruption to agricultural activities during the construction phase. However the changes are not considered to be sufficiently different to require a reassessment of the environmental effects as set out in the main ES with respect to impacts on this holding, since they are not likely to change the assessed level of significance of effect.
- 41.1.2 As shown on AP maps CT-05-99 and CT-05-100a in the Volume 2 Map Book Part 4 of 6, the route required for this realigned temporary diversion is outside the original limits of the Bill, hence the need for this amendment. The temporary realignment of the Greenway will follow existing field boundaries and will be similar in length to the diversion currently shown on the Bill plans and assessed in the ES. The area of land required for this amendment is approximately 1.1ha. This alternative route may also be preferable from a user's point of view as it is more direct and further from the works, than that shown in the Bill plans. However, the changes are not considered to be sufficiently different to require a reassessment of the environmental effects as set out in the main ES with respect to impacts on users of this PRoW, since they are not likely to change the assessed level of significance of effect.
- 41.1.3 The alternative route for the temporary diversion is not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to: agriculture, forestry and soils; air quality; community; cultural heritage; land quality; landscape and visual assessment; socio-economics; sound, noise and vibration; traffic and transport; and water resources and flood risk assessment. However, there are changes where reassessment is considered to be required in respect of ecology and this is considered further below.

41.2 Ecology

Scope, assumptions and limitations

- 41.2.1 The assessment scope for ecology is as set out in Volume 1 of the AP ES. The key assumptions and limitations, and the methodology for determining significance of effects are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 41.2.2 Ecological surveys undertaken for the main ES included survey of the additional land required. Therefore, the ecological baseline of the area has been based on field data collated for the main ES on the additional land and adjoining land, aerial photography, and relevant information gathered from national organisations and from regional and local sources including: Warwickshire County Council (Warwickshire Biological Records Centre).
- 41.2.3 To address any limitations in data, a precautionary baseline has been built up according to the guidance reported in Volume 5: Appendix CT-001-000/2. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 41.2.4 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.

Environmental baseline

- 41.2.5 A summary of the baseline information relevant to the assessment of the amendment is provided below. For those receptors described in the main ES, further details are provided in Volume 2, CFA18, Section 7.3 and in Volume 5, including Maps EC-01 to EC-12, Map Book Ecology.

Designated sites

- 41.2.6 There are two non-statutory designated sites, Little Beanit Farm Meadow Local Wildlife Site (LWS) and Beanit Farm Hedge LWS, within 500m of the area of the amendment. These sites have county/metropolitan value. Beanit Farm Hedge LWS, which will be crossed by the diversion, stands on a bank with associated ditch. Trees present within the hedgerow include pedunculate oak, ash, small-leaved lime and wild pear.
- 41.2.7 There is no other statutory or non-statutory designated nature conservation site or ancient woodland within 500m of the land required for the amendment, or otherwise relevant to the assessment.
- 41.2.8 Statutory and non-statutory designated sites in this area are described in the main ES (Volume 5, CFA18, Section 2) and are shown on Map EC-01-050a, Volume 5, Map Book Ecology.

Habitats

- 41.2.9 The land required for the amendment consists of arable land, improved grassland and poor semi-improved grassland which are each of negligible value. In addition to the Beanit Farm Hedge LWS, other hedges are present in the area, which are species-poor hedgerows with trees. The hedgerow network in the area has district/borough value.

- 41.2.10 There are 19 ponds within 250m of the amendment, although none of these are within the land required for the amendment. Each of these ponds has local/parish value.
- 41.2.11 Phase 1 habitats in this area are described in the main ES (Volume 5, CFA18, Section 4) and shown on Map EC-02-050a, Volume 5, Map Book Ecology.

Protected and/or notable species

- 41.2.12 A small population size class of great crested newt was recorded in two ponds each within 50m of the amendment (040-AA-147009 and 040-AA-147014, as illustrated in Volume 5, Map Book Ecology). Great crested newts from these ponds could be using hedges within the land required for the amendment as terrestrial habitat. These ponds are part of Amphibian Metapopulation (AMP) 19³², as reported in the main ES, which is of county/metropolitan value.
- 41.2.13 There is a tree with moderate potential to support bat roosts along the hedge between the ponds at Beanit Farm and Waste Lane which is adjacent to the amendment. However, this tree could be used by the assemblage of bats defined in the main ES as '...using foraging and commuting habitats north of B4115 Ashow Road' which has local/parish value.
- 41.2.14 Locations of species records from surveys conducted in support of the main ES are illustrated on Maps EC-01 to EC-12, Volume 5, Map Book Ecology.

Effects arising during construction

Avoidance and mitigation measures

- 41.2.15 There are no specific measures included as part of the amendment to avoid or reduce impacts on features of ecological value on the land required for the amendment.
- 41.2.16 The assessment assumes implementation of the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES).

Designated sites

- 41.2.17 The main ES reported the loss of two small sections, each of 10m in length, from Beanit Farm Hedge LWS (or 2.7% of the overall length of the designated hedgerow). These sections are approximately 155m and approximately 265m west of the Kenilworth Greenway. These impacts were reported in the main ES as unlikely to cause an adverse effect on the integrity of the LWS. However, the section of Beanit Farm Hedge LWS approximately 265m west of the Kenilworth Greenway was incorrectly reported in the main ES as being lost and will be retained so that the original scheme would result in the loss of only a single 10m section of the LWS.
- 41.2.18 In the revised scheme there would be a single section of approximately 10m lost from Beanit Farm Hedge LWS approximately 365m west of the Kenilworth Greenway. Overall, no changes in likely significant effects are predicted for this receptor as a result of the amendment. No impacts are anticipated on any other designated sites.

³² The boundary of an AMP is defined as habitats within 250m of a breeding pond with no barriers to amphibian migration.

Habitats

- 41.2.19 The amendment will result in the loss of arable land and improved and semi-improved grassland which have negligible ecological value. No significant effect was reported in the main ES on these habitats and there will be no additional effect as a result of the amendment.
- 41.2.20 Loss of hedgerow was reported in the main ES as having an adverse effect on the conservation status of the hedgerow network which will be significant at a district/borough level. The amendment will result in the additional loss of approximately four sections of species-poor hedge which are each assumed to be approximately 10m wide. These losses are unlikely to change the level at which effects reported in the main ES are significant. Overall, the amendment will not give rise to any likely significant effects on habitat receptors beyond those reported in the main ES.

Species

- 41.2.21 There were no likely significant effects on AMP19, including great crested newt breeding in ponds 040-AA-147009 and 040-AA-147014, reported in the main ES.
- 41.2.22 The arable land and improved and semi-improved grassland that will be lost as a result of the amendment could be used by great crested newt. Although these habitats are sub-optimal for great crested newt they are within 50m of confirmed breeding ponds. The hedgerows close to the ponds provide good terrestrial habitat for great crested newt and hedgerows adjacent to the ponds which support breeding populations of great crested newt will be lost as a result of the amendment. Implementation of measures within the draft CoCP would ensure there would be no killing or injury of newts as a result of the amendment. Any trapping of terrestrial habitat which supports great crested newt required to avoid killing/injury during the works would be undertaken in accordance with the principles of ecological mitigation identified within the SMR Addendum of the main ES (Volume 5: Appendix CT-001-000/2). There would be a small scale loss of terrestrial habitat adjacent to a great crested newt breeding pond which is likely to result in an adverse effect on AMP19 at the local/parish level that was not reported in the main ES. This effect would not be significant.
- 41.2.23 No likely significant effects on the assemblage of bats using foraging and commuting habitats north of B4115 Ashow Road were reported in the main ES. The revised scheme will avoid loss of mature trees within the hedgerow between ponds at Beanit Farm and Waste Lane and the impacts on bats from the loss of parts of the hedgerow would be similar to the main scheme. There are no likely effects on bat populations and assemblages in addition to those reported within the main ES.

Mitigation and residual effects

Other mitigation measures

- 41.2.24 No additional mitigation measures have been identified for this revised scheme.

Residual effects

- 41.2.25 The amendment will result in no change in the likely residual significant effects reported in the main ES.

Effects arising from operation

- 41.2.26 There are no new or different operational effects for ecology as a result of the proposed amendment.

41.3 Summary

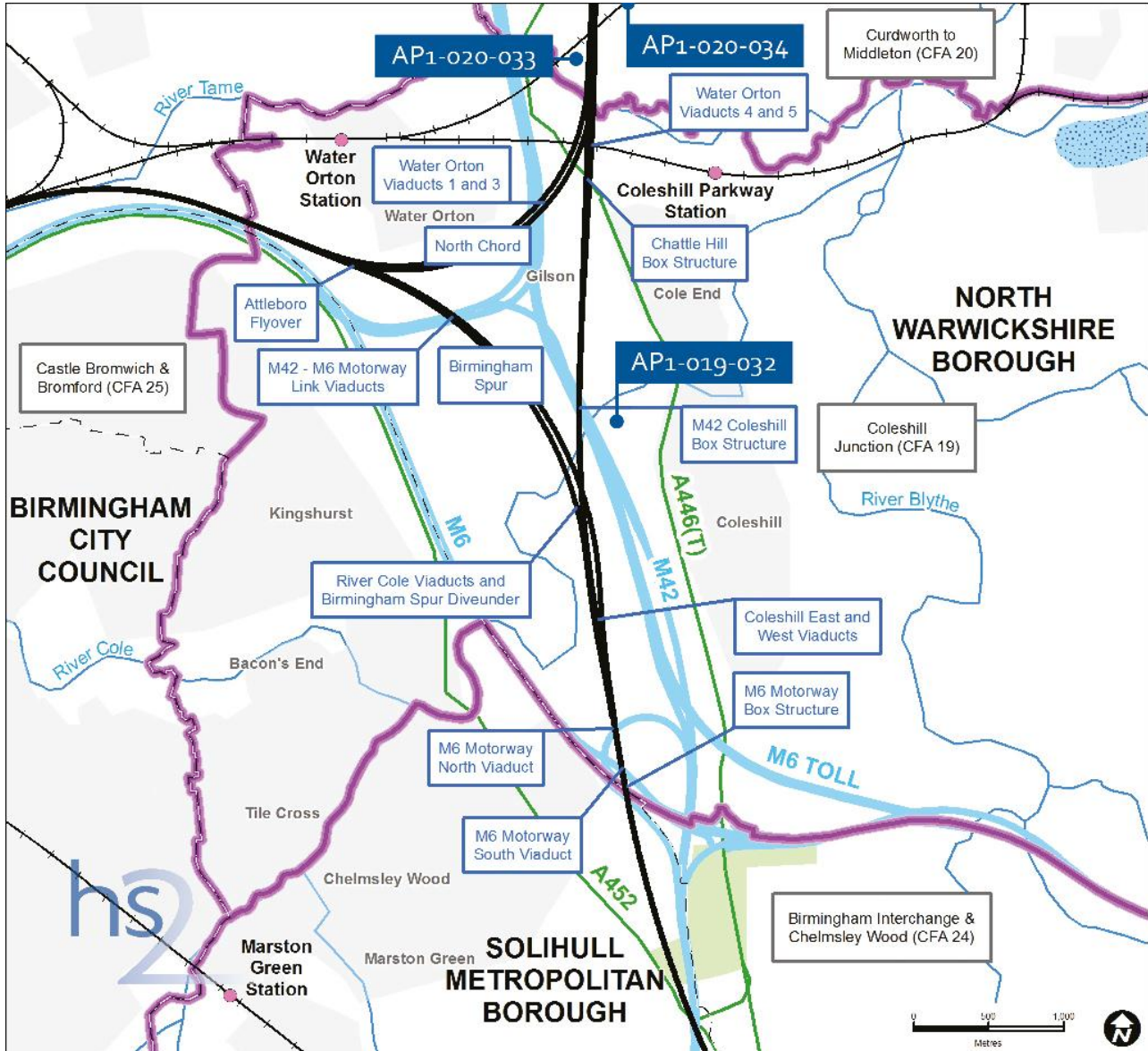
The amendment does not change the significance of effects or proposed mitigation for ecology that were reported in the main ES for the Stoneleigh, Kenilworth and Burton Green area (CFA18).

CFA19, Coleshill Junction

42 Overview of the amendments

42.1.1 Table 27 provides a summary of the amendment in the Coleshill Junction area (CFA19) and Figure 14 shows the locations.

Figure 14: Locations of amendments in the Coleshill Junction area



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Table 27: Summary of amendment for the Coleshill Junction area (CFA19)

CFA	Amendment	Description of the original scheme	Description of the revised scheme
19	Additional land for winching and a fibre optic cable diversion near the M42. AP1-019-032	Land has been included in the Bill for temporary access and utilities diversions in the vicinity of the River Cole and the M42, to the south-east of Gilson.	Additional land is temporarily required near the M42 to the south-east of Gilson for winching works and for the installation of a temporary fibre optic cable diversion.

43 Additional land for winching and fibre optic cable diversion near the M42 (AP1-019-032)

43.1 Overview of amendment

- 43.1.1 The Bill provides land for construction access to pylons extending from approximately 150m east of the M42 Coleshill north viaduct satellite compound, south-eastwards across the River Cole and the M42, and then south-eastwards alongside the M42 (refer to main ES map CT-05-109 and CT-05-110 in the main ES Volume 2 CFA19 Map Book).
- 43.1.2 Since submission of the Bill it has been identified that a wider corridor covering an area of approximately 8.9ha outside the limits of the Bill is required temporarily between the B4114 Birmingham Road and land to the south of the B117 Gilson Road.
- 43.1.3 The majority of this land is required to allow a temporary fibre optic cable diversion. The diversion will involve removal of the fibre optic cable from its current position strung between the pylons, and placement temporarily in a duct within a trench. An area of approximately 500m² is required temporarily to allow winching and tensioning works close to the B4114 Birmingham Road bridge. Also, temporary rights are required to allow the erection of scaffolding to hold protective netting over the motorway during cable works.
- 43.1.4 At this stage the exact route for the fibre optic cable diversion cannot be finalised, so a 100m wide corridor is identified beneath the overhead power lines for the purposes of the Bill (refer to AP map CT-05-109 and CT-05-110 in AP ES Volume 2 Map Book Part 5 of 6). This corridor is required to enable, as far as reasonably practicable, the avoidance of sensitive receptors during detailed design. The trench for the duct itself will be approximately 300mm wide and 400mm deep, requiring a working area approximately 10m wide along the cable run, so a considerably reduced area will actually be used. Where the temporary cable needs to cross field boundaries, this will be achieved without the loss of any existing hedgerow, by feeding cable through the hedge or ducting through an existing gap in the hedge.
- 43.1.5 The construction period in this area is currently planned to be approximately five months. The land will be restored to its former use after the works are completed.
- 43.1.6 The land is currently in agricultural use, and the main ES already records a high impact for the affected farm holdings, and on best and most versatile agricultural land in CFA19. Shallow excavations to temporarily bury the fibre optic cable duct could have an impact on non-designated heritage assets but this will not alter the significance of effects reported in the main ES. Ecological survey has identified no ecological constraints. The River Cole has known otter use but no direct impacts on the river or its banks are anticipated, and this amendment will not alter the significance of effects reported in the main ES.
- 43.1.7 The additional land required and the utilities works are not considered to constitute changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics.

43.2 Summary

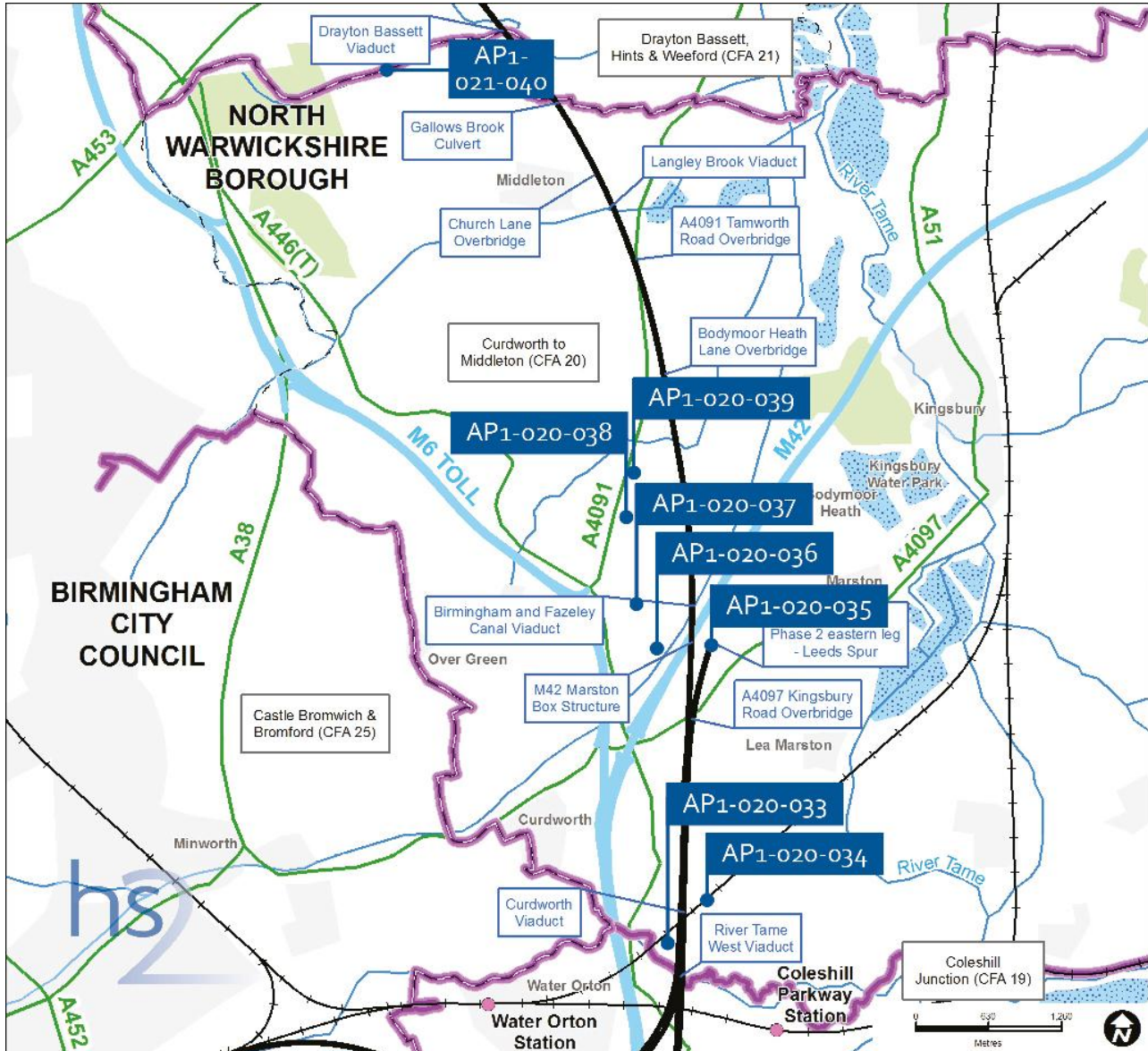
- 43.2.1 The additional land required for utilities diversions does not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES, Volume2, CFA19: Coleshill Junction.

CFA20, Curdworth to Middleton

44 Overview of the amendments

44.1.1 Table 28 provides a summary of the amendments in the Curdworth to Middleton area, CFA20 and Figure 15 shows the locations.

Figure 15: Locations of amendments in the Curdworth to Middleton area



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Table 28: Summary of amendments for the Curdworth to Middleton area (CFA20)

CFA	Amendment	Description of the original scheme	Description of the revised scheme
20	<p>Additional land for protection of Birmingham and Derby Line near Lichfield Road / Faraday Road.</p> <p>AP1-020-033</p>	<p>Land for permanent overhead power line diversion near Lichfield Road / Faraday Road.</p>	<p>The temporary erection of scaffolding to support netting on additional land immediately adjacent to the Minworth Effluent Conduit and adjacent to land already in the Bill, to provide protection to the operational railway line (Birmingham and Derby Line) during overhead power line diversion works.</p>
20	<p>Temporary construction and permanent maintenance access to the Curdworth viaduct (central) satellite compound, adjacent to the Birmingham and Derby Line.</p> <p>AP1-020-034</p>	<p>Land for the Curdworth viaduct (central) satellite compound adjacent to the Birmingham and Derby Line.</p>	<p>A temporary construction traffic access route along the existing private road and adjacent land to provide access to the Curdworth viaduct (central) satellite compound from Edison Road, was included and assessed in the main ES but was not included in the Bill. This route has now been added to the Bill plans.</p> <p>Permanent access rights for maintenance along this route have also now been added to the Bill.</p>
20	<p>Land for woodland habitat creation west of Dunton Wood.</p> <p>AP1-020-035</p>	<p>Land required permanently near to Dunton Wood LWS for woodland habitat creation to compensate for loss of woodland along the A4097 Kingsbury Road and Marston Lane. The full extent of the land required was assessed in the main ES but not all the land was included in the Bill.</p>	<p>The original Scheme has not changed; however, the land required has now been added to the Bill plans.</p>
20	<p>Additional land for pipeline diversion works and access.</p> <p>AP1-020-036</p>	<p>Temporary construction access and land required for a permanent fuel pipeline diversion near the Birmingham and Fazeley Canal, west of Marston Lane.</p>	<p>Additional land is required temporarily during construction for the fuel pipeline diversion. The additional land will provide the working area for lengths of pipe to be welded, tested and commissioned prior to installation. The temporary access to this area will be provided from the A446 Lichfield Road and across the Birmingham and Fazeley Canal, and from the A4097 along Marston Lane.</p>

CFA	Amendment	Description of the original scheme	Description of the revised scheme
20	<p>Additional access rights between A4091 and Birmingham and Fazeley Canal.</p> <p>AP1-020-037</p>	<p>Temporary access from Grange Farm Cottages for overhead power line diversion works between the Birmingham and Fazeley Canal and Cuttle Mill Lane.</p>	<p>Additional land is required temporarily along sections of an existing unpaved track from the A4091 Tamworth Road, at Grange Farm Cottages, towards the Birmingham and Fazeley Canal.</p>
20	<p>Additional land for overhead power line works adjacent to Cuttle Mill Lane.</p> <p>AP1-020-038</p>	<p>Land required temporarily to access two existing pylons located north of Cuttle Mill Lane, to the east and west of the A4091 Tamworth Road to facilitate an overhead power line diversion.</p>	<p>Additional land is required temporarily for the winching of power lines immediately to the north of Cuttle Mill Lane.</p>
20	<p>Additional land for overhead power line works to the south-west of Middleton House Farm.</p> <p>AP1-020-039</p>	<p>Land required temporarily to access two existing pylons located north of Cuttle Mill Lane, to the east and west of the A4091 Tamworth Road to facilitate an overhead power line diversion.</p>	<p>The temporary diversion of a fibre optic cable within a 100m wide corridor of land between Cuttle Mill Lane and a pylon immediately to the west of the A4091 Tamworth Road.</p>
20 (and 21)	<p>Additional land between Drayton Lane and Coppice Lane.</p> <p>AP1-021-040</p>	<p>Temporary access to facilitate earthing at three pylons running northwards from Gallows Brook to Drayton Lane.</p>	<p>Access via Upper House Farm to a further pylon 100m west of the farm for earthing works was not included in the Bill but was included and assessed in the main ES.</p> <p>The temporary access via Upper House Farm to the pylon 100m west of the farm has now been added to the Bill plans.</p> <p>Temporary access off Coppice Lane to facilitate earthing of two additional pylons to the north and south of Coppice Lane.</p> <p>Temporary diversion of fibre optic cable within a 100m wide corridor of land running along the line of the pylons between Coppice Lane and Drayton Lane for approximately 1.4km.</p> <p>This amendment is described and assessed in the AP ES Volume 2, CFA21.</p>

45 Additional land for protection of Birmingham and Derby Line near Lichfield Road / Faraday Road (AP1-020-033)

45.1 Overview of amendment

- 45.1.1 The Bill provided for overhead power line diversion works near Lichfield Road and Faraday Road (refer to main ES map CT-05-112b-L1 in the main ES Volume 2 CFA20 Map Book). Since submission of the Bill it has been identified that temporary scaffolding to support netting is required to provide protection to the operational railway line (Birmingham and Derby Line) during the diversion works (refer to AP map CT-05-112b-L1 in the AP ES Volume 2 Map Book, Part 5 of 6).
- 45.1.2 As shown on map CT-05-112b in the AP ES Volume 2 Map Book, Part 5 of 6, the land required for this temporary scaffolding is adjacent to the Minworth effluent conduit and the Birmingham and Derby Line, and is outside the original limits of the Bill, hence the need for this amendment. The additional land required covers approximately 0.2ha and is surrounded on three sides by land already within the limits of the Bill. Vegetation clearance and ground preparation will be required within the footprint of the works to allow for the safe erection of the scaffolding. The extent of preparatory work required will not be known until detailed design has been completed, so a reasonable worst-case scenario has been considered for this assessment. The duration of the works in this area, including the scaffolding, is expected to be approximately five months. After this time the land will be restored to its former use.
- 45.1.3 The inclusion of the additional land required for temporary scaffolding is not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to: agriculture, forestry and soils; air quality; community; cultural heritage; land quality; landscape and visual assessment; socio-economics; sound, noise and vibration; traffic and transport; and water resources and flood risk assessment. However, there are changes where reassessment is considered to be required in respect of ecology and this is considered further below.

45.2 Ecology

Scope, assumptions and limitations

- 45.2.1 The assessment scope for ecology is as set out in Volume 1 of the AP ES. The key assumptions and limitations, and the methodology for determining significance of effects are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 45.2.2 The land required for the amendment is bordered on three sides by land already within the limits of the Bill which has been subject to desk-based ecological investigations as well as field survey and assessment for flora and fauna.

- 45.2.3 The ecological baseline of the land within the amendment has been based on field data collated for the main ES on land surrounding the new area, aerial photography, and relevant existing information gathered from national organisations and from regional and local sources including Warwickshire County Council (Warwickshire Biological Records Centre).
- 45.2.4 To address any limitations in data, a precautionary baseline has been considered, according to the guidance reported in the main ES Volume 5: Appendix CT-001-000/2. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 45.2.5 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.

Environmental baseline

- 45.2.6 A summary of the baseline information relevant to the assessment of the amendment is provided below. For those receptors described in the main ES, further details are provided in the main ES Volume 2, CFA20, Section 7.3 and in the main ES Volume 5, including Maps EC-01 to EC-12, in the main ES Map Book Ecology.

Designated sites

- 45.2.7 There are no statutory designated sites within 500m of the amendment.
- 45.2.8 There is one non-statutory designated site of county/metropolitan value located within 500m of the area of the amendment. Coleshill Sewage Works Grassland Local Wildlife Site (LWS) lies 200m south of the area of the amendment (within the adjacent Coleshill Junction area, CFA19). The site consists of damp grassland and forms part of a series of grassland and wetland LWS sites adjacent to the River Tame.
- 45.2.9 There are no other designated sites or areas of ancient woodland relevant to the assessment.
- 45.2.10 Statutory and non-statutory designated sites in this area are described in the main ES, Volume 2, CFA20, Section 7 and are shown in the main ES Volume 2 CFA20 Map Book, on Maps EC-01-056, Volume 5, Map Book Ecology.

Habitats

- 45.2.11 The area required for the amendment is to the north of the River Tame and adjacent to the Minworth effluent conduit.
- 45.2.12 The area adjacent to the land required for the amendment, to the south, has been surveyed and comprises semi-improved grassland which has negligible value and scattered scrub which has local/parish value.
- 45.2.13 The area within the land required for the amendment contains trees and tall ruderal vegetation of local/parish value along the banks of the Minworth effluent conduit, which also has local/parish value. The conduit flows through Coleshill Sewage Treatment Works and contains no aquatic vegetation. The vegetation on the banks of the conduit is contiguous with adjacent grassland and ruderal vegetation to the south and is part of the wider resource of trees, scrub, tall herb and both improved and semi-improved grassland vegetation (shown on main ES volume 5 Map EC-01-056 grid H7).

Protected and/or notable species

- 45.2.14 No protected and/or notable species of flora or fauna have been recorded within the area of the amendment.
- 45.2.15 A survey of the River Tame undertaken as part of the main ES determined the river habitat (due to its concrete sides and minimal vegetation) was not suitable for notable species of flora or fauna, such as great crested newt, otter or water vole, and no detailed surveys were required.
- 45.2.16 There is no record of any bat roosts within 100m of the amendment. From reviewing the aerial photography, and based on knowledge of trees in the local area, the trees within the amendment are immature and semi-mature and are unlikely to have features supporting large or important bat roosts. However, using a precautionary approach, any bat roosts present could be of up to county/metropolitan value.
- 45.2.17 A number of bat assemblages, ranging from local/parish to county/metropolitan value, were recorded using the wider landscape around Coleshill sewage treatment works for foraging and commuting and these are reported in the main ES (Volume 2, CFA20 and CFA19, Section 7 and are shown on Maps EC-06-112 n CFA20 Volume 5, Map Book Ecology and on Maps EC-06-108b in CFA19 Volume 5, Map Book Ecology). Key areas for bat commuting and foraging are further south within the Coleshill Sewage Works Grassland LWS, which is within the Coleshill area (CFA19).
- 45.2.18 A breeding bird survey was undertaken in the immediate vicinity of the area of the amendment and 61 species were recorded of which 27 species are notable. Twelve notable species are thought to have bred within the survey area including species such as grey wagtail and reed bunting. The species recorded are considered to be common and widespread in the habitat types surveyed, and no large or important populations were recorded. As such the bird population was assessed to be of local/parish value within the main ES.
- 45.2.19 Locations of species records are illustrated on Maps EC-01 to EC-12 of the main ES, Volume 5, Map Book Ecology.

Effects arising during construction

Avoidance and mitigation measures

- 45.2.20 There are no specific measures included as part of the amendment to avoid or reduce impacts to features of ecological value on the land required for the amendment.
- 45.2.21 The assessment assumes implementation of appropriate measures within the draft Code of Construction Practice (CoCP) (Volume 5: Appendix CT-003-000 of the main ES).

Designated sites

- 45.2.22 Within the main ES there was no effect reported on Coleshill Sewage Works Grassland LWS. The amendment will not result in any effects on the integrity of Coleshill Sewage Works Grassland LWS. Consequently there is no change from that described in the main ES.

Habitats

- 45.2.23 As vegetation clearance and ground preparation will be required within the footprint of the amendment to allow for the safe erection of scaffolding, this will result in the loss of vegetation along the southern bank of the River Tame including trees, shrub and tall herb. The total additional vegetation losses are estimated to be less than 0.1ha.
- 45.2.24 The loss of vegetation within the land required as a result of the amendment is considered to be similar to vegetation in the wider area, the loss of which was reported in the main ES as a series of adverse effects at local/parish level which were not significant. The small scale of additional habitat losses associated with the amendment, are unlikely to change the likely significant effects that were reported in the main ES.

Species

- 45.2.25 Within the main ES there are no likely significant effects on bat assemblages identified in this locality. Bat populations in the wider area may utilise habitats within the area of the amendment for commuting and foraging, though as the river along this section has concrete banks and minimal vegetation this reduces its foraging value.
- 45.2.26 As vegetation clearance and ground preparation will be required within the footprint of the amendment, there could be loss of trees supporting roosting bats which could result in a significant effect on the conservation status of the local assemblage of bats at up to a county/metropolitan level. This would be an additional effect to those reported in the main ES.
- 45.2.27 Breeding birds within the locality were valued at a local/parish level and no likely significant effect was predicted within the main ES. If vegetation clearance is required for the amendment there would be additional loss of nesting bird habitat. Due to the small scale of the additional habitat loss this impact would not change the effects reported in the main ES and no likely significant effects are predicted.

Mitigation and residual effects

Other mitigation measures

- 45.2.28 Measures to avoid likely significant impacts on roosting bats, should they be present, will be carried out in accordance with the principles of ecological mitigation identified within the SMR Addendum of the main ES (Volume 5: Appendix CT-001-000/2). This will include avoiding the loss of tree roosts where possible and compensatory provision of roosts where loss is unavoidable. Depending on the type of roost affected, the most appropriate place to locate replacement roosts within the Bill limits would likely be on trees along the edge of Coleshill Sewage Works Grassland LWS which is the closest key area of bat commuting and foraging as identified in the main ES.

Residual effects

- 45.2.29 Following the implementation of mitigation measures in relation to roosting bats, where necessary, the amendment will result in no change in the residual likely significant effects reported in the main ES.

Effects arising from operation

- 45.2.30 There are no new or different operational effects for ecology as a result of the proposed amendment.

45.3 Summary

- 45.3.1 Prior to mitigation the amendment may give rise to additional impacts upon roosting bats which could be present within trees within the amendment. Loss of tree roosts could result in a significant effect at up to a county/metropolitan level. However, following appropriate mitigation, there are no anticipated likely residual significant ecological effects.
- 45.3.2 The additional land required temporarily for the erection of scaffolding does not change the likely significance of the residual environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA20: Curdworth to Middleton).

46 Temporary construction and permanent maintenance access to the Curdworth viaduct (central) satellite compound, adjacent to the Birmingham and Derby Line (AP1-020-034)

46.1 Overview of amendment

- 46.1.1 The Bill provided land for the Curdworth viaduct (central) satellite compound (refer to main ES map CT-05-112b in the main ES Volume 2 CFA20 Map Book). Since submission of the Bill it has been identified that access for construction traffic from Edison Road to Curdworth viaduct (central) satellite compound was omitted from the Bill plans. This amendment is to provide temporary access rights over the existing private road, and land required temporarily for access to the Curdworth viaduct (central) satellite compound, which is located immediately adjacent to the Birmingham and Derby Line. There is currently an access track that extends parallel to this railway line for access to the existing pylons. The amendment includes use of this access track, connecting to the parking area/roadway within an existing industrial park which connects to Edison Road (and then to the roundabout at Faraday Avenue). The amendment requires approximately 0.5ha of land (refer to AP map CT-05-112b in the AP ES Volume 2 Map Book, Part 5 of 6). Permanent access rights for maintenance along this route have also now been added to the Bill plans. The original scheme has not changed, however, the land and access rights have now been added to the Bill plans.

- 46.1.2 The inclusion of temporary and permanent access rights is not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics.
- 46.1.3 The inclusion of temporary and permanent access rights does not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA20: Curdworth to Middleton).

47 Land for woodland habitat creation west of Dunton Wood (AP1-020-035)

47.1 Overview of amendment

- 47.1.1 Land identified for woodland habitat creation to the west of Dunton Wood Local Wildlife Site (LWS) was included within the main ES, but was partially omitted from the Bill plans (refer to maps CT-05-119 and CT-06-119 in the main ES Volume 2 CFA20 Map Book and AP map CT-05-119 in the AP ES Volume 2 Map Book, Part 5 of 6), hence the need for this amendment. The whole area of ecological mitigation was assessed in the main ES. The land for this amendment, approximately 0.5ha, is required permanently to provide ecological mitigation.
- 47.1.2 The inclusion of the full area of land for woodland habitat creation is not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics.

47.2 Summary

- 47.2.1 The inclusion of the full area of land for woodland habitat creation does not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA20, Curdworth to Middleton).

48 Additional land for pipeline diversion works and access (AP1-020-036)

48.1 Overview of amendment

- 48.1.1 The Bill provides for the permanent diversion of the Seisdon to Kingsbury pipeline crossing the original scheme (refer to main ES map CT-05-119 and CT-05-119-L1 in the Volume 2 CFA20 Map Book). Byway 450 which runs along Marston Lane, will be temporarily diverted around the works. Since submission of the Bill, it has been identified that additional land is required for the construction works. This additional land, comprising approximately 2.8ha, will provide the working area for lengths of pipe to be welded, tested and commissioned prior to installation, and is outside the original limits of the Bill, hence the need for this amendment (refer to AP maps CT-05-119 and CT-05-119-L1 in the AP ES Volume 2 Map Book, Part 5 of 6).
- 48.1.2 Access to this working area will be provided:
- from the west via the A446 Lichfield Road and across the Birmingham and Fazeley Canal ; and

- from the A4097 Kingsbury Road along Marston Lane.

48.1.3 The land is required temporarily and will be restored to its former agricultural use following completion of the works. The duration of the overall utility works in this area is anticipated to be approximately five months. No existing hedgerow will be lost as a result of this amendment.

48.1.4 No works will be required to the Marston Lane bridge or the Birmingham and Fazeley Canal to allow for vehicular access to the east. Further, only light construction vehicles (i.e. no HGV traffic) would utilise this access. Traffic management will be deployed rather than making any changes to the existing access with the A446 to enable safe access to the site.

48.1.5 The additional land required is not considered to make changes that require a reassessment of the 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; traffic and transport; and water resources and flood risk assessment. However, there are changes where reassessment is considered to be required in respect of agriculture, forestry and soils and this is considered further below.

48.2 Agriculture, forestry and soils

Scope, assumptions and limitations

48.2.1 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.

48.2.2 The land is temporarily required during construction and is not part of the land permanently required for the revised scheme. The additional temporary land required for the amendment that is in agricultural use is anticipated to be approximately 2.7ha comprising about 1.1ha from land at Cuttle Mill/Rye Farm (Holding CFA20/5) and 1.6ha from The Bank, Mullensgrove Farm (Holding CFA20/30). On completion of the amendment works the land will be restored to its former use.

Environmental baseline

48.2.3 The majority of land affected by the amendment has soil in the Arrow association (deep permeable sandy loam soils variably affected by groundwater). Less than 10% of the affected land overlies soil in the Whimple 3 association (medium clay loam or silty clay loam over clayey soils). Soils in the Arrow association are likely to be limited by soil droughtiness mostly to Agricultural Land Classification (ALC) Grade 2 whilst soils in the Whimple 3 association are likely to be limited by soil wetness to Subgrade 3a (i.e. best and most versatile (BMV) land).

48.2.4 The amendment will affect land used for agricultural purposes at two holdings: land at Cuttle Mill/Rye Farm (Holding CFA20/5 as described in the main ES, Volume 5 Appendix AG-01-020, Section 4) and The Bank, Mullensgrove Farm (Holding CFA20/30 – see Table 30). Cuttle Mill/Rye Farm is a 404.7ha general cropping enterprise with a high sensitivity to change because irrigation is used to support the crops. The Bank, Mullensgrove Farm was not assessed in the main ES, but is a 142ha area of land mainly given over to general cropping with a medium sensitivity to change.

Effects arising during construction

- 48.2.5 The disturbance during construction of land of BMV quality in this area was assessed as an impact of high magnitude in the main ES and the disturbance of an additional 2.7ha will not change this assessment. Hence the effect on land of BMV quality within the revised scheme remains the same as that in the main ES, a moderate adverse effect, which is significant.
- 48.2.6 The main ES determined that 27.8ha (7%) of Cuttle Mill/Rye Farm will be temporarily needed for construction, and that 10.9ha will be restored to agriculture. This was assessed as a moderate adverse effect during construction. The amendment increases the land required for construction to 28.9ha (still 7% of the holding). Following the methodology in the main ES, the construction effect of the amendment on this holding remains moderate adverse, which is significant.
- 48.2.7 Following the methodology in the main ES, the need for 1.6ha of land for construction in The Bank, Mullensgrove Farm constitutes an impact of negligible magnitude. The northern part of the affected parcel of land will also potentially be severed by construction activity, but will be accessible from the public highway (Marston Lane), which constitutes an impact of medium magnitude. The temporary construction effect on The Bank, Mullensgrove Farm will therefore be moderate adverse, which is significant. AP maps AG-01-056 and AG-01-057 in the AP ES Volume 2 Map Book, Part 5 of 6, show the location of holding CFA20/30.

Effects arising from operation

- 48.2.8 There are no additional effects on agriculture, forestry and soil receptors during the operation of the revised scheme.

Mitigation and residual effects

- 48.2.9 The amendment will result in a temporary residual moderate adverse effect on holding CFA20/30.
- 48.2.10 Following construction, the land will be restored to its former agricultural use. Restoration will be undertaken following the best practice guidance for handling soil set out in the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES). The soil handling will involve stripping, storing and reinstating topsoils on land required for the temporary works. Therefore, it is predicted there will be no permanent residual effects to agriculture, forestry and soil receptors as a result of the amendment.

Volume 5 amendments

- 48.2.11 Table 29 sets out the change to the main ES, Volume 5 Appendix, AG-01-020, as a result of the amendment.

Table 29: Volume 5 amendments

Paragraph No./Table Ref.	Existing agriculture, forestry and soil assessment text	Amendment to agriculture, forestry and soil assessment text
Appendix AG-01-020, Table 12 (Summary of assessment of effect on holdings).	There is no entry in the original table for The Bank, Mullensgrove Farm (as this is a new likely significant effect resulting from the amendment).	A new table entry is required for effects on The Bank, Mullensgrove Farm. The new table row is provided below (see Table 30).

Table 30: Amendments to Appendix AG-01-021, Table 12 - Addition of New Row for The Bank, Mullensgrove Farm

Holding reference, name and description	Construction effects	Residual effects post restoration of land
CFA20/30* The Bank, Mullensgrove Farm. 142ha of general cropping land. Medium sensitivity to change.	Land required: 1.6ha; 1% of holding required for construction. Negligible Impact. Severance: Access to potentially severed land possible via Marston Lane. Medium Impact. Disruptive effects: none identified. Negligible Impact.	Land required: 0.0ha; 0% of holding taken. Negligible Impact. Severance: no new severance. Negligible Impact. Infrastructure: no known impact. Negligible Impact.

* No farm impact assessment interview conducted; data estimated.

48.3 Summary

48.3.1 An additional likely significant effect has been identified as a result of the amendment, which is a temporary likely significant construction effect on The Bank, Mullensgrove Farm, holding CFA 20/30, which will be a moderate adverse effect.

49 Additional access rights between A4091 and Birmingham and Fazeley Canal (AP1-020-037)

49.1 Overview of amendment

49.1.1 Access rights are required along the access track between the A4091 Tamworth Road and the Birmingham and Fazeley Canal, to enable works to the overhead power line in this area, near Grange Farm Cottages. The Bill provides for access along this route and it was included and assessed in the main ES (refer to main ES Map CT05-113-L1 and CT-05-119). However, the access needs to be extended by approximately 100m to the east to reach land required for construction identified within the Bill, and to the west to allow the access to continue to the A4091 Tamworth Road, as shown in AP ES Volume 2 Map Book, Part 5 of 6, on maps CT-05-113-L1 and CT-05-119. This requires approximately 0.3ha of land outside the limits of the Bill, hence the need for this amendment. The amendment requires temporary access rights only. The duration of the overall utility works in this area is anticipated to be approximately five months.

- 49.1.2 The access routes that were included in the main ES were assumed to be on existing, unpaved access tracks and the additional sections included within this amendment are assumed to be the same, consequently no change of land use is required and no loss of existing hedgerow will result from this amendment.
- 49.1.3 The extension to the access rights is not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics.

49.2 Summary

- 49.2.1 The extension to the access rights does not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA20: Curdworth to Middleton).

50 Additional land for overhead power line works adjacent to Cuttle Mill Lane (AP1-020-038)

50.1 Overview of amendment

- 50.1.1 The Bill provides for land for overhead power line diversion works in the vicinity of Cuttle Mill Lane (refer to main ES map CT-05-113 in the main ES Volume 2 CFA20 Map Book). However, since submission of the Bill it has been identified that additional land is required for the winching of the power line.
- 50.1.2 The land required for winching lies to the immediate north of Cuttle Mill Lane and is aligned with the overhead power lines to the south of Cuttle Mill Lane (refer to AP map CT-05-113, E8 and E9, in the AP ES Volume 2 Map Book, Part 5 of 6). The land required is approximately 0.9ha and is outside the original limits of the Bill, hence the need for this amendment. Vegetation clearance, topsoil removal and storage and placement of temporary surfacing will be required within the winching area. However, there will not be a requirement to affect the hedgerows along Cuttle Mill Lane, which will be protected during the works. The duration of the works is anticipated to be approximately five months.
- 50.1.3 Access to the area will be from Cuttle Mill Lane via the A4091 Tamworth Road. It is anticipated that the works across Cuttle Mill Lane (required during the first and last week of construction) could be undertaken with traffic management measures involving the use of Stop and Go boards, with minimal disruption to traffic. As it will not be known whether this is the case until detailed design has been completed, for the purposes of this assessment it has been assumed that this will be required.
- 50.1.4 The additional land required temporarily lies across two agricultural holdings which have already been assessed in the main ES as experiencing moderate and major/moderate adverse effects; the addition of this land to the temporary land requirement for construction is not sufficient to change the assessed level of significance on the affected holdings. The additional land will be restored to its former agricultural use following construction.

- 50.1.5 The additional land required for winching works is not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics.

50.2 Summary

- 50.2.1 The additional land required for winching works does not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA20: Curdworth to Middleton).

51 Additional land for overhead power line works to the south-west of Middleton House Farm (AP1-020-039)

51.1 Overview of amendment

- 51.1.1 The Bill provides for land for overhead power line diversion works in the vicinity of Cuttle Mill Lane (refer to map CT-05-113 in the main ES Volume 2 CFA20 Map Book). Since submission of the Bill it has been identified that the temporary diversion of a fibre optic cable between three pylons approximately 300m west of North Wood is required. Land is required for access and working room. The diversion will temporarily require land outside the original limits of the Bill, hence the need for this amendment. The diversion will begin at the pylon just to the south of Cuttle Mill Lane (grid F8 on AP map CT-05-113 in the AP ES Volume 2 Map Book, Part 5), crossing the A4091 Tamworth Road, to the pylon south-west of Middleton House Farm (grid B9 on AP map CT-05-113 in the AP ES Volume 2, Map Book, Part 5 of 6). The land affected by the amendment is predominantly arable land to the east of the A1091 Tamworth Road and land within The Belfry golf course to the west of the A4091 Tamworth Road.
- 51.1.2 The fibre optic cable will be ducted and buried temporarily, and fed through any hedges to avoid any hedge loss.
- 51.1.3 The additional land required for this amendment is approximately 5.3ha. This land area is required because at this stage the exact route for the fibre optic cable diversion cannot be finalised, so a 100m wide corridor is identified beneath the overhead power lines for the purposes of the Bill. This corridor is required to enable, as far as reasonably practicable, the avoidance of sensitive receptors during detailed design. The trench for the duct itself will be 300mm wide and 400mm deep, requiring a working area approximately 10m wide along the cable run, so a considerably reduced area will actually be used.
- 51.1.4 Land is required temporarily, for construction only. Once the work is complete the land will be restored to its former use. The impact on the affected land holding was reported as major/moderate adverse in the main ES. The amendment would increase the temporary land take but as the impact was already assessed as major/moderate, the overall significance would not change. The cable will need to cross the A4091 Tamworth Road. It is likely this can be achieved with traffic management and, as a worst case, could require overnight closure. The duration of the works in this area,

including installation of fibre optic cable, is anticipated to be approximately five months.

- 51.1.5 The additional land required is not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to: agriculture, forestry and soils; air quality; community; land quality; landscape and visual assessment; socio-economics; sound, noise and vibration; traffic and transport; and water resources and flood risk assessment. However, there are changes where reassessment is considered to be required in respect of ecology and this is considered further below.

51.2 Ecology

Scope, assumptions and limitations

- 51.2.1 The assessment scope for ecology is as set out in Volume 1 of the AP ES. The key assumptions and limitations, and the methodology for determining significance of effects is as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 51.2.2 The land required for the amendment is bordered by land already within the limits of the Bill which has been subject to desk-based ecological investigations as well as field survey and assessment for flora and fauna.
- 51.2.3 The ecological baseline of the area has been based on field data collated for the main ES on land surrounding the area, aerial photography, and relevant existing information gathered from national organisations and from regional and local sources including Warwickshire County Council (Warwickshire Biological Records Centre).
- 51.2.4 To address any limitations in data, a precautionary baseline has been built up 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.
- 51.2.5 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.

Environmental baseline

- 51.2.6 A summary of the baseline information relevant to the assessment of the amendment is provided below. For those receptors described in the main ES, further details are provided in Volume 2, CFA20, Section 7.3 and in Volume 5, including Maps EC-01 to EC-12, Map Book Ecology.

Designated sites

- 51.2.7 There are no statutory designated sites within 500m of the amendment. There is one non-statutory designated site of county/metropolitan value located within 500m of the area of the amendment. North Wood Local Wildlife Site (LWS), is located approximately 300m east of the land required for the amendment. North Wood is also ancient semi-natural woodland.
- 51.2.8 There are no other designated sites or ancient woodland relevant to the assessment.

- 51.2.9 Statutory and non-statutory designated sites within this area are described in the main ES, Volume 2, CFA20, Section 7 and are shown on Map EC-01-057, Volume 5, Map Book Ecology.

Habitats

- 51.2.10 The land affected by the amendment is predominantly arable land to the east of the A1091 Tamworth Road and amenity grassland to the west of the A4091 Tamworth Road, within The Belfry golf course. It also includes the hedgerows, scrub and scattered trees along both verges of the A4091 Tamworth Road.
- 51.2.11 The arable farmland and amenity grassland within the area of the amendment were assessed in the main ES as being of negligible value. The scrub and scattered trees were assessed in the main ES as being of up to local/parish value and the hedgerow network in the area was assessed as being of district/borough value.
- 51.2.12 There are several ponds within 500m of the amendment, including within North Wood, that are each valued at a local/parish level.
- 51.2.13 Phase 1 habitats within this area are described in the main ES and shown on main ES Map EC-02-057, in the main ES Volume 5, Map Book Ecology. Habitats surrounding the land required for the amendment are described in the main ES, Volume 2, CFA20, Section 7 and are shown on main ES Maps EC-01-052 to EC-01-054a, in the main ES Volume 5, Map Book Ecology.

Protected and/or notable species

- 51.2.14 No protected and/or notable species of flora or fauna have been recorded within the area of the amendment.
- 51.2.15 The amendment would encroach into The Belfry golf course, within 500m of five ponds; the closest of these is 60m from the land required for the amendment. Taking a precautionary approach, any ponds that have not been surveyed could support a medium size class of great crested newt and would be up to county/metropolitan value.
- 51.2.16 There are also ponds within North Wood approximately 300m from the amendment. These ponds have been surveyed in 2014 and no great crested newt have been identified.
- 51.2.17 An assemblage of bats using roosting, foraging and commuting habitats is present north-west of the revised scheme within 500m, including two confirmed bat roosts within buildings. There are several buildings associated with Cuttle Mill Fishery which also support roosting bats. The assemblage of bats using roosting, foraging and commuting habitat around Cuttle Mill Fishery was identified in the main ES and is of district/borough value.
- 51.2.18 There is also an assemblage of rarer bat species³³ of up to regional value potentially roosting within North Wood approximately 250m from the revised scheme.

³³ Rarer bat species in England are those with numbers between 10,000 and 100,000 individuals based on Wray S, Wells D, Long E and Mitchell-Jones T. (2010) Valuing bats in ecological impact assessment. In Practice. December 2010. P23-25.

Effects arising during construction

Avoidance and mitigation measures

- 51.2.19 There are no specific measures included as part of the amendment to avoid or reduce impacts to features of ecological value on the land required for the amendment.
- 51.2.20 The assessment assumes implementation of the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES).

Designated sites

- 51.2.21 The amendment will not result in any impacts on designated sites, including North Wood. There will be no change to the effects identified in the main ES.

Habitats

- 51.2.22 The loss of amenity grassland, scrub and scattered trees within the wider area was reported in the main ES as having an effect at up to a local/parish level.
- 51.2.23 Ground works necessary for the fibre optic cable diversion may require vegetation clearance of habitats along the A4091 Tamworth Road and amenity grassland within The Belfry golf course, although the works will avoid the loss of hedgerows. The additional vegetation losses as a result of the amendment are likely to be less than 0.5ha and are within arable and amenity grassland which have negligible value. Due to the small scale of habitat loss and the negligible value of habitats to be lost, this impact would not change the likely significant effects reported within the main ES.

Species

- 51.2.24 Construction works in support of the amendment could require removal of terrestrial habitat that may be utilised by great crested newt populations within The Belfry. However, no potential breeding ponds would be affected and arable land and amenity grassland are sub-optimal habitats for newts. Implementation of measures within the draft CoCP would ensure there would be no killing or injury of newts as a result of the amendment. Any trapping of terrestrial habitat which supports great crested newt required to avoid killing/injury would be undertaken in accordance with the principles of ecological mitigation identified within the SMR Addendum of the main ES (Volume 5: Appendix CT-001-000/2). Due to the small scale of habitat loss and the type of habitats to be lost, this impact could result in an effect on the conservation status of the assumed great crested newt population concerned at up to a local/parish level and would not be significant. However, there are no changes to the likely significant effects reported within the main ES.
- 51.2.25 The amendment would not affect any bat roosting, foraging or commuting habitat and there will be no change to the effect on bat assemblages in the area reported in the main ES.

Mitigation and residual effects

Other mitigation measures

- 51.2.26 No additional or different mitigation is required for the amendment.

Residual effects

- 51.2.27 The amendment will result in no change in the residual likely significant effects reported in the main ES.

Effects arising from operation

- 51.2.28 There are no new or different operational effects for ecology as a result of the proposed amendment.

51.3 Summary

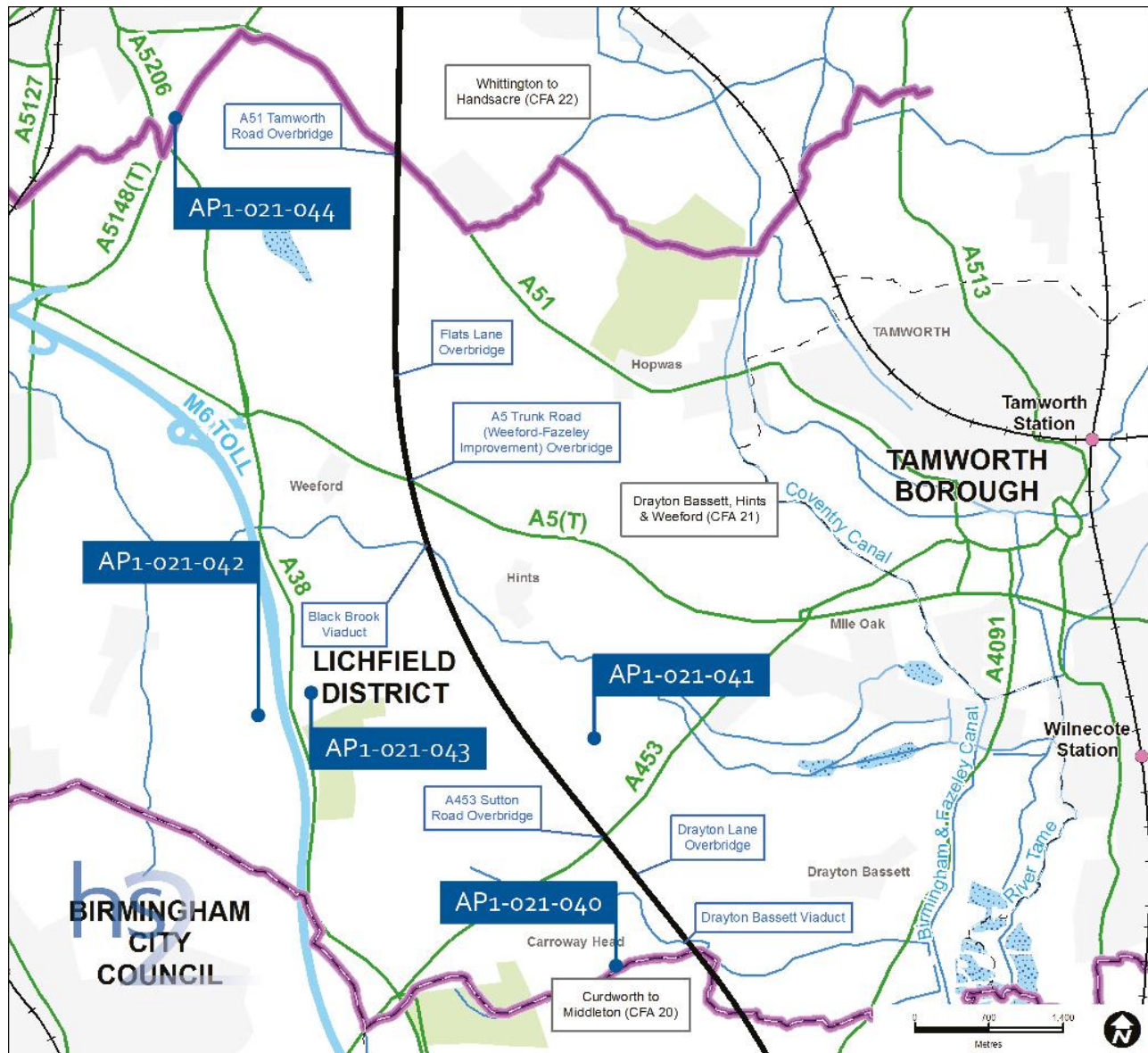
- 51.3.1 The access and temporary working area required for a temporary fibre optic cable diversion do not change the likely significance of the environmental effects or the proposed mitigation as set out in the main ES (Volume 2, CFA20, Curdworth to Middleton).

CFA21, Drayton Bassett, Hints and Weeford

52 Overview of the amendments

52.1.1 Table 31 provides a summary of the amendments in the Drayton Bassett, Hints and Weeford area (CFA21) and Figure 16 shows the locations.

Figure 16: Locations of amendments in the Drayton Bassett, Hints and Weeford area



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Table 31: Summary of amendments for the Drayton Bassett, Hints and Weeford area (CFA 21)

CFA	Amendment	Description of the original scheme	Description of the revised scheme
21 (and 20)	Additional land between Drayton Lane and Coppice Lane. AP1-021-040	Temporary access to facilitate earthing at three pylons running northwards from Gallows Brook to Drayton Lane.	Access via Upper House Farm to a further pylon 100m west of the farm for earthing works was not included in the Bill but was included and assessed in the main ES. The temporary access via Upper House Farm to the pylon 100m west of the farm has now been added to the Bill plans. Temporary access off Coppice Lane to facilitate earthing of two additional pylons to the north and south of Coppice Lane. Temporary diversion of fibre optic cable within a 100m wide corridor of land running along the line of the pylons between Coppice Lane and Drayton Lane for approximately 1.4km.
21	Access for utility works along Bangley Lane. AP1-021-041	Temporary access along part of Bangley Lane from the A453 Sutton Road to overhead power lines to the north-west and south-east of Bangley Lane.	Temporary and permanent access is required along Bangley Lane/Waggoner's Lane from the connection with the A453 Sutton Road to the Bangley Lane accommodation overbridge to allow access for electricity and gas diversions and ongoing maintenance.
21	Access for utility works between Green Barns Lane and the gravel pits east of the M6 toll. AP1-021-042	Temporary diversion of overhead power lines terminating at the gravel pits east of the M6 toll, including an area for winching.	Access to three pylons between the gravel pits east of the M6 toll and Green Barns Lane were assessed in the main ES but were omitted from the Bill plans. The land required has now been added to the Bill plans. One of the access track alignments that was assessed in the main ES has been slightly realigned to use an existing track.
21	Access and land required for utility works west of Brockhurst Lane. AP1-021-043	Temporary diversion of overhead power lines terminating at the gravel pits east of the M6 toll, including an area for winching.	Land required for the temporary winching of overhead power lines in an amended location within the same gravel pits. Temporary access is required from the realigned winching site to the existing access track from the A38 London Road utilised as part of AP1-021-042.
21 (and 22)	Access and land	The temporary diversion of overhead power lines near the roundabout	The temporary erection of scaffolding to support netting over the

CFA	Amendment	Description of the original scheme	Description of the revised scheme
	<p>required for utility works near the junction of the A5148 and A38.</p> <p>AP1-021-044</p>	<p>junction of the A5148, the A38 and the A5026 to the south of Lichfield.</p>	<p>A5148/A38 to protect the road during the works to the overhead power line. In addition a new temporary access route is required off the A5206 London Road to reach the land required for the utility works on the west side of the A38/A5148.</p>

53 Additional land between Drayton Lane and Coppice Lane (AP1-021-040)

53.1 Overview of amendment

- 53.1.1 The Bill provides for overhead power line diversions in the area between Drayton Lane and Gallows Brook. Since submission of the Bill it has been identified that temporary access via Upper House Farm to a pylon 100m west of the farm for earthing works was not included in the Bill plans, although this is shown on the main ES maps (refer to main ES maps CT-05-116b; 116b-L1; 117 in Volume 2, CFA21 Map Book). In addition, temporary access is required off Coppice Lane to facilitate earthing of a further two pylons to the north and south of Coppice Lane, and land is required temporarily along the line of the pylons between Coppice Lane and Drayton Lane for a fibre optic cable diversion. The fibre optic cable will be ducted and buried temporarily, and fed through any hedges to avoid hedgerow loss. The land to complete these temporary access routes and fibre optic cable ducting is outside the limits of the original Bill, hence the need for this amendment.
- 53.1.2 The additional land required for this amendment is approximately 14.2ha. This land area is required because at this stage the exact route for the fibre optic cable diversion cannot be finalised, so a 100m wide corridor is identified beneath the overhead power lines for the purposes of the Bill (refer to maps CT-05-116b-L1 and CT-05-117 in AP ES, Volume 2 Map Book Part 5). This corridor is required to enable, as far as reasonably practicable, the avoidance of sensitive receptors during detailed design. The trench for the duct itself will be approximately 300mm wide and 400mm deep, requiring a working area approximately 10m wide along the cable run, so a considerably reduced area will actually be used. The duration of the overhead power line diversion in this area, including the fibre optic cable ducting, is currently planned to be approximately five months. On completion of the amendment the land will be restored to its former agricultural use.
- 53.1.3 The additional land required temporarily for earthing and fibre optic ducting is not considered to make changes that require a reassessment of the 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; traffic and transport; and water resources and flood risk management. However, reassessment was considered to be required in respect of agriculture, forestry and soils and cultural heritage and these topics are considered further below.

53.2 Agriculture, forestry and soils

Scope, assumptions and limitations

- 53.2.1 The assessment scope, key assumptions and limitations for the agriculture, forestry and soils assessment are the same as those for the main ES, as set out in Volume 1, the SMR (Appendix CT-001-000/1) and the SMR Addendum (Appendix CT-001-000/2) of the main ES.

Environmental baseline

- 53.2.2 Around two-thirds of the land affected by the amendment has soil in the Clifton association (slowly permeable seasonally waterlogged medium clay loam and sandy clay loam) whilst one-third has soil in the Whimple 3 association (medium clay loam or silty clay loam over clayey soils with slowly permeable subsoils and slight seasonal waterlogging). Soils in the Clifton association in this area are likely to be limited by soil wetness to mainly agricultural land classification (ALC) Subgrade 3a (i.e. best and most versatile (BMV) land). Likewise, soils in the Whimple 3 association in this area are likely to be limited by soil wetness to Subgrade 3a (i.e. BMV).
- 53.2.3 The amendment will affect five agricultural holdings ranging in size from 18.6ha to 323.8ha (Table 32). The holdings are mainly given over to arable production, except the smallest (Shirrall Hall Farm – CFA21/18) which supports livestock. All holdings are considered to be of medium sensitivity to change. [Note - holdings references are as referenced in the main ES Volume 5, Appendix AG-01-021, Table 14.]

Table 32: Summary of holdings affected by the amendment

Holding reference/ name	Holding type	Area of holding (ha)
CFA20/9* Upper House Farm	Mainly arable	155.6**
CFA20/29* ^ Land on SW and NW sides of Coppice Lane	Mainly arable	51.0
CFA21/3 Wiggins Hill Farm	Mainly arable	323.8
CFA21/18 Shirrall Hall Farm	Mainly livestock (sheep)	18.6
CFA21/27* ^ Holding 36, Shirrall Drive	Mainly arable	31.4

* No farm impact assessment interview conducted; data estimated.

** Larger area than reported in main ES because overhead power lines cross an additional parcel of land associated with this holding not considered in the main ES.

^ Additional holdings to those included in the main ES. Additional holdings are included because the amendment affects land outside the area assessed in the main ES.

Effects arising during construction

- 53.2.4 The disturbance during construction of land of BMV quality was assessed as an impact of high magnitude in the main ES for both of the CFAs affected by the amendment (CFA20 and CFA21). The disturbance of an additional 14.2ha (Table 33) will not change this assessment. Hence the effect on land of BMV quality of the revised scheme remains a moderate adverse effect, which is significant.
- 53.2.5 Table 33 sets out the change in impact magnitude resulting from the additional temporary land requirement of the amendment. Details of any changes to the construction effect (and its significance) on each of the five holdings affected by the amendment, based on the methodology set out in the main ES are given below:

- There is no change in the magnitude of the impact on Holding CFA20/9 (Upper House Farm). There remains a temporary moderate adverse effect during construction, which is significant.
- Holding CFA20/29 (Land on SW and NW sides of Coppice Lane) was not affected by the original scheme. The construction effect of the amendment for this holding is negligible, which is not significant.
- There is no change in the magnitude of the impact on Holding CFA21/3 (Wiggins Hill Farm). The construction effect of the amendment for this holding remains negligible, which is not significant.
- There is a change to the magnitude of the impact on Holding CFA21/18 (Shirrall Hall Farm). The magnitude of the impact of the amendment on this holding increases to medium, increasing the temporary construction effect from minor adverse to moderate adverse, which is significant.
- Holding CFA21/27 (Holding 36, Shirrall Drive) was not affected by the original scheme. In the revised scheme the temporary construction effect of the amendment for this holding is minor adverse, which is not significant.

Table 33: Summary of change to area required for construction for holdings affected by the amendment

Holding reference/ name	Area required for construction		
	Total area (original scheme)	Additional area (associated with the amendment)	Total area (revised scheme)
CFA20/9 Upper House Farm	17.3ha – 14% Medium	7.4ha	24.7ha – 16%* Medium
CFA20/29^ Land on SW and NW sides of Coppice Lane	NA	1.3ha	1.3ha – 3% Negligible
CFA21/3 Wiggins Hill Farm	11.4ha – 4% Negligible	0.4ha	11.8ha – 4% Negligible
CFA21/18 Shirrall Hall Farm	1.1ha – 6% Low	2.3ha	3.5ha – 19% Medium
CFA21/27^ Holding 36, Shirrall Drive	NA	2.8ha	2.8ha – 9% Low

*Larger area than reported in main ES because overhead power lines cross an additional parcel of land associated with this holding not considered in the main ES.

^ Additional holdings to those included in the main ES. Additional holdings are included because the amendment affects land outside the area assessed in the main ES.

Effects arising from operation

- 53.2.6 The main ES determined that there were no likely adverse significant residual effects during operation and this will not change as a result of the amendment.

Mitigation and residual effects

- 53.2.7 The amendment will result in a temporary residual moderate adverse effect on Holding CFA21/18.

- 53.2.8 Following construction the land will be restored to its former agricultural use. Restoration will be undertaken following the best practice guidance for handling soil, as set out in the draft Code of Construction Practice (CoCP) (Volume 5: Appendix CT-003-000 of the main ES). The soil handling will involve stripping, storing and reinstating topsoils on land required for the temporary works. Therefore, it is predicted there will be no permanent residual effects to agriculture, forestry and soil receptors as a result of the amendment.

Volume 5 amendments

- 53.2.9 Table 34 sets out the change to the main ES, Volume 5, Appendix AG-01-021, as a result of the amendment.

Table 34: Volume 5 amendments

Paragraph No/Table Ref	Existing Agriculture, Forestry and Soil Assessment Text	Amendment to Agriculture, Forestry and Soil Assessment Text
Appendix AG-01-021, Table 14 (Summary of assessment of effect on holdings)	The original table entry for CFA21/18 - Shirrall Hall Farm is provided below (Table 35).	The table entry for Shirrall Hall Farm needs amending to account for the increase in land required and the magnitude of the impact increasing to medium The amended table row is provided below (see Table 36).

Table 35: Existing text in Appendix AG-01-021, Table 14 for Shirrall Hall Farm

Holding reference, name and description	Construction effects	Residual effects post restoration of land
CFA21/18 Shirrall Hall Farm 18.6ha of Mainly livestock (Sheep) Medium sensitivity to change	Land required: 1.1ha; 6% of holding required for construction. Low Impact Severance: no severance. Negligible Impact Disruptive effects: Negligible Impact	Land required: 0.7ha; 4% of holding taken. Negligible Impact Severance: no severance. Negligible Impact Infrastructure: restoration of drainage functionality; fencing. Negligible Impact

Table 36: Amendments to Appendix AG-01-021, Table 14 - Amendment for Shirrall Hall Farm

Holding reference, name and description	Construction effects	Residual effects post restoration of land
CFA21/18 Shirrall Hall Farm 18.6ha of Mainly livestock (Sheep) Medium sensitivity to change	Land required: 3.5ha; 19% of holding required for construction. Medium Impact Severance: no severance. Negligible Impact Disruptive effects: Negligible Impact	Land required: 0.7ha; 4% of holding taken. Negligible Impact Severance: no severance. Negligible Impact Infrastructure: restoration of drainage functionality; fencing. Negligible Impact

* No farm impact assessment interview conducted; data estimated

53.3 Cultural heritage

Scope, assumptions and limitations

- 53.3.1 The assessment scope, key assumptions and limitations for the cultural heritage assessment are the same as those for the main ES, as set out in Volume 1, the SMR (Appendix CT-001-000/1) and the SMR Addendum (Appendix CT-001-000/2) of the main ES.
- 53.3.2 Information on the potential archaeological remains at this location is based on desk based research (sources including the historic environment record (HER), historic maps and aerial photographs) and non-intrusive surveys comprising LiDAR and hyperspectral survey.
- 53.3.3 The fibre optic cable installation will require ducting and therefore, ground disturbance will occur.
- 53.3.4 The maximum additional land required temporarily for the amendment is anticipated to total approximately 14.2ha.
- 53.3.5 It is assumed that any archaeological remains and earthworks within the footprint of the working area would be removed or disturbed.

Environmental baseline

- 53.3.6 Detailed information on the environmental baseline and the assets summarised below is contained within Volume 2, CFA21, Chapter 6 and Volume 5, CFA21, Appendices CH-001-021, 002-021, 003-021 and 004-021 and associated map books of the main ES.
- 53.3.7 As explained in the main ES, assets within the study area are referenced with a unique reference code and where assets are affected by the amendment the reference is included. Further detail on these assets can be found in the Gazetteer in the main ES Volume 5, Appendix CH-002-021.
- 53.3.8 The amendment is located approximately 100m from Upper House Farm, which is located in CFA20 (asset No. CWM105 - as referenced in the main ES Volume 5 Appendix CH-002-020). This is a non-designated farmhouse of moderate value which comprises a 19th century courtyard plan farmstead set on an elevated position with views to the east in an isolated rural location.

Effects arising during construction

- 53.3.9 The original scheme would result in a temporary low adverse impact to the setting of Upper House Farm (CWM105), an asset of moderate value located in CFA20. Although the revised scheme is closer to Upper House Farm, and will further alter the characteristics of the buildings setting, the assessment will remain unaltered as a temporary minor adverse effect.

Effects arising from operation

- 53.3.10 There will be no new or changed operational impacts as a result of the amendment and the moderate adverse effect on the setting of Upper House Farm (CWM105) as a result of the original scheme will remain unaltered by the revised scheme.

Mitigation and residual effects

- 53.3.11 Impacts on archaeological remains will be addressed in accordance with the provisions set out in the draft Heritage Memorandum and draft CoCP which will be adopted to control impacts on cultural heritage assets (see Volume 5: Appendix CT-003-000 of the main ES).
- 53.3.12 The amendment will result in no change in the residual likely significant effects reported in the main ES.

53.4 Summary

- 53.4.1 The additional land required temporarily for earthing and fibre optic ducting does not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA21, Drayton Bassett, Hints and Weeford), with the exception of the assessment results for agriculture, forestry and soils where one revised likely significant effect has been identified. There is a change to the magnitude of the impact on Holding CFA21/18 (Shirrall Hall Farm), which increases to medium, increasing the temporary construction effect from minor adverse to moderate adverse, which is significant.
- 53.4.2 It should be noted that the assessment has been based on the use of the whole 100m wide corridor as a worst case assumption, and the actual land required for fibre optic cable ducting is likely to be substantially less.

54 Access for utility works along Bangley Lane (AP1-021-041)

54.1 Overview of amendment

- 54.1.1 The Bill provides access for construction traffic from the A453 Sutton Road along Bangley Lane to undertake overhead power line diversions to the north-west and south-east of Bangley Lane (refer to main ES map CT-05-118 and CT-05-118-R1 in Volume 2, CFA21 Map Book). Since submission of the Bill it has been identified that an additional section of Bangley Lane needs to be added to the Bill to allow access from the A453 Sutton Road onto the lane, and the access needs to be extended from the limits previously shown in main ES map CT-05-118-R1 to the Bangley Lane overbridge diversion. The land required for this amendment is approximately 0.4ha. Access is required both during construction and for ongoing maintenance requirements (refer to maps CT-05-118 and CT-05-118-R1 in AP ES, Volume 2 Map Book, Part 5).
- 54.1.2 The extension of rights over Bangley Lane for construction and maintenance access is not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topic.

54.2 Summary

- 54.2.1 The extension of rights over Bangley Lane does not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES, Volume 2: CFA21, Drayton Bassett, Hints and Weeford.

55 Access for utility works between Green Barns Lane and the gravel pits east of the M6 toll (AP1-021-042)

55.1 Overview of amendment

- 55.1.1 The main ES assessed temporary access from Green Barns Lane and the A38 London Road to three pylons located between Green Barns Lane and the gravel pits east of the M6 toll, which is required in order to undertake works to the pylons and overhead power lines (refer to main ES maps CT-05-120-L1 and CT-05-120-L2 in Volume 2 CFA21 Map Book).
- 55.1.2 Since submission of the Bill it has been identified that the land required for this temporary construction access was not shown on the Bill plans, hence the need for this amendment. One of the access track alignments that was assessed in the main ES has been slightly realigned to use an existing track. The land affected by this amendment is approximately 2.5ha (refer to maps CT-05-120-L1 and CT-05-120-L2 in AP ES Volume 2 Map Book Part 5). The duration of the use of the access tracks in this area is anticipated to be approximately four months.
- 55.1.3 The amendment to the Bill plans and the slight realignment of one of the tracks is not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics.

55.2 Summary

- 55.2.1 The amendment to the Bill plans and the slight realignment of one of the tracks does not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES, Volume 2: CFA21, Drayton Bassett, Hints and Weeford.

56 Access and land required for utility works west of Brockhurst Lane (AP1-021-043)

56.1 Overview of amendment

- 56.1.1 The Bill provides for overhead power line diversions terminating at the gravel pits east of the M6 toll, including an area for winching (refer to map CT-05-120-L1 in the main ES Volume 2 CFA21 Map Book). Since submission of the Bill it has been identified that the area shown for winching power lines running eastwards from the gravel pits needs to be in line with power lines to the east of the tower (not in the direction of power lines to the west). The land required is outside the original limits of the Bill, hence the need for this amendment. The amendment will entail including a small additional area of land on the north side of the western extent of land already included in the Bill, and the removal of a corresponding area from the southern side (refer to map CT-05-120-L1 in the AP ES Volume 2 Map Book Part 5). The area of land being added, and the area of land being removed by this amendment, are both approximately 0.3ha, and lie in an area of sand and gravel extraction. There are water bodies present within the quarry. However, these are temporary and transient features and it is not possible to

predict where these will be at the time the works take place due to the ongoing operation of the quarry. Works will not be conducted within any water bodies. The area of the amendment proposed is precautionary to ensure sufficient flexibility to ensure provision of a platform for winching without affecting water bodies. Fencing will be erected around any water bodies present to avoid effects upon them.

- 56.1.2 In addition, temporary access is required to the realigned winching site from the existing access track from the A38 London Road, utilised as part of AP1-021-042.
- 56.1.3 The amendment to the Bill plans to show this required temporary access is not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics.
- 56.1.4 The adjustment to the winching area is not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to: agriculture, forestry and soils; air quality; community; cultural heritage; land quality; landscape and visual assessment; socio-economics; sound, noise and vibration; traffic and transport; and water resources and flood risk assessment. However, there are changes where reassessment is considered to be required in respect of ecology and this is considered further below.

56.2 Ecology

Scope, assumptions and limitations

- 56.2.1 The assessment scope for ecology is as set out in Volume 1 of the AP ES. The key assumptions and limitations, and the methodology for determining significance of effects is as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 56.2.2 The land required for the amendment is immediately adjacent to land currently required under the Bill. The ecological baseline of the area has been based on field data collated for the main ES on land surrounding the area, aerial photography, and relevant existing information gathered from national organisations and from regional and local sources including the Staffordshire Ecological Record.
- 56.2.3 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.
- 56.2.4 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the revised scheme.

Environmental baseline

- 56.2.5 A summary of the baseline information relevant to the assessment of the amendment is provided below. For those receptors described in the main ES, further details are provided in Volume 2, CFA21, Section 7.3 and in Volume 5, including Maps EC-01 to EC-12, Map Book Ecology.

Designated sites

- 56.2.6 There are no statutory or non-statutory designated sites within 500m of the amendment.

- 56.2.7 Weeford Park ancient replanted woodland, which is of county/metropolitan value, is within 165m of the amendment. There are no other areas of ancient woodland relevant to the assessment.

Habitats

- 56.2.8 The land to be affected by the winching area is within a sand and gravel quarry. The southern end of the quarry, close to the amendment area, has been viewed from a public right of way. This area appears to be dominated by bare sand with ruderal plants and sparse, short vegetation and includes several ponds within 500m of the amendment. The footprint of the amendment is likely to include at least one water body.
- 56.2.9 The habitats within the sand and gravel quarry, which include the land required for the amendment are assessed as being of local/parish value within the main ES.

Protected and/or notable species

- 56.2.10 There are no relevant records of protected species within 500m of the amendment.
- 56.2.11 Water bodies within the sand and gravel quarry could support breeding populations of great crested newt. Using a precautionary approach, it is assumed water bodies within the quarry may support populations of great crested newts of medium population size class which would be of up to county/metropolitan value.
- 56.2.12 Given the habitat present, there is the potential for the quarry to support notable breeding bird species such as little ringed plover (which are protected under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended)). A breeding population of little ringed plover in this location would likely be of up to country/metropolitan value.

Effects arising during construction

Avoidance and mitigation measures

- 56.2.13 There are no specific measures included as part of the amendment to avoid or reduce impacts to features of ecological value on the land required for the amendment.
- 56.2.14 The assessment assumes implementation of appropriate mitigation measures described within the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES).

Designated sites

- 56.2.15 The main ES reported that the original scheme could be carried out with no impact to Weeford Park ancient replanted woodland. No additional impacts on the ancient replanted woodland at Weeford Park will occur as a result of the amendment.
- 56.2.16 No impacts on designated sites are anticipated as a result of the amendment.

Habitats

- 56.2.17 The habitats within the land required for the amendment are valued at a local/parish level and the loss of habitats was reported within the ES as a local/parish effect and was not significant. The amendment would result in terrestrial habitat losses of up to 0.3ha if all vegetation within the land required was lost. The same area of similar habitat was reported as being lost within the main ES and this has now been removed

as part of the amendment. Therefore this amendment would not change the local/parish effect as reported in the main ES and would not be significant.

- 56.2.18 There would be no loss of water bodies within the sand and gravel quarry and consequently no additional effects on water bodies are anticipated to those reported in the main ES.

Species

- 56.2.19 If great crested newt are present then up to 0.3ha of terrestrial habitat used by great crested newt within the land required could be lost. There would be no loss of water bodies as a result of the amendment. As a consequence there will be no loss of breeding aquatic habitat used by great crested newt.
- 56.2.20 The main ES reported that, should amphibians be present within water bodies, the original scheme could result in an adverse effect on the conservation status of amphibian populations which would, in each case, be significant at up to a county/metropolitan level. Assuming great crested newt are present, implementation of measures within the draft CoCP would ensure there would be no killing or injury of newts as a result of the amendment. Trapping and translocation of terrestrial habitat which supports great crested newt and fencing off the water bodies to avoid impacts on breeding habitat would be undertaken in accordance with the principles of ecological mitigation identified within the SMR Addendum of the main ES (Volume 5: Appendix CT-001-000/2). Given the small scale of terrestrial habitat loss and the fact that no breeding habitat for great crested newt would be lost, the amendment would be unlikely to result in any change to the significant effects reported in the main ES.
- 56.2.21 Winching could disturb breeding little ringed plover, if present, and cause them to abandon nests which could result in an effect that would be significant at up to a county/metropolitan level. This effect is additional to those reported in the main ES.

Mitigation and residual effects

Other mitigation measures

- 56.2.22 Measures to avoid likely significant impacts on breeding birds, should they be present, will be carried out in accordance with the principles of ecological mitigation identified within the SMR Addendum of the main ES (Volume 5: Appendix CT-001-000/2). This will involve conducting both vegetation clearance and winching outside of the breeding bird season.

Residual effects

- 56.2.23 The amendment will result in no change in the residual likely significant effects reported in the main ES.

Effects arising from operation

- 56.2.24 There are no new or different operational effects for ecology as a result of the proposed amendment.

56.3 Summary

- 56.3.1 Prior to mitigation the adjustment to the winching area may give rise to additional impacts upon breeding birds, such as little ringed plover, which may use the sand and

gravel quarry. This could result in a significant effect at up to a county/metropolitan level. However, following appropriate mitigation, there are no anticipated residual significant ecological effects.

- 56.3.2 The amendment does not change the likely significance of residual environmental effects or proposed mitigation as set out in the main ES, Volume 2: CFA21, Drayton Bassett, Hints and Weeford.

57 Access and additional land required for utility works near the junction of the A5148 and A38 (AP1-021-044)

57.1 Overview of amendment

- 57.1.1 The Bill provides land for overhead power line diversions, near the roundabout junction of the A5148, the A38 and the A5026 to the south of Lichfield. Since submission of the Bill it has been identified that temporary scaffolding to support netting is required to provide protection to the A38/A5148 road during the diversions. A new access route is also required off the A5206 London Road, to reach the land required for utility works on the west side of the A38/A5148 (refer to map CT-05-124a-L2 in AP ES Volume 2 Map Book Part 5). The area of land required for this amendment is approximately 1.7ha.
- 57.1.2 As shown on AP map CT-05-124a-L2, the land required for this temporary scaffolding is outside the original limits of the Bill, hence the need for this amendment. The additional land required is close to Freeford Farm, adjacent to land currently required under the Bill for overhead power line diversions, where they cross the A38/A5148 trunk road. The land includes a small stream. Ground preparation is likely to be required to erect the scaffolding safely, and this could require the need for intrusive foundations, but this will be kept to the agricultural fields on either side of the A38/A5148, and no vegetation removal within either the highway verges or adjacent woodland will be required. There will also be a small amount of vegetation clearance required where the new access route comes off the A5206, comprising the removal of approximately 10m of the existing hedge. The duration of the works in this area, including erection of scaffolding and the access route, is anticipated to be approximately two months.
- 57.1.3 The temporary scaffolding and additional land required for the working area and access are not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to: agriculture, forestry and soils; air quality; community; cultural heritage; land quality; landscape and visual assessment; socio-economics; sound, noise and vibration; traffic and transport; and water resources and flood risk assessment. However, there are changes where reassessment is considered to be required in respect of ecology and this is considered further below.

57.2 Ecology

Scope, assumptions and limitations

- 57.2.1 The assessment scope for ecology is as set out in Volume 1 of the AP ES. The key assumptions and limitations, and the methodology for determining significance of effects is as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES.
- 57.2.2 The additional land required is adjacent to land currently required under the Bill for works to the overhead power lines. The ecological baseline of the area has been based on field data collated for the main ES on land surrounding the area, aerial photography, and relevant existing information gathered from national organisations and from regional and local sources including the Staffordshire Ecological Record.
- 57.2.3 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.
- 57.2.4 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.

Environmental baseline

- 57.2.5 A summary of the baseline information relevant to the assessment of the amendment is provided below. For those receptors described in the main ES, further details are provided in Volume 2, CFA21, Section 7.3 and in Volume 5, including Maps EC-01 to EC-12, Map Book Ecology. The area of the amendment is outside of the area shown on plans within the main ES.

Designated sites

- 57.2.6 There are no designated sites or ancient woodland within 500m of the amendment.

Habitats

- 57.2.7 The area is close to the A38/A5148 and the A5206 London Road. The amendment area for scaffolding includes parts of the highway embankments including trees, shrubs, and tall herb and grass. The majority of habitat along the proposed access track from the A5206 London Road is existing track (hardstanding) and arable land although it crosses a hedgerow on the boundary between the existing access track and the adjacent arable field.
- 57.2.8 The arable land within the area was assessed in the main ES as of negligible value. Due to the wildlife corridors created by hedgerows, the hedgerow network within the area was assessed in the main ES as of district/borough value. The other habitat types were each assessed as being of up to local/parish value.

Protected and/or notable species

- 57.2.9 The only records for notable species within 500m of the revised scheme are records of badger deaths on the A38 slip roads, one of which is approximately 200m from the proposed scaffolding area near the A5148 slip road and one within 50m of the

proposed access track off the A5206 London Road. There could be a badger social territory in the vicinity, which would be up to local/parish value.

- 57.2.10 There is no record of bat roosts within at least 500m of the amendment. From a review of aerial photography and photos along the road verges, the majority of the trees within the land required for the scaffolding area are immature or semi-mature birch with small diameter trunks and are unlikely to support roosting bats. These trees are on the edge of a busy road which will create noise and light disturbance to any bats present. If present, it is likely that any tree roost would be a summer non-breeding roost used by commoner bat species such as pipistrelle bats. There are no trees within the amendment area for the access track. It is possible that bats could use the habitat within the amendment for foraging and commuting although bats using these open habitats near a busy road would likely be commoner species. If an assemblage of bats were using these habitats, it would likely be of local/parish value.
- 57.2.11 The majority of the habitat within the land required for the amendment provides sub-optimal habitat for common reptiles, such as slow worm, as it is ploughed arable farmland, bare earth, or managed grassland and scattered trees on the edge of a busy road. However, the embankments on the A38/A5148, which support grass, ruderal, scrub and trees could support a small population of common reptiles which would be of local/parish value.
- 57.2.12 There are no water bodies that are suitable for amphibians within 500m of the amendment.

Effects arising during construction

Avoidance and mitigation measures

- 57.2.13 There are no specific measures included as part of the amendment to avoid or reduce impacts to features of ecological value on the land required for the amendment.
- 57.2.14 The assessment assumes implementation of the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES).

Designated sites

- 57.2.15 The amendment will result in no additional impacts to designated sites or ancient woodland. The conclusions of the main ES are therefore unchanged.

Habitats

- 57.2.16 There would be no vegetation clearance required within the footprint of the amendment to allow safe erection of scaffolding. Ground preparation for the scaffolding will only affect agricultural land. The proposed access to the scaffolding will require up to 10m of hedgerow removal at the boundary between the existing access track and arable fields. There will be no loss of trees or scrub.
- 57.2.17 The main ES reported that the combined loss and severance of hedgerows within the area will cause an adverse effect on the conservation status of hedgerows which will be significant at a district/borough level. The amendment will affect a small additional amount of hedgerow to that reported in the main ES and will not result in any change to the likely significant effects reported within the main ES.

Species

- 57.2.18 Assuming implementation of measures within the CoCP, there would be no killing or injury of protected species as a result of the amendment.
- 57.2.19 The main ES did not report any significant effects on assemblages of bats in the area of the amendment. There will be no loss of trees and bat roosting habitat will not be affected as a result of the amendment. There will be minimal loss of hedgerow habitat and no effect on commuting or foraging bats is anticipated. There will be no additional effect on bats to those reported in the main ES.
- 57.2.20 The main ES did not report any significant effects on populations of reptiles or on badgers in the area of the amendment.
- 57.2.21 Measures to avoid killing or injury of reptiles or disturbance to badgers using setts will be carried out in accordance with the principles of ecological mitigation identified within the SMR Addendum of the main ES (Volume 5: Appendix CT-001-000/2).
- 57.2.22 For badgers this could include the temporary closure of setts. For reptiles this could include translocation of animals to suitable habitat outside the land required.
- 57.2.23 Due to the minimal vegetation clearance required and the majority of land required being arable land or existing track there are no additional effects on reptiles or badgers to those reported in the main ES.

Mitigation and residual effects

Other mitigation measures

- 57.2.24 No additional or different mitigation is required for this amendment.

Residual effects

- 57.2.25 The amendment will result in no change in the residual likely significant effects reported in the main ES.

Effects arising from operation

- 57.2.26 There are no new or different operational effects for ecology as a result of the proposed amendment.

57.3 Summary

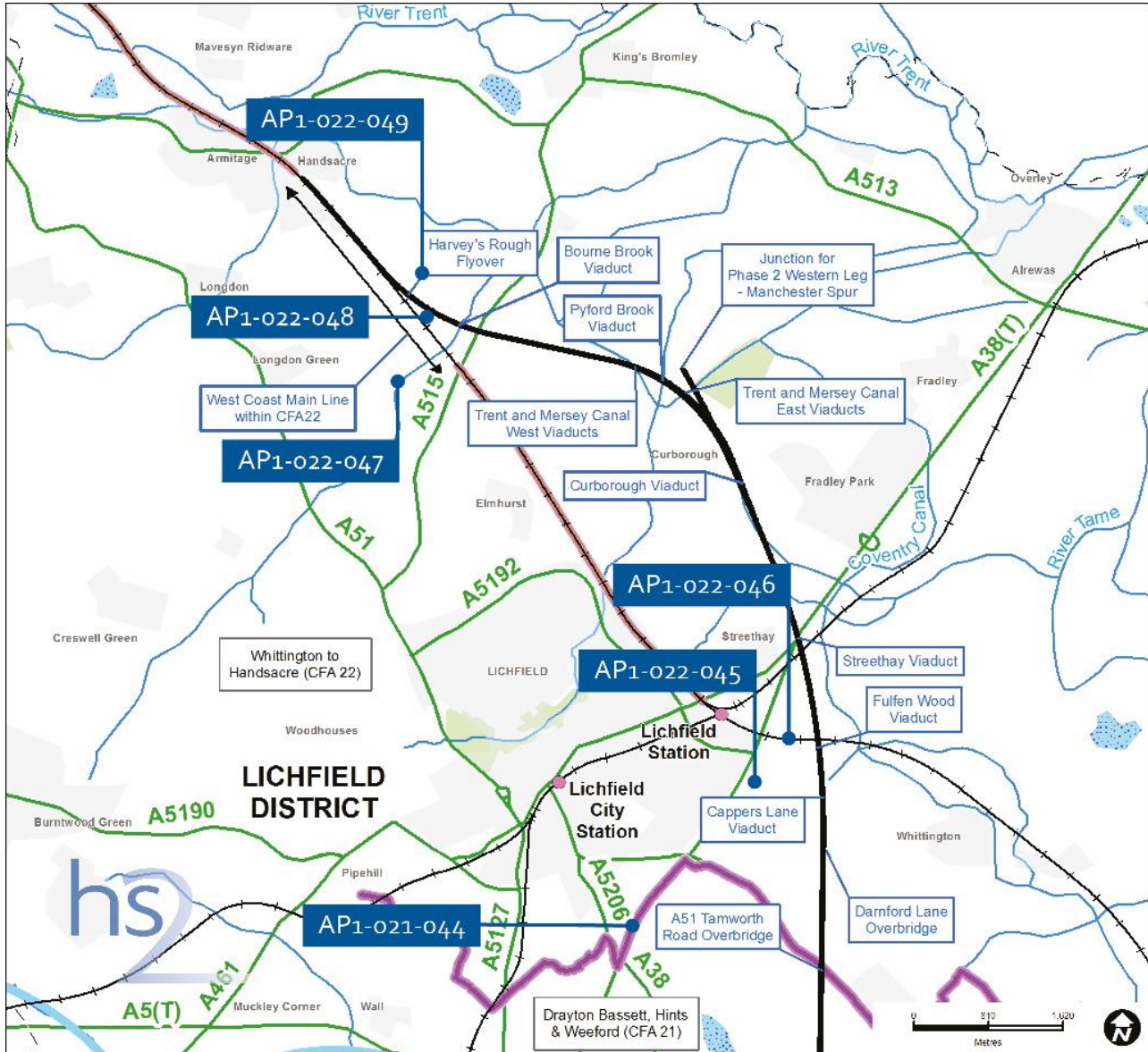
- 57.3.1 The temporary scaffolding and additional land required for the working area and access do not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES, Volume 2, CFA21, Drayton Bassett, Hints and Weeford.

CFA22, Whittington to Handsacre

58 Overview of the amendments

58.1.1 Table 37 provides a summary of the amendments in the Whittington to Handsacre area, CFA22 and Figure 17 shows the locations.

Figure 17: Locations of amendments in the Whittington to Handsacre area



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Table 37: Summary of amendments for the Whittington to Handsacre area (CFA22)

CFA	Amendment	Description of the Original Scheme	Description of the Revised Scheme
22 (and 21)	Access and land required for utility works near the junction of A5148 and A38. AP1-022-044	The temporary diversion of overhead power lines near the roundabout junction of the A5148, the A38 and the A5026 to the south of Lichfield.	The temporary erection of scaffolding over the A5148/A38 to protect the road during the works to the overhead power line. In addition a new temporary access route is required off the A5206 London Road to reach the land required for the utility works on the west side of the A38/A5148. This amendment is described and assessed in AP ES Volume 2, CFA21.
22	Additional land and temporary rights required in the vicinity of Fulfen Farm. AP1-022-045	The temporary diversion of overhead power lines near the A38 Rykneld Street between Cappers Lane and Darnford Lane.	The temporary erection of scaffolding at Fulfen Farm to protect the property during the construction works, and temporary rights to allow the potential swing of temporarily diverted overhead power lines, partly oversailing Fulfen Farm properties.
22	Land temporarily required in vicinity of the WCML. AP1-022-046	Land for construction adjacent to the Rykneld Street, Capper's Lane and the WCML.	Land is required temporarily to enable the erection of scaffolding and netting over the WCML for the protection of the WCML during overhead power line diversions. The land required was assessed in the main ES but omitted from the Bill plans. The land required has now been added to the Bill plans.
22	Additional land required, and removal of a similar area, near Hanch Reservoir. AP1-022-047	The temporary diversion of overhead power lines near Lichfield Road/Lichfield Golf Club, with an area for winching beneath and aligned with the power lines south west of the alignment which crosses Hanch Reservoir.	The temporary use of an alternative area of land to carry out the winching works south west of Hanch Reservoir and north of Lichfield Golf Club, aligned with the run of power lines which cross Hanch Reservoir, and removal from the Bill of areas no longer required for winching.
22	Additional land and temporary rights required in the vicinity of Hanch Hall Farm and Shaw Lane Farm. AP1-022-048	The temporary diversion of overhead power lines near Lichfield Road.	The temporary use of additional land in the area of Hanch Hall Farm for the purpose of erecting scaffolding to protect the properties during the construction works. Temporary rights to allow the potential swing of diverted overhead power lines in two areas: partly oversailing properties including Hanch Hall Farm, and land 200m east of Shaw Lane Farm, immediately adjacent to land identified in the Bill for construction works.

CFA	Amendment	Description of the Original Scheme	Description of the Revised Scheme
22	Additional land required north-east of Tuppenhurst Lane. AP1-022-049	Temporary diversion of overhead power lines to the east of Shaw Lane.	The temporary use of additional land north of Shaw Lane Farm, between Shaw Lane and Tuppenhurst Lane to access three pylons to undertake earthing works associated with the temporary diversion of overhead power lines to the east of Shaw Lane.

59 Additional land and temporary rights required in the vicinity of Fulfen Farm (AP1-022-045)

59.1 Overview of amendment

- 59.1.1 The Bill provides for the diversion of overhead power lines near the A38 Rykneld Street between Cappers Lane and Darnford Lane. Since submission of the Bill it has been identified that additional land is required temporarily to enable scaffolding to be erected to protect structures during the diversion works. In addition, temporary rights are required to allow for the potential swing of diverted overhead power lines, partly oversailing Fulfen Farm properties (refer to map CT-05-124b-L1 in the main ES Volume 2 CFA22 Map Book).
- 59.1.2 As shown on map CT-05- 124b-L1 in AP ES Volume 2 Map Book Part 5, the additional land required is outside the original limits of the Bill, hence the need for this amendment. The additional land required is approximately 0.3ha, adjacent to land currently required under the Bill at Fulfen Farm for the diversion works on the overhead power lines. Vegetation clearance and ground preparation will only be required within the footprint of the scaffolding to allow for its safe erection. The duration of the works in this area, including erection of scaffolding, is anticipated to be about two months.
- 59.1.3 The temporary rights to allow for the potential swing of the overhead power lines are not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics.
- 59.1.4 The additional temporary land requirement, working area and temporary scaffolding are not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to: agriculture, forestry and soils; air quality; community; ecology; land quality; landscape and visual assessment; socio-economics; sound, noise and vibration; traffic and transport; and water resources and flood risk assessment. However, there are changes where reassessment is considered to be required in respect of cultural heritage and this is considered further below.

59.2 Cultural heritage

Scope, assumptions and limitations

- 59.2.1 The assessment scope, key assumptions and limitations for the cultural heritage assessment are the same as those for the main ES, as set out in Volume 1, the SMR (Appendix CT-001-000/01) and the SMR Addendum (Appendix CT-001-000/02) of the main ES.
- 59.2.2 Topsoil removal may be required to create a level platform for the scaffolding which could be needed around the property. It is assumed that all archaeological remains and earthworks within the footprint of the scaffolding platform will be removed or disturbed.

- 59.2.3 Information on the potential archaeological remains at this location is based on desk based research sources including the historic environment record (HER), historic maps and aerial photographs and non-intrusive surveys comprising LiDAR and hyperspectral survey).
- 59.2.4 The temporary rights which are required to allow for the potential swing of diverted overhead lines will not have a physical impact.

Environmental baseline

- 59.2.5 Detailed information on the environmental baseline and the assets summarised below is contained within Volume 2, CFA22, Chapter 6 and Volume 5, CFA22, Appendices CH-001-022, 002-022, 003-022 and 004-022 and associated Map Books of the main ES.
- 59.2.6 As described in the main ES, assets within the study area are referenced with a unique reference code WHAXXX and where assets are affected by the amendment the reference is included. Further detail on these assets can be found in the Gazetteer in Volume 5, Appendix CH-002-022 of the main ES.
- 59.2.7 The revised scheme is located within an area of potential archaeological deposits associated with a former medieval settlement at Fulfen (WHA307 - as described in Volume 5, Appendix CH-002-022), an asset of moderate value, and is within the boundaries of the historic Fulfen Farm (WHA032 - as described in Volume 5, Appendix CH-002-022), a 19th century farmhouse with modern additions.

Effects arising during construction

- 59.2.8 Construction work associated with the original scheme would have no impact on the archaeological remains of medieval Fulfen (WHA307). The amendment may require ground disturbance within the boundaries of medieval Fulfen (WHA307) as a result of topsoil removal or earthworks to create a level platform for scaffolding. This may result in the loss of archaeological remains of moderate value, leading to a medium adverse change and permanent moderate adverse effect. The revised scheme will be a change to the effect reported in the main ES for the original scheme, as this is a new likely significant effect on an asset which was previously unaffected by the original scheme.
- 59.2.9 There will be no likely significant effects on Fulfen Farm (WHA032) as a result of the revised scheme.

Effects arising from operation

- 59.2.10 The temporary nature of the works means there will be no additional operational impacts.

Mitigation and residual effects

- 59.2.11 Impacts on archaeological remains will be addressed in accordance with the provisions set out in the draft Heritage Memorandum and draft Code of Construction Practice (CoCP) which will be adopted to control impacts on cultural heritage assets (see Volume 5: Appendix CT-003-000 of the main ES).

- 59.2.12 Further mitigation through design could include the potential for creating a level platform for scaffolding which will not require ground disturbance thereby preserving the buried archaeological deposits. For the purposes of the assessment a reasonable worst case is assumed where this mitigation cannot be incorporated.
- 59.2.13 The residual effect on potential archaeological remains associated with medieval Fulfen (WHA307) will be a permanent moderate adverse effect. This will be a new likely significant effect as a result of the amendment.

Volume 5 amendments

- 59.2.14 Table 38 and Table 39 sets out the change to the main ES, Volume 5 Appendix CH-03-022, as a result of the amendment.

Table 38: Volume 5 amendments

Paragraph No./Table Ref.	Existing cultural heritage assessment text	Amendment to cultural heritage assessment text
Appendix CH-03-022, Table 1 (Impact Assessment Table).	Not applicable - there is no entry in the original table as this is a new likely significant effect.	A new row to be added to the table to demonstrate that the revised scheme could result in a permanent, adverse, moderate effect on the archaeological remains of medieval Fulfen during the construction phase. The new table row is provided below (see Table 39).

Table 39: Amendments to Appendix CH-03-022, Table 1, Impact Assessment Table - Addition of New Row

Unique identifier	Name	Designation(s)	Value	Construction impact			Operation impact		
				Nature of impact including mitigation	Scale of impact	Effect	Nature of impact including mitigation	Scale of impact	Effect
WHA307	Medieval Fulfen.	N/A	Moderate	The amendment may require ground disturbance within the boundaries of medieval Fulfen (WHA307) as a result of topsoil removal or earthworks to create a level platform for scaffolding. This may result in the loss of archaeological remains of moderate value, leading to a medium adverse change and permanent moderate adverse effect.	Medium adverse.	Permanent Moderate adverse.	No impact on significance.	No change.	Neutral

59.3 Summary

- 59.3.1 The ground disturbance for the scaffolding works during construction will result in a permanent medium adverse impact on the archaeological remains of medieval Fulfen (WHA307 - as referenced in the main ES Volume 5 Appendix CH-002-022), resulting in a permanent moderate adverse effect. This is a new likely significant effect on an asset which was previously unaffected by the original scheme.

60 Land temporarily required in vicinity of the West Coast Main Line (WCML) (AP1-022-046)

60.1 Overview of amendment

- 60.1.1 The Bill provides land for construction adjacent to A38 Rykneld Street, Cappers Lane and the WCML (refer to map CT-05-125, H8 in the main ES Volume 2 CFA22 Map Book). Since submission of the Bill it has been identified that the area over the WCML was not included in the Bill plans. This is required for temporary rights to provide scaffolding and netting to allow protection of the WCML during overhead power line diversions. The land required for this temporary scaffolding, approximately 0.1ha, is outside the original limits of the Bill, hence the need for this amendment. However, the land indicated is already shown within land required for construction on the CT-05 map series, between the extensive area of Streethay construction sidings to the north and Capper's Lane main compound to the south, and has therefore already been assessed in the main ES. In summary, the original scheme has not changed, however the land required has now been added to the Bill. The duration of the overhead power line diversion and erection of temporary scaffolding in this area is anticipated to be about two months.
- 60.1.2 The inclusion of the temporary use of land to erect scaffolding over the WCML in the Bill is not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topic.

60.2 Summary

- 60.2.1 The inclusion of the temporary use of land to erect scaffolding over the WCML in the Bill does not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA22: Whittington to Handsacre).

61 Additional land required, and removal of a similar area, near Hanch Reservoir (AP1-022-047)

61.1 Overview of amendment

- 61.1.1 The Bill provides for overhead power line diversions to the south west of Hanch Reservoir, with an area of land partly within Lichfield Golf club included for winching works, aligned beneath the power lines which run north-east to south-west away from Hanch Reservoir. Since submission of the Bill it has been identified that the winching works area is required to be aligned with the power lines which cross Hanch Reservoir. Therefore, a different location for the temporary land for winching is required, to align with the power lines which cross Hanch Reservoir, together with removal of the area of land identified for the winching work in the Bill (refer to map CT-05-129a-L1 in AP ES Volume 2 Map Book Part 5). The area of temporary land required for the amendment is approximately 0.1ha, and the area to be removed from the Bill is approximately 0.3ha.
- 61.1.2 As shown on AP map CT-05-129a-L1, the land required for the winching works is outside the original limits of the Bill, hence the need for this amendment. The additional land required is located immediately to the south of the land included on the Bill plans, south west of Hanch Reservoir and immediately north of Lichfield Golf Club, adjacent to land currently identified within the Bill. Bourne Brook runs across the area of land required for the amendment, but there will be no physical works within Bourne Brook or its banks, and no requirement to cross the Brook, remove any mature trees, or enter Lichfield Golf Club. The winching will be carried out in the agricultural land identified adjacent to land already within the Bill. Vegetation clearance will be required within the agricultural land identified but will not include removal of any hedgerow vegetation. Topsoil removal and placement of temporary surfacing will also be required, as would have been the case on the area of land being removed from the Bill. The amendment will allow the removal of the area of land from the Bill which was previously included to allow for winching, since the additional land identified in this amendment will replace it. The duration of the winching in this area, is anticipated to be about two months.
- 61.1.3 The additional temporary land required for winching south west of Hanch Reservoir and the deletion of a similar area from the Bill are not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics.

61.2 Summary

- 61.2.1 The additional temporary land requirement for winching near Hanch Reservoir and the deletion of a similar area from the Bill do not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA22: Whittington to Handsacre).

62 Additional land and temporary rights required in the vicinity of Hanch Hall Farm and Shaw Lane Farm (AP1-022-048)

62.1 Overview of amendment

- 62.1.1 The Bill provides for temporary overhead power line diversion works in the vicinity of Hanch Hall Farm and Shaw Lane Farm. Since submission of the Bill, it has been identified that approximately 0.4ha of additional land is required temporarily.
- 62.1.2 Two areas have been identified where temporary rights are required to allow for the potential swing of the temporarily diverted overhead power lines (refer to map CT-05-129 in the AP ES Volume 2 Map Book Part 5). The southern area partly oversails Hanch Hall Farm, and the northern area oversails a pond. In order to protect buildings at Hanch Hall Farm during the diversion works, scaffolding will be erected and protective netting hung from the scaffolding over the buildings. No physical works to the buildings are required and no scaffolding will be required in the northern area over the pond. Vegetation clearance and ground preparation will be required within the footprint of the scaffolding to allow its safe erection but no hedgerow removal will be required.
- 62.1.3 The land required for the temporary scaffolding and oversailing is outside the original limits of the Bill, hence the need for this amendment.
- 62.1.4 The duration of the entirety of the works in this area, including utility diversion works, erection and dismantling of scaffolding, is anticipated to be approximately two months.
- 62.1.5 The temporary rights to allow for the potential swing of the overhead power lines are not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics.
- 62.1.6 The additional temporary land required and temporary scaffolding is not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to: air quality; community; cultural heritage; land quality; landscape and visual assessment; socio-economics; sound, noise and vibration; traffic and transport; and water resources and flood risk assessment. However, there are changes where reassessment is considered to be required in respect of agriculture, forestry and soils; and ecology and this is considered further below.

62.2 Agriculture, forestry and soils

Scope, assumptions and limitations

- 62.2.1 The assessment scope, key assumptions and limitations for the agriculture, forestry and soils assessment are the same as those for the main ES, as set out in Volume 1,

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

62.2.2 The assessment is informed solely by information gathered through desk study.

Environmental baseline

62.2.3 The amendment affects land used for agricultural purposes: farm buildings associated with Hanch Hall Farm (CFA22/40). This holding is a 21ha livestock (cattle) enterprise, considered to be of medium sensitivity to change. The farm buildings are adjacent to the B5014 Lichfield Road (at NGR SK 103 139).

Effects arising during construction

62.2.4 The amendment will potentially result in disturbance of agricultural operations around the farm buildings (e.g. by restricting cattle and machinery movements) throughout the duration of the works (anticipated to be approximately two months). Agricultural land is unlikely to be significantly disturbed by these activities. Following the methodology in the main ES, the construction effects of this disturbance are considered negligible, and not significant.

62.2.5 The amendment will result in no change in the likely significant effects reported in the main ES for construction.

Effects arising from operation

62.2.6 No significant operational effects on agriculture, forestry and soils have been identified for this amendment.

Mitigation and residual effects

62.2.7 Compliance with the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES) (measures to maintain access to farm buildings and minimise disturbance to farming activities) as well as standard industry procedures will avoid or reduce the impact of the amendment on farming operations around the farm buildings at Hanch Hall Farm.

62.2.8 Following construction the land will be restored to its former agricultural use. Restoration will be undertaken following the best practice guidance for handling soil, as set out in the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES). The soil handling will involve stripping, storing and reinstating topsoils on land required for the temporary works. Therefore, it is predicted there will be no permanent residual effects to agriculture, forestry and soil receptors as a result of the amendment.

62.3 Ecology

Scope, assumptions and limitations

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

62.3.2 The ecological baseline of the two areas of additional land has been based on field data collated for the main ES on the northern area of additional land required, aerial

photography, and relevant existing information gathered from national organisations and from regional and local sources including the Staffordshire Ecological Record.

- 62.3.3 To address any limitations in data, a precautionary baseline has been built up according to the guidance reported in Volume 5: Appendix CT-001-000/2. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 62.3.4 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.
- 62.3.5 It should be noted that physical works will be required only within the area immediately surrounding the buildings at Hanch Hall Farm for the purpose of erection of the temporary scaffolding. The temporary rights for oversailing by temporarily diverted overhead power lines will not require physical works.

Environmental baseline

- 62.3.6 A summary of the baseline information relevant to the assessment of the amendment is provided below. For those receptors described in the main ES, further details are provided in Volume 2, CFA22, Section 7.3 and in Volume 5, including Maps EC-01 to EC-12, Map Book Ecology.

Designated sites

- 62.3.7 There are no statutory designated sites within 500m of the amendment.
- 62.3.8 There is one non-statutory designated site of county/metropolitan value located within 500m of the area of the amendment. John's Gorse Site of Biological Importance (SBI) lies approximately 150m south of the northern area of land required. The site consists of two areas of ancient and semi-natural broadleaved woodland. The SBI is located within land required for the construction of the original scheme. There are no other areas of ancient woodland relevant to the assessment of the amendment.
- 62.3.9 There are no other designated sites or ancient woodland relevant to the assessment.
- 62.3.10 Statutory and non-statutory designated sites are described in the main ES Volume 2, CFA22, Section 7 and are shown on Maps EC-01-064, Volume 5, Map Book Ecology of the main ES.

Habitats

- 62.3.11 The northern area of land required for the amendment consists of arable land and part of a pond surrounded by scattered scrub and trees. The arable land was reported in the main ES as having negligible value and the pond and other habitats as each having up to local/parish value. The southern area of land required includes farmyard and buildings associated with Hanch Hall Farm which are assumed to be of negligible value.
- 62.3.12 Habitats surrounding the land required for the amendment are described in the main ES, Volume 2, CFA22, Section 7 and are shown on Maps EC-01-052 to EC-01-054a, Volume 5, Map Book Ecology.

Protected and/or notable species

- 62.3.13 The northern area of land required for the amendment includes part of a pond which was subject to three surveys for great crested newt; and no great crested newt was identified. Using a precautionary approach, water bodies which have not been subject to full survey are assumed to support breeding populations of great crested newts of medium size class and are considered as being of up to county/metropolitan value. A water vole survey of this pond was undertaken and no signs of use were recorded. Water vole is assumed to be absent.
- 62.3.14 The southern area of land required is approximately 395m from a water body at Hanch Hall where the presence of great crested newt has been confirmed within Amphibian Metapopulation (AMP32). However the area of the amendment is outside of the boundary of AMP32 (defined as habitats within 250m of a breeding pond with no barriers to amphibian migration).
- 62.3.15 No other protected and/or notable species of flora or fauna have been recorded within the two areas of land required for the amendment. Bats could be present commuting and foraging in both areas and confirmed roosts are in the vicinity, but not adjacent to the amendment. There are several buildings and scattered trees associated with Hanch Hall Farm and these may have the potential to support roosting bats. If roosting bats were present within the buildings or trees, it is likely that they would form part of the assemblage identified in the main ES as '... using habitats fronting Shaw Lane and Tuppenhurst Lane including Bourne Brook, John's Gorse and Harvey's Rough' which is of district/ borough value.
- 62.3.16 Locations of species records are illustrated on Maps EC-01 to EC-12, Volume 5, Map Book Ecology of the main ES.

Effects arising during construction

Avoidance and mitigation measures

- 62.3.17 There are no specific measures included as part of the amendment to avoid or reduce impacts to features of ecological value on the land required for the amendment.
- 62.3.18 The assessment assumes implementation of the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES).

Designated sites

- 62.3.19 The main ES reported a significant effect at a county/metropolitan level on the integrity of John's Gorse SBI. No impacts are anticipated on any designated sites as a result of the amendment and therefore no change in the effects reported in the main ES is anticipated.

Habitats

- 62.3.20 The northern area for the diverted power lines is predominantly within arable land which has negligible value. The amendment area also oversails a pond, but no physical works will be required within the pond or on its banks. There will not be a need for scaffolding as there are no structures to protect; and no additional scrub or tree removal is required. Therefore there are no anticipated additional effects to those reported in the main ES.

- 62.3.21 Applying a precautionary assessment, it is assumed that there will be vegetation clearance and ground preparation required within the footprint of the southern amendment area to allow safe erection of temporary scaffolding during the diversion works. However the scaffold would be erected within the farmyard of Hanch Hall Farm which is predominantly hard standing or bare ground of negligible value. The main ES did not report any specific effects on habitat receptors in this area. The amendment will not result in any new significant effect on habitats and there will be no change to the significant effects reported within the main ES.

Species

- 62.3.22 The main ES reported no loss of water bodies within the assumed great crested newt metapopulation AMP₃₂, at Hanch Hall, but that there may be minimal loss of terrestrial habitat resulting from utilities works. The main ES concluded that this impact would not result in an adverse effect on the conservation status of the metapopulation and would not be significant. There are no expected impacts on the other assumed great crested newt metapopulations reported in the main ES as a consequence of the amendment as it only includes air rights for oversailing above ponds. The amendment would not result in a change to the effects reported in the main ES.
- 62.3.23 No significant effects were reported in the main ES for the assemblage of bats using habitats fronting Shaw Lane and Tuppenhurst Lane including Bourne Brook, John's Gorse and Harvey's Rough. Although bat populations in the wider area may utilise habitats within the area of the amendment for commuting and foraging, any vegetation losses will be minimal and no additional effects upon commuting or foraging bats are anticipated. It is assumed that the scaffolding will be erected without blocking access points to bat roosts that may be present within the building or any retained trees. Due to the height and large mesh size of the netting erected above the scaffold there are no anticipated impacts on bats due to entanglement. However, tree felling for scaffolding could remove bat roosts and there could be disturbance to any roosting bats present within the buildings of Hanch Hall Farm which, in the worst case, could lead to the abandonment of roosts. These impacts could result in an additional effect to that reported in the main ES that could be significant at up to a district/borough level.

Mitigation and residual effects

Other mitigation measures

- 62.3.24 Measures to avoid likely significant impacts on roosting bats, should they be present within trees or buildings at Hanch Hall Farm, will be carried out in accordance with the principles of ecological mitigation identified within the SMR Addendum of the main ES (Volume 5: Appendix CT-001-000/2). This would include avoiding the loss of tree roosts where possible, and compensatory provision of roosts where loss is unavoidable. Depending on the type of roost affected, the most appropriate place to locate replacement roosts within the Bill limits would be on trees along the WCML.

Residual effects

- 62.3.25 Following appropriate mitigation measures to avoid or reduce effects on roosting bats at Hanch Hall Farm, the amendment will result in no change in the residual likely significant effects reported in the main ES.

Effects arising from operation

- 62.3.26 There are no new or different operational effects for ecology as a result of the proposed amendment.

62.4 Summary

- 62.4.1 Prior to mitigation, the erection of scaffolding in the southern amendment area may give rise to additional impacts upon roosting bats at Hanch Hall Farm from felling of trees and disturbance. This could result in a significant effect at up to a district/borough level. However, following appropriate mitigation, there are no anticipated residual significant ecological effects.
- 62.4.2 The additional land required in the vicinity of Hanch Hall Farm and Shaw Lane Farm does not change the likely significance of the residual environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA22: Whittington to Handsacre).

63 Additional land required north east of Tuppenhurst Lane (AP1-022-049)

63.1 Overview of amendment

- 63.1.1 The Bill provides for overhead power line diversions to the east of Shaw Lane. Since submission of the Bill it has been identified that additional temporary land is required north of Shaw Lane Farm to provide access to, and ensure safe working areas around, existing pylons to carry out earthing during the overhead power line diversions (refer to maps CT-05-129, CT-05-129R1 and CT-05-130a in AP ES Volume 2 Map Book, Part 5).
- 63.1.2 The land required is outside the original limits of the Bill, hence the need for this amendment. The additional land required is close to Shaw Lane Farm and Tuppenhurst Lane, and adjoins land currently required under the Bill in the area of the A515 Lichfield Road underbridge main compound. The area of additional land required for this amendment is approximately 2.1ha.
- 63.1.3 The duration of the overhead power line diversion and earthing in this area is anticipated to be approximately two months.
- 63.1.4 The access and works are not considered to make changes that require a reassessment of the 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, traffic and transport; and water resources and flood risk assessment. However, there were changes where reassessment was considered to be required in respect of agriculture, forestry and soils and this is considered further below.

63.2 Agriculture, forestry and soils

Scope, assumptions and limitations

- 63.2.1 The assessment scope, key assumptions and limitations for the agriculture, forestry and soils assessment are the same as those for the main ES, as set out in Volume 1, the SMR (Appendix CT-001-000/1) and the SMR Addendum (Appendix CT-001-000/2) of the main ES.
- 63.2.2 Land required for temporary working will be 2.1ha. On completion of the works, the land will be restored to its former agricultural use.

Environmental baseline

- 63.2.3 The land affected by the amendment has soils of the Newport 1 association, comprising deep, well drained sandy loam and loamy sand soils affected by groundwater with slight seasonal waterlogging. Soils in this association are likely to be limited mainly by soil droughtiness mostly to agricultural land classification (ALC) Subgrade 3a with the possibility of some Grade 2 (i.e. best and most versatile (BMV) land).
- 63.2.4 The amendment affects land used for agricultural purposes, namely: Holding CFA22/21 (Tuppenhurst Farm). As described in the main ES (Volume 2, CFA22, section 3), this holding is a 303.5ha mainly arable enterprise which has diversified into agricultural contracting. Tuppenhurst Farm is considered to be of medium sensitivity to change.

Effects arising during construction

- 63.2.5 The disturbance during construction of agricultural land of BMV quality in CFA22 was assessed as an impact of high magnitude in the main ES.
- 63.2.6 The amendment will result in the disturbance of an additional 2.1ha of land; however, this will not change the original assessment. Hence the significance of the effect on land of BMV quality of the original scheme remains unchanged from the main ES (i.e. a moderate adverse effect, which is significant).
- 63.2.7 The main ES determined that 0.2ha of Tuppenhurst Farm will be temporarily required for construction, and that all this land will be restored to agriculture. This was assessed as a minor adverse effect during construction, which is not significant.
- 63.2.8 The amendment will result in an additional 2.1ha of land being temporarily taken out of agricultural production. This will increase the total amount of land required temporarily at Tuppenhurst Farm from 0.2ha (<1% of holding) to 2.3ha (1% of holding). Following the methodology in the main ES, the construction effect of the revised scheme on Tuppenhurst Farm remains a minor adverse effect, which is not significant.

Effects arising from operation

- 63.2.9 The main ES determined that there were no adverse significant residual effects during operation and this will not change as a result of the amendment.

Mitigation and residual effects

- 63.2.10 Following construction the land will be restored to its former agricultural use. Restoration will be undertaken following the best practice guidance for handling soil, as set out in the draft CoCP (Volume 5: Appendix CT-003-000 of the main ES). The soil handling will involve stripping, storing and reinstating topsoils on land required for the temporary works. Therefore, it is predicted there will be no residual effects to agriculture, forestry and soil receptors as a result of the amendment.

63.3 Summary

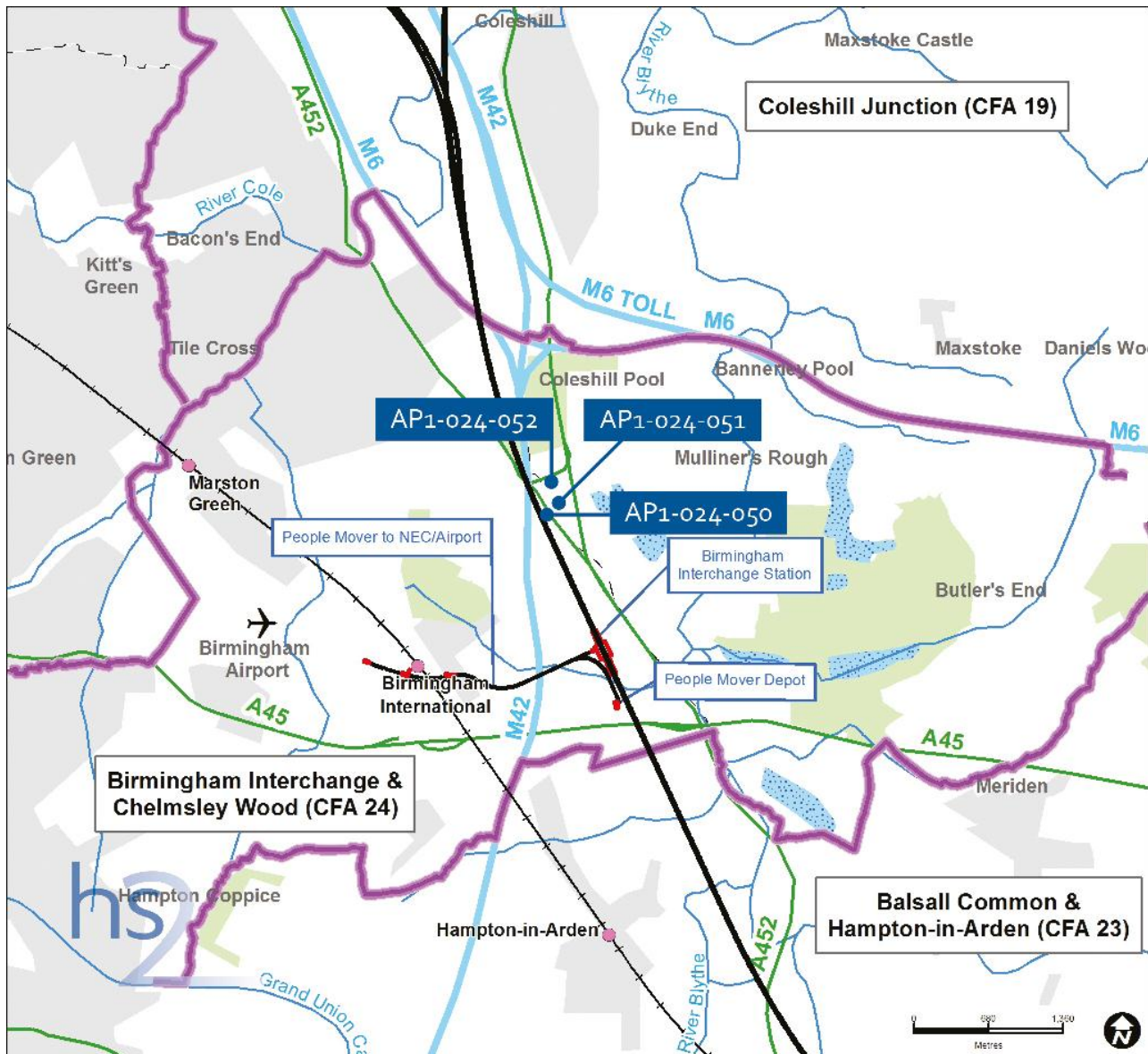
- 63.3.1 The additional land required north-east of Tuppenhurst Lane does not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA22: Whittington to Handsacre).

CFA24, Birmingham Interchange and Chelmsley Wood

64 Overview of the amendments

64.1.1 Table 40 provides a summary of the amendments in the Birmingham Interchange and Chelmsley Wood community forum area (CFA24) and Figure 18 shows the locations.

Figure 18: Locations of amendments in the Birmingham Interchange and Chelmsley Wood area



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Table 40: Summary of amendments for the Birmingham Interchange and Chelmsley Wood area (CFA24)

CFA	Amendment	Description of the original scheme	Description of the revised scheme
24	Rights to oversail at Common Farm, Bickenhill AP1-024-050	Permanent realignment of an existing high voltage overhead power line and relocation of pylons, in close proximity to Quartz Point Business Park.	It has been identified that the rights to allow the potential swing of overhead power lines above the grounds of Common Farm will be required temporarily for the realignment of the overhead power line and permanently for occasional future maintenance. This has been added to the Bill.
24	Additional land at Melbicks Garden & Leisure Centre, Coleshill AP1-024-051	Removal of an existing high voltage underground power line south of Melbicks Garden & Leisure Centre for the construction of the southbound off link and northbound on link to the A446 Stonebridge Road. Removal of part of the existing Melbicks Garden & Leisure car park for the construction of a new access to the garden centre off the A452/A446 roundabout. The existing access to the garden centre will be closed permanently. Permanent diversion of a high voltage overhead power line and provision for occasional future maintenance.	Permanent replacement car park adjacent to Melbicks Garden & Leisure Centre and reconfiguration of the existing car park. The land is required temporarily to construct the new car park and reconfigure the existing car park.
24	Additional construction traffic route at Quartz Point Business Park, Coleshill AP1-024-052	Temporary use of an existing access road to Quartz Point Business Park from the A452 Kenilworth Road to be used as a construction traffic route to permanently realign a high voltage overhead power line.	Temporary use of an additional existing access road to Quartz Point Business Park from the A446 Stonebridge Road to be used as a construction traffic route to permanently realign a high voltage overhead power line.

65 Rights to oversail at Common Farm, Bickenhill (AP1-024-050)

65.1 Overview of amendment

- 65.1.1 The High Speed Rail (London – West Midlands) Bill provides for the permanent realignment of an existing high voltage overhead power line, located in close proximity to Quartz Point Business Park.
- 65.1.2 Following deposit of the Bill it has been identified that the rights to oversail³⁴ an area of land, approximately 220m², within the grounds of Common Farm will be required temporarily for the realignment of the high voltage overhead power line and permanently for occasional future maintenance (refer to AP map CT-05-107 in AP ES Volume 2 Part 6 Map Books). The construction period will be as stated in the main ES. The requirement for rights to oversail an area of land at Common Farm is outside the original limits of the Bill, hence the need for this amendment.
- 65.1.3 The requirement for rights to oversail an area of land at Common Farm is not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any of the environmental topics.

65.2 Summary

- 65.2.1 The requirement for rights to oversail an area of land at Common Farm does not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA24: Birmingham Interchange and Chelmsley Wood).

66 Additional land at Melbicks Garden & Leisure Centre (AP1-024-051)

66.1 Overview of amendment

- 66.1.1 The Bill provides for land temporarily required at Melbicks Garden & Leisure Centre, for the removal of an existing high voltage underground power line and permanently, for the occasional future maintenance of a high voltage overhead power line. In addition, provision is made for the permanent closure of the existing access off the A452 Chester Road and the provision of a replacement access off the A452/A446 roundabout. Part of the existing car park will also be required which will result in the temporary and permanent loss of car parking spaces at Melbicks Garden & Leisure Centre. The temporary loss of 54 car parking spaces (out of 450 spaces) during construction results in a likely significant traffic and transport effect, as reported in the main ES. The permanent loss of 45 spaces was not significant as reported in the main ES.
- 66.1.2 The Bill is to be amended to include an additional area of land adjacent to Melbicks Garden & Leisure Centre required temporarily to provide car parking spaces to fully mitigate the temporary and permanent loss detailed in the main ES (refer to AP Map

³⁴ Oversail relates to the potential swing of the high voltage overhead transmission lines during installation. No ground access is required.

CT-06-106/CT-06-107 in AP ES Volume 2 Part 6 Map Books). The additional land is within the ownership of Melbicks Garden & Leisure Centre and is used occasionally for overspill car parking and storage of materials, although it has no formal planning status. The area of existing car park not already included within the Bill limits is also required temporarily to allow for any reconfiguration which may be necessary in order to integrate the replacement car parking spaces with the existing car park. The total area of land required is approximately 2.4ha. The construction of the replacement car park and reconfiguration of the existing car park is currently planned for 2017 and will take approximately three months to complete. The land required for the replacement car park and the remainder of the existing car park is outside the original limits of the Bill, hence the need for this amendment.

- 66.1.3 The utility works and the replacement access at Melbicks Garden & Leisure Centre remain unaltered from those described and assessed in the main ES.
- 66.1.4 The additional land temporarily required at Melbicks Garden & Leisure Centre 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: agriculture, forestry and soils; air quality; community; cultural heritage; land quality; landscape and visual assessment; socio-economics; sound, noise and vibration; and water resources and flood risk assessment. However, there are changes where reassessment is considered to be required in respect of ecology and traffic and transport.

66.2 Ecology

Scope, assumptions and limitations

- 66.2.1 The assessment scope for ecology is as set out in Volume 1 of the AP ES. The key assumptions and limitations, and the methodology for determining significance of effects is as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000) and the SMR Addendum (Volume 5: Appendix CT-001-000) of the main ES.
- 66.2.2 The land required for the amendment is bordered by land already within the limits of the Bill which has been subject to desk-based ecological investigations as well as field survey and assessment for flora and fauna.
- 66.2.3 The ecological baseline of the land required for the amendment has been based on field data collated for the main ES on adjacent land, aerial photography, and relevant existing information gathered from national organisations and from regional and local sources including: the Environment Agency; Solihull Metropolitan Borough Council; Warwickshire Biological Records Centre; Warwickshire Wildlife Trust and the West Midland Bird Club.
- 66.2.4 To address any limitations in data, a precautionary baseline has been considered, according to the guidance reported in the main ES Volume 5: Appendix CT-001-000/2. This constitutes a 'reasonable worst case' basis for the subsequent assessment.
- 66.2.5 The precautionary approach to the assessment that has been adopted identifies the likely significant ecological effects of the amendment.

Environmental baseline

- 66.2.6 A summary of the baseline information relevant to the assessment of the amendment is provided below. For those receptors described in the main ES, further details are provided in the main ES Volume 2, CFA24, Section 7 and in Volume 5, including Maps EC-01 to EC-12, Map Book Ecology.

Designated sites

- 66.2.7 Coleshill and Bannerly Pools Site of Special Scientific Interest (SSSI) is located approximately 500m north of the area of the amendment, south of the M6 Junction 4. This SSSI is of national value.
- 66.2.8 There are two non-statutory designated sites of county/metropolitan value located within 500m of the area of the amendment. Denbigh Spinney Local Wildlife Site (LWS) is located approximately 500m to the south, adjacent to the junction of the A452 Chester Road and Middle Bickenhill Lane. Coleshill Pool Wood LWS is located approximately 500m to the north, between the A452 Chester Road and the M42.
- 66.2.9 There is no other statutory or non-statutory designated nature conservation site or ancient woodland within 500m of the land required for this amendment, or otherwise relevant to the assessment. Statutory and non-statutory designated sites are described in the main ES, Volume 2, CFA24, Section 7 and are shown on Maps EC-01-052 to EC-01-054a, Volume 5, Map Book Ecology.

Habitats

- 66.2.10 Habitats within the land required for the amendment are dominated by an area of hard-standing (the existing car parking area) within the existing curtilage of Melbicks Garden & Leisure Centre. Trees present along the northern boundary include semi-mature pedunculate oak and poplar species. Hawthorn is also present, some of which is considered to represent a now defunct³⁵ hedgerow. Scattered trees, scrub and introduced shrubs are present within the existing car park and managed amenity grassland is present around the periphery of the existing car park. An area of coarse and less frequently managed grassland and tall herb/ruderal species is also present along the northern boundary.
- 66.2.11 There is an area of ephemeral/short perennial vegetation, currently used for the overspill car parking and storage of materials, in the north-east of the land required. Together with adjacent trees, scrub, tall herb and coarse grassland some of this vegetation is assumed to qualify as open mosaic habitat on previously developed land, a habitat of principal importance. This area is less than 1ha and is assessed as being of up to local/parish value.
- 66.2.12 The remaining vegetation around the existing car park is contiguous with adjacent grassland and ruderal vegetation to the north around Quartz Point Business Park. It is part of the wider resource of grassland and trees assessed as being of local/parish value within the main ES. The amenity grassland, trees and introduced shrub vegetation on land required for the amendment is assessed as part of the same resource and does not increase the value above local/parish value.

³⁵ Hedges in which there are gaps and which are no longer stock-proof, JNCC (2010) *Handbook for Phase 1 habitat survey - a technique for environmental audit*.

- 66.2.13 Habitats surrounding the land required for the amendment are described in the main ES, Volume 2, CFA24, Section 7 and are shown on Maps EC-01-052 to EC-01-054a, Volume 5, Map Book Ecology.

Protected and/or notable species

- 66.2.14 Desk study data on the land required for the amendment and field surveys undertaken on adjacent land, as reported in the main ES, did not record any protected and/or notable species of flora or fauna.
- 66.2.15 The main ES identified a number of bat species using the wider landscape for foraging and commuting. The bat populations relevant to the assessment of the amendment are to the north at Coleshill and Bannerly Pools SSSI (barbastelle, serotine, whiskered bat, common pipistrelle, soprano pipistrelle, noctule and brown long-eared bat) and to the south on land around Park Farm and Middle Bickenhill Lane (Leisler's bat, common pipistrelle, soprano pipistrelle, and noctule).
- 66.2.16 Barbastelle bat is of county/metropolitan value. Leisler's bat and serotine bat are each up to district/borough value. Noctule bat and assemblages of other species at Coleshill and Bannerly Pools SSSI and land at Park Farm are each of local/parish value.
- 66.2.17 Appraisal of trees from surveys on immediately adjacent land at Quartz Point Business Park suggests that the relatively young trees within the land required for the amendment are likely to lack features suitable to support roosts and are unlikely to have more than low potential to support roosting bats. They have the potential to be utilised as commuting and or foraging habitat by the bat populations/assemblages described in the main ES.
- 66.2.18 The main ES confirms that surveys recorded slow worm and grass snake within 1km of the land required for the amendment, on connecting road verges along the A452 Chester Road, south of Melbicks Garden & Leisure Centre. Road verge and similar habitats adjacent to and within Melbicks Garden & Leisure Centre have potential to be used by the same populations, which are each of local/parish value.
- 66.2.19 The main ES identified a meta-population of great crested newt with a peak count of 86 adults (medium size-class) across four ponds located to the east of the A446 Stonebridge Road and north of Packington Lane. This population is of county/metropolitan value. A low population of this species is also present in the northern pool at Coleshill and Bannerly Pools SSSI and this is of district/borough value. Breeding ponds for both populations are more than 400m from the area of the amendment, which is also isolated by intervening agricultural land and the existing highway network.

Effects arising during construction

Avoidance and mitigation measures

- 66.2.20 There are no specific measures included as part of the amendment to avoid or reduce impacts to features of ecological value on the land required for the amendment.
- 66.2.21 The assessment assumes implementation of the draft Code of Construction Practice (CoCP).

Designated sites

- 66.2.22 The main ES reports that no effects are anticipated on the integrity of the Coleshill and Bannerly Pools SSSI as a consequence of the original scheme. No impacts on the SSSI are expected to arise from construction activities associated with the amendment, as the SSSI is approximately 500m from the area of the amendment and separated by agricultural land and the existing highway network. The assessment in relation to the SSSI is therefore unchanged by the amendment.
- 66.2.23 The main ES reports that the original scheme will result in habitat loss and disturbance at Coleshill Pool Wood LWS and Denbigh Spinney LWS which will result in a permanent adverse effect on site integrity which will be significant at county/metropolitan level. The amendment will not result in any additional impacts on these two sites, as they are approximately 500m from the area of the amendment and separated by agricultural land and the existing highway network. The assessment in relation to these sites is unchanged by the amendment.

Habitats

- 66.2.24 The provision of replacement car parking and reconfiguration of the existing car park will result in an additional loss of vegetation, including trees, shrub, tall herb, ephemeral short perennial vegetation and amenity grassland. The total additional losses of vegetation are estimated to be approximately 0.9ha.
- 66.2.25 The loss of the possible open mosaic habitat associated with the provision of the replacement car park is an additional adverse effect at the local/parish level to that reported in the main ES.
- 66.2.26 The loss of vegetation including amenity grassland and shrub vegetation within the additional land required is considered to be similar to vegetation in the wider area, including road verges, the loss of which was reported in the main ES as an adverse effect at local/parish level. Construction activities associated with the amendment are unlikely to change the likely significant effects that were reported in the main ES.

Species

- 66.2.27 The two populations of great crested newt to the east of the A446 Stonebridge Road and north of Packington Lane and in the northern pool at Coleshill and Bannerly Pools SSSI are isolated from the land required for the amendment by intervening agricultural land and the existing highway network. The main ES reports that after mitigation the original scheme will not have an adverse effect on the conservation status of great crested newt. Construction on land required for the amendment will not have any additional effects on these populations and will not change the effects reported in the main ES.
- 66.2.28 The main ES reports adverse construction effects at local/parish level on the conservation status of populations of Leisler's bat and serotine bat as well as common pipistrelle. Bat populations in the wider area may utilise habitats within the land required for the amendment for commuting and foraging, though existing lighting combined with the small size and relative isolation of this parcel of land from the surrounding landscape resulting from the existing highways network reduces its value. Therefore, although construction activities for the amendment will result in loss of

some vegetation, there will be no change to the effects at local/parish level reported in the main ES.

- 66.2.29 The main ES reports no likely adverse significant effects on the conservation status of populations of grass snake and slow worm. Construction activities for the amendment will remove potential habitat but will not change the effects that were reported in the main ES.

Mitigation and residual effects

Other mitigation measures

- 66.2.30 No additional or different mitigation is required for the amendment.

Residual effects

- 66.2.31 The amendment will result in no change in the residual likely significant effects reported in the main ES.

Effects arising from operation

- 66.2.32 There are no new or different operational effects for ecology as a result of the amendment.

66.3 Traffic and transport

Scope, assumptions and limitations

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

Environmental baseline

- 66.3.2 There are several strategic routes within the area of the amendment. The amendment area is bounded by the A452 Chester Road and the A446 Stonebridge Road. The M42, M6 and the A45 Coventry Road are in close proximity. Public Right of Way (PRoW) M105, a footpath, runs parallel to the amendment area. There are no changes to the existing highway network or PRoW M105 as a result of the amendment.
- 66.3.3 There are approximately 450 car parking spaces at Melbicks Garden & Leisure Centre used by visitors accessing the nursery and café.
- 66.3.4 Details of the baseline associated with the original scheme are described in the main ES, Volume 2, CFA24, Section 12 and Volume 5: Appendix: TR-001-000, Transport Assessment.

Effects arising during construction

- 66.3.5 The provision of a replacement car park will fully mitigate the loss of 54 car parking spaces during construction, removing the likely significant adverse effect reported in the main ES such that there are no likely significant effects.
- 66.3.6 AP map TR-03-154 in AP ES Volume 2 Part 6 Map Books details the revised likely construction residual significant traffic and transport effects in the location of the amendment.

Effects arising from operation

- 66.3.7 The permanent loss of 45 car parking spaces was reported in the main ES as not significant. The provision of a replacement car park will mitigate the loss of car parking spaces during operation and the effect will remain as not significant, as reported in the main ES.

Mitigation and residual effects

- 66.3.8 No mitigation or residual effects have been identified for this amendment.

Volume 5 amendments

- 66.3.9 Table 41 sets out the change to the main ES, Volume 5, Appendix TR-001-000, Transport Assessment as a result of the amendment.

Table 41: Amendments to Volume 5: Appendix: TR-001-000, Transport Assessment

Paragraph No/Table Ref	Main ES transport assessment text	Amendment to transport assessment text
8.4.212	The realignment of the A446 Stonebridge Road will result in the loss of approximately 54 car parking spaces at Melbicks Garden & Leisure Centre. The impact of the temporary parking loss will be moderate.	Text to be deleted. Replacement parking area will fully mitigate the loss of car parking.
8.4.472	The Proposed Scheme will also have an impact on car parking at a number of off-site locations. These include a loss of car parking spaces at the NEC and Birmingham International rail station to accommodate the alignment of the people mover and a loss of car parking spaces at businesses on Birmingham Business Park and at Melbicks Garden and Leisure Centre to accommodate the proposed highways works which are required to replace the existing A452 Chester Road/B4338 Bickenhill Parkway roundabout. Table 8-208 summarises the estimated losses.	The revised scheme will also have an impact on car parking at a number of off-site locations. These include a loss of car parking spaces at the NEC and Birmingham International rail station to accommodate the alignment of the people mover and a loss of car parking spaces at businesses on Birmingham Business Park to accommodate the proposed highways works which are required to replace the existing A452 Chester Road/B4338 Bickenhill Parkway roundabout. Table 8-208 summarises the estimated losses.
Table 8-208: Proposed Scheme car parking impacts	Site – Melbicks Garden and Leisure Centre Number of spaces lost - 45	Text to be deleted. As far as reasonably practicable the replacement parking area will be provided prior to loss of the existing car park such that no spaces will be lost.
8.4.476	The realignment of the A446 Stonebridge Road will result in the loss of approximately 45 car parking spaces at Melbicks Garden and Leisure Centre. The impact is not expected to be substantial.	Text to be deleted. Replacement parking area will fully mitigate the loss of car parking.
Table 8-295: Operation, summary of issue	Parking – 2026 Permanent loss of parking at the NEC, west car park, Birmingham International station, Birmingham Business Park, Melbicks Garden Centre and the National Motorcycle	Parking – 2026 Permanent loss of parking at the NEC, west car park, Birmingham International station, Birmingham Business Park and the National

	<p>Museum.</p> <p>Parking - 2041</p> <p>Permanent loss of parking at the NEC, west car park, Birmingham International station, Birmingham Business Park, Melbicks Garden Centre and the National Motorcycle Museum.</p>	<p>Motorcycle Museum.</p> <p>Parking - 2041</p> <p>Permanent loss of parking at the NEC, west car park, Birmingham International station, Birmingham Business Park and the National Motorcycle Museum.</p>
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66.4 Summary

66.4.1 The additional area of land at Melbicks Garden & Leisure Centre for the provision of replacement car parking and reconfiguration of the existing car park will remove the likely significant effect arising during construction resulting from the loss of 54 car parking spaces. There are no new likely significant effects arising from the amendment.

67 Additional construction traffic route at Quartz Point Business Park, Coleshill (AP1-024-052)

67.1 Overview of amendment

67.1.1 The Bill provides for the permanent realignment of an existing high voltage overhead power line, located in close proximity to Quartz Point Business Park. A construction traffic route will be provided from an existing access road off the A452 Kenilworth Road to Quartz Point Business Park to access the existing pylons

67.1.2 Following deposit of the Bill it has been identified that an additional construction traffic route is required from an existing road from the A446 Stonebridge Road to the business park (refer to AP map CT-05-107 in AP ES Volume 2 Part 6 Map Books). This route, which will be used for the construction period of the realignment as stated in the main ES, is in addition to the route from the A452 Kenilworth Road as stated in the original scheme. There will be no increase in construction traffic using this route from that assessed in the main ES. Construction traffic will be distributed between this route and the route stated in the original scheme. The land required for this construction traffic route is outside the original limits of the Bill, hence the need for this amendment.

67.1.3 The additional construction traffic route is not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics.

67.2 Summary

67.2.1 The additional construction traffic route does not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA24: Birmingham Interchange and Chelmsley Wood).

Table 42: Summary of amendments for the Washwood Heath to Curzon Street area (CFA26)

CFA	Amendment	Description of the original scheme	Description of the revised scheme
26	Stopping up of Public Right of Way 18, near to Common Lane, Washwood Heath AP1-026-053	PRoW 18, a footpath, runs from Common Lane to the A4040 Bromford Lane/A47 Heartlands Parkway roundabout to the east. PRoW 18 is currently inaccessible to the public where it runs through the former Washwood Heath railway works and the Ward End vehicle works adjacent to the Birmingham and Derby rail line.	Permanent stopping up of PRoW 18 between a point adjacent to Heartlands Parkway to where it joins Common Lane.
26	Additional land for construction traffic routes near to the A47 Heartlands Parkway, AP1-026-054	Temporary use of existing access roads from a roundabout on the A47 Heartlands Parkway and from the disused Watson Road to the sites of Vauxhall Lookers car showroom's car park and the Nechells gas holders land, west of the Birmingham and Derby rail line. The construction traffic routes will provide access to construct a new pumping station and undertake utility diversions to the west of the Birmingham and Derby line.	The scheme has not changed however the land has now been added to the Bill plans.
26	Stopping up of Hereford Square and demolition of a building, near Saltley High Street AP1-026-055	Demolition of part of a building, which includes a car wash, car repairers and a private hire car business, and the buildings servicing yard, to the west of Hereford Square, for the realignment of Saltley viaduct.	The permanent stopping up of Hereford Square and demolition of the full extent of a building and servicing yard. The Bill incorrectly provided for only part of the demolition of the building. Additional land adjacent to the building to be demolished will also be required as construction working space for demolition activities.

69 Stopping up of Public Right of Way 18, near to Common Lane, Washwood Heath (AP1-026-053)

69.1 Overview of amendment

69.1.1 PRoW 18, a footpath, runs from Common Lane and adjacent to the Birmingham and Derby rail line to reach the A4040 Bromford Lane/A47 Heartlands Parkway roundabout to the east. As detailed in the main ES, PRoW 18 is currently inaccessible to the public where it runs through the area of the former Washwood Heath railway works and the Ward End vehicle works. PRoW 18 is to be stopped up between a point adjacent to Heartlands Parkway and where it joins Common Lane. The stopping up is required as the proposed Washwood Heath rolling stock maintenance depot and network control centre will be constructed in this location (refer to AP map CT-06-139b in AP ES Volume 2 Part 6 Map Books). It is to be noted that PRoW 18 as shown on main ES map CT-05-139b is amended as the alignment shown previously was incorrect. A small section of PRoW 18 between A4040 Bromford Lane/A47 Heartlands Parkway roundabout will be retained. Following deposit of the Bill it has been identified that the stopping up of PRoW 18 was omitted from the Bill, hence the need for this amendment.

69.1.2 The stopping up of PRoW 18 is not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics.

69.2 Summary

69.2.1 The stopping up of PRoW 18 does not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA26: Washwood Heath to Curzon Street).

70 Additional land for construction traffic routes near to the A47 Heartlands Parkway (AP1-026-054)

70.1 Overview of amendment

70.1.1 Construction traffic routes are required from a roundabout on the A47 Heartlands Parkway and from the disused Watson Road to the sites of Vauxhall Lookers car showroom's car park and the Nechells gas holders land, west of the Birmingham and Derby rail line, to construct a new pumping station and undertake utility diversions. It was assumed that these routes were on a public highway and therefore were not included in the Bill. However, following the deposit of the Bill it has been identified that these routes are privately owned and therefore rights of access are needed over them. These routes relate to land outside the original limits of the Bill, hence the need for this amendment (refer to AP map CT-05-140 in AP ES Volume 2 Part 6 Map Books). The route will be used for the period of the pumping station construction and

utility diversions as stated in the main ES. The use of these routes has been assessed within the main ES. There will be no increase in construction traffic using these routes from that assessed in the main ES.

- 70.1.2 The additional construction traffic routes are not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics.

70.2 Summary

- 70.2.1 The additional construction traffic routes do not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA26: Washwood Heath to Curzon Street).

71 Stopping up of Hereford Square and demolition of a building, near Saltley High Street (AP1-026-055)

71.1 Overview of amendment

- 71.1.1 The Bill provides for the demolition of part of a building, which includes a car wash, car repairers and a private car hire business, and the buildings servicing yard, to the west of Hereford Square. Following deposit of the Bill it has been identified that the full extent of the building required to be demolished and construction working space required for the demolition works were omitted from the Bill. Also the stopping up of Hereford Square, a no-through-road located off Saltley High Street, was omitted hence the need for this amendment (refer to AP map CT-05-140 in AP ES Volume 2 Part 6 Map Books). The additional area of land permanently required is approximately 480m². The demolition period will be as stated in the main ES. The amendment was assessed in the main ES.
- 71.1.2 The stopping up of Hereford Square and the demolition of a building is not considered to make changes that require a reassessment of the effects or proposed mitigation as set out in the main ES with respect to any environmental topics.

71.2 Summary

- 71.2.1 The stopping up of Hereford Square and the demolition of a building does not change the likely significance of the environmental effects or proposed mitigation as set out in the main ES (Volume 2, CFA26: Washwood Heath to Curzon Street).

HIGH SPEED RAIL (LONDON - WEST MIDLANDS) ADDITIONAL PROVISION

Environmental Statement

Volume 3 | Route-wide effects

September 2014

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Structure of the HS2 Additional Provision Environmental Statement

The Additional Provision (AP) Environmental Statement (ES) comprises:

- Non-technical summary (NTS). This provides a summary in non-technical language of the AP amendments and any likely significant residual environmental effects, both beneficial and adverse, which are new or different to those reported in the HS2 Phase One ES (the main ES) submitted to Parliament in November 2013 in support of the hybrid Bill for Phase One of HS2;
- Volume 1: Introduction to the AP ES. This describes the amendments, construction information relating to utility diversions and any changes to the scope, methodology, assumptions and limitations required for the environmental assessment associated with them;
- Volume 2: Community Forum Area (CFA) reports and map books. These describe the amendments and any new or different likely significant environmental effects arising from the amendments in each CFA compared to those reported in the main ES; this volume also describes any changes to the Volume 5 Technical Appendices resulting from the proposed amendments;
- Volume 3: Route-wide effects. This describes any new or different likely significant route-wide effects arising from the amendments, compared to those reported in the main ES;
- Volume 5: Map Book. This contains environmental maps in support of the CFA sections of Volume 2; and
- Glossary of terms and list of abbreviations. This contains any new terms and abbreviations used throughout the AP ES documentation.

In the main ES, Volume 4 presented an assessment of the likely significant environmental effects that will occur in locations away from the route (i.e. outside of the CFAs). As none of the amendments relate to off-route areas, off-route effects have been scoped out of the assessment and therefore there is no Volume 4 included within the AP ES.

Volume 3: Route-wide effects

1 Introduction

1.1 Introduction to the Additional Provision for High Speed Two Phase One

1.1.1 The High Speed Rail (London - West Midlands) Bill (the Bill) was submitted to Parliament together with an Environmental Statement (ES) (the main ES) in November 2013. If enacted by Parliament, the Bill will provide the powers to construct, operate and maintain Phase One of High Speed Two (HS2). This phase of HS2 will provide a new north-south railway between London, Birmingham and the West Midlands.

1.1.2 Since the Bill's deposit, 55 generally minor amendments to the design of the original scheme have been identified as a result of:

- further discussions with landowners and occupiers;
- design refinements; and
- changes to accommodate the requirements of utility undertakers.

1.1.3 These amendments require the use of land outside the original limits of the Bill, additional access rights, or other extensions of the powers conferred by the Bill, making it necessary to submit an Additional Provision (AP) to the Bill. The amendments to the design include:

- utilities requirements: the project affects a number of electricity, gas, fuel and fibre optic lines provided by utility companies either in, or above the ground. Since Bill deposit a number of utility companies have refined their requirements and so changes to the design of these works are needed. These are principally amendments to the amount of land required temporarily for works to pylons and electricity wires;
- access arrangements: amendments to the locations, alignments and/or width of some access tracks proposed by the original scheme. These tracks are required to provide private access to properties and agricultural holdings; access to undertake utility diversions; and to facilitate construction and/or maintenance of HS2 infrastructure (e.g. balancing ponds, areas where new habitats will be created and auto-transformer stations);
- roads and Public Rights of Way: changes to the locations of temporary diversions or permanent realignments;
- balancing ponds: the relocation of one of the balancing ponds; and
- mitigation habitats: the relocation of one of the proposed habitat mitigation areas.

- 1.1.4 It should be noted that the resulting scheme (i.e. the original scheme submitted in November 2013 with the amendments) is hereafter referred to as the 'revised scheme'.

1.2 Purpose of this report

- 1.2.1 This report is Volume 3 of the AP ES. It reports route-wide effects and, specifically, any new or different route-wide likely significant effects arising from those amendments as compared with those described in the main ES.
- 1.2.2 The amendments within the AP are generally minor in nature and involve construction works with local impacts. Any environmental effects of the amendments are therefore more likely to occur at a local level than at a route-wide level. The main implications for the assessment of route-wide effects occur where new works are introduced in the Chilterns Area of Outstanding Natural Beauty (AONB) and where there is potential for new in-combination effects, as reported for agriculture, forestry and soils, and ecology.

1.3 Scope of this report

- 1.3.1 A formal scoping process has been undertaken for each amendment in order to determine whether there is potential for the amendment to give rise to new or different significant environmental effects compared with those reported in the main ES. Where such potential effects have been identified, they are reported in Volume 2 of this AP ES, for the relevant community forum areas (CFAs).
- 1.3.2 Each amendment has also been considered in terms of its potential to give rise to new or different significant environmental effects at the route-wide level. Route-wide effects reported in this volume are those considered to be appropriately assessed at a geographical scale greater than that presented within the Volume 2 CFA reports of the AP ES.
- 1.3.3 For some environmental topics, effects are localised in extent and as no additional significant route-wide effects have been identified, these environmental topics have been scoped out of the route-wide assessment of effects. These environmental topics are: air quality; community; cultural heritage; land quality; and sound, noise and vibration. In addition, waste and material resources has also been scoped out of the assessment as the proposed amendments will not lead to any change to the likely significant environmental effects reported in the main ES (this is explained further in Volume 1).
- 1.3.4 Given that the methodology for each environmental topic assesses effects in a different way appropriate to that environmental topic, the approach to route-wide effects varies between environmental topics. The extent and basis of the route-wide assessment presented in this report is therefore explained in each of the environmental topic sections. The scope of each environmental topic and the general approach to assessment is described in Volume 1 of the main ES, which in turn refers to the Scope and Methodology Report (SMR) (Volume 5: CT-001-000/1 of the main ES) and the SMR Addendum (Volume 5: CT-001-000/2 of the main ES) as appropriate. Any variations to the approach to the assessment for these amendments are reported in Volume 1 of this AP ES.

1.4 Structure of this report

1.4.1 This report presents the route-wide effects for each environmental topic in the same order as reported in Volume 3 of the main ES. Where there are not considered to be significant route-wide effects as a consequence of the AP, the environmental topic is introduced and reasons for this conclusion are presented.

1.4.2 This report is structured as follows:

- Introduction (Section 1);
- The Chilterns Area of Outstanding Natural Beauty (Section 2);
- Agriculture, forestry and soils (Section 3);
- Climate (Section 4);
- Ecology (Section 5);
- Landscape and visual assessment (Section 6);
- Socio-economics (Section 7);
- Traffic and transport (Section 8);
- Water resources and flood risk assessment (Section 9); and
- Phase One and Phase Two combined impacts (Section 10).

2 The Chilterns Area of Outstanding Natural Beauty

2.1 Introduction

2.1.1 Volume 3 of the main ES included an assessment of effects on the special landscape qualities of the Chilterns AONB. This assessment has been reviewed to consider whether the AP will result in any changes to the assessment.

2.2 Changes to assessment of effects

2.2.1 Four amendments are located within the Chilterns AONB. These include AP1-010-003 (additional land required for utility works and access to the south of Small Dean Lane), AP1-010-004 (additional land required for utility works to the north of Wellwick Farm), AP1-010-005 (change to land required for reconfiguration of road layout of Nash Lee Lane and HS2 maintenance access) and AP1-010-006 (additional land to erect temporary scaffolding over the B4009 Nash Lee Road).

2.2.2 The additional land required for each of these amendments is outside the original limits of the Bill.

2.2.3 The amendments will result in an additional 1.7ha of farmland in the AONB being required temporarily for construction works. The land will be reinstated to farmland following construction. The works are minor in nature and the change in amount of land required is negligible. It is not considered that the amendments are of sufficient scale to give rise to any new or different effects on the special landscape qualities of the AONB. It does not therefore change the landscape and visual impact assessment reported in Volume 2 of the main ES and is not considered to result in any change in the assessment of effects on the Chilterns AONB presented in Volume 3 of the main ES.

3 Agriculture, forestry and soils

3.1 Introduction

3.1.1 Volume 3 of the main ES provides an assessment of the route-wide impacts and likely significant effects on agriculture, forestry and soils arising from the construction of the Proposed Scheme. Since it was considered that during operation there will be no effects that become significant through accumulation across the Proposed Scheme, operational effects were not considered further.

3.2 Changes to assessment of effects

3.2.1 The main ES reports that a total of approximately 4,800ha, including approximately 2,500ha of Best and Most Versatile (BMV) agricultural land in Grade 2 and subgrade 3a, will be required for the Proposed Scheme and its construction.

3.2.2 During construction, the proposed amendments will require approximately 50ha of additional agricultural land, which is predominantly BMV land (Grade 2 and Grade 3a). With the exception of a very small area of land (less than 1ha, which is BMV land) all

land is required on a temporary basis only. Following construction, the land required temporarily will be primarily reinstated to its pre-existing agricultural condition by following good practice guidance on the sustainable use of soils, as set out in the draft Code of Construction Practice (CoCP) (main ES, Volume 5: Appendix CT-003-000).

- 3.2.3 This change is not sufficient in scale to result in any new or different significant route-wide effects or any change in the assessment of effects presented in Volume 3 of the main ES.
- 3.2.4 No additional forestry land will be affected by the proposed amendments.

4 Climate

4.1 Introduction

- 4.1.1 Volume 3 of the main ES reported the assessment of the greenhouse gas (GHG) emissions of the Proposed Scheme during construction and operation.

4.2 Changes to assessment of effects

- 4.2.1 The proposed amendments were reviewed qualitatively in order to identify whether they would have a significant impact on the carbon footprint assessment reported in the main ES (Volume 3, Section 5 of the main ES). The amendments were considered individually and as a whole. The changes will have no impact on carbon emissions from the operation and maintenance of the Proposed Scheme and have little to no impact on the actual volume of construction materials or earthworks required and the associated transport and construction plant emissions. The majority of the changes relate to additional rights over land requirements for access reasons, some of which involve realigning existing access routes or require additional rights over land without any physical changes to the land itself. The amendments are considered to represent a negligible change to land use requirements. Given the above it is assessed that the potential impact of the amendments on the carbon footprint would be negligible and as such does not warrant any further analysis.

Climate change adaptation and resilience

- 4.2.2 In the main ES, assessment of the potential for climate change effects was reported in Volume 5 (Appendix CT-009-000) and summarised in Volume 1, Section 7. The assessment to identify the potential risks of climate change on the original scheme was reported in Volume 5 (Appendix CL-003-000). As noted in paragraph 4.2.1, the amendments as part of the Additional Provision are considered to represent a negligible change to land use requirements. Given this, it is assessed that the potential impact of the amendments on climate change adaptation and resilience would be negligible and as such do not warrant any further analysis.

5 Ecology

5.1 Introduction

- 5.1.1 Volume 3 of the main ES described likely significant effects on ecological resources that will occur on a route-wide level as a consequence of the construction and operation of the Proposed Scheme. The route-wide assessment addressed significant

effects at the regional and national level, and in-combination effects not discussed within Volume 2 of the main ES.

5.2 Changes to assessment of effects

- 5.2.1 The amendments will not result in any new likely significant effects on designated sites or species/species groups that are relevant at a route wide level. In addition they are unlikely to result in any different significant effects on designated sites or species from those that were reported in the main ES.
- 5.2.2 There will be no change to the extent of ancient woodland losses reported in the main ES.
- 5.2.3 The amendments to the original scheme will result in the following changes to the extent of the most notable habitat losses that are described in the main ES:
- broadleaved woodland: loss of an additional 0.4ha of broadleaved plantation and less than 0.01ha of broadleaved semi-natural woodland. However, this change is not sufficient to make a material difference in the overall loss of approximately 310ha of broadleaved woodland across the Proposed Scheme (of which 195ha is semi-natural woodland) that is reported in the main ES. The loss continues to represent less than 0.1% of the resource in England;
 - neutral grassland: loss of an additional 0.5ha of semi-improved neutral grassland, resulting in an overall loss of approximately 171ha of unimproved and semi-improved grassland across the Proposed Scheme. As stated in the main ES it is not possible to compare this figure directly with the total resource in England. However, it is likely to remain around 0.1%;
 - hedgerows: loss of approximately an additional 1.1km of hedgerow. Using the same precautionary approach adopted in the main ES, the revised loss across the Proposed Scheme is approximately 491km. Actual losses are expected to be significantly lower, as the current figure does not take account of all hedgerows that will be created or reinstated following construction.
- 5.2.4 None of the changes in the extent of habitat losses that will occur as a result of the amendments will generate new or different significant effects at a route-wide level.
- 5.2.5 Standard mitigation measures outlined in the draft CoCP and the principles of ecological mitigation (identified within the SMR Addendum of the main ES, Volume 5: Appendix CT-001-000/2) will be employed as required. However, based on the scale and precautionary nature of mitigation and compensation provision included within the main ES, there is no requirement for additional land to provide mitigation.

6 Landscape and visual assessment

6.1 Introduction

- 6.1.1 Volume 3 of the main ES reported no significant route-wide effects on landscape and visual receptors arising from the construction or operation of the Proposed Scheme. Due to its importance, the effects on the Chilterns AONB were assessed in their own

right and reported in Section 2 of Volume 3 of the main ES (and Section 2 of this report).

6.2 Changes to assessment of effects

6.2.1 The amendments proposed within the AP are not considered to result in any new or different significant route-wide effects from those presented in Volume 3 of the main ES.

7 Socio-economics

7.1 Introduction

7.1.1 Direct and indirect socio-economic effects of the Proposed Scheme were reported in the main ES at a route-wide and CFA level. The assessment in Volume 3 of the main ES considered:

- route-wide construction employment created (direct and indirect);
- employment in businesses directly and indirectly affected by construction;
- operational employment; and
- operational effects on existing business employment.

7.2 Changes to assessment of effects

7.2.1 None of the amendments proposed as part of the AP have been identified as likely to result in any new or different significant route-wide effects from those presented in Volume 3 of the main ES. The amendments will have minimal impacts on total numbers of existing employment affected by construction and total numbers of construction employment created. Whilst the employment figures given in Volume 3 of the main ES may change to a very small degree, any such change is considered to be negligible and will not change the conclusions of the assessment.

8 Traffic and transport

8.1 Introduction

8.1.1 Volume 3 of the main ES provides an overview of the approach to and conclusions from the route-wide traffic and transport assessment. It considers those impacts that may occur over a wide area due to changes in travel patterns.

8.2 Changes to assessment of effects

8.2.1 Whilst the amendments may result in some very minor changes, as reported in Volume 2 of this AP ES, these changes are considered to be negligible at a route-wide level. The amendments are not therefore considered to result in any new or different significant route-wide effects or any changes to the assessment of effects presented in Volume 3 of the main ES.

9 Water resources and flood risk assessment

9.1 Introduction

9.1.1 Volume 3 of the main ES presents the significant route-wide effects on surface water and groundwater resources and flood risk. It concluded that there are not likely to be any significant regional or route-wide, temporary or permanent adverse effects on water resources and flood risk as a result of the construction process or the operation and maintenance of the Proposed Scheme.

9.2 Changes to assessment of effects

9.2.1 As the amendments are minor in nature, it is not considered that the amendments proposed alter the conclusions of the route-wide water resources and flood risk assessment within the main ES.

10 Phase One and Phase Two combined impacts

10.1 Introduction

10.1.1 Volume 3 of the main ES presented, in table form, a summary of the potential total impacts of both Phase One (the Proposed Scheme) and Phase Two on a range of environmental receptors. Impacts of the Proposed Scheme were based on design data and assessments undertaken as part of the Environmental Impact Assessment or assessments prepared in support of the January 2012 updated Appraisal of Sustainability report for Phase One. The Phase Two data was taken from the Phase Two Sustainability Statement, published in July 2013.

10.2 Changes to assessment of effects

10.2.1 The amendments will result in some very minor or negligible changes to the figures given in section 16 of Volume 3 of the main ES. These changes do not result in any material difference in the information provided in the main ES in relation to Phase One and Phase Two combined impacts.

HIGH SPEED RAIL (LONDON - WEST MIDLANDS) ADDITIONAL PROVISION

Environmental Statement

Glossary of terms

September 2014

Glossary of terms

The terms and abbreviations contained within this document should be read in conjunction with the Glossary of terms and list of abbreviations, published as part of the main Environmental Statement (ES) in November 2013.

Term	Definition
Additional Provision (AP)	The High Speed Rail (London - West Midlands) Bill, deposited in Parliament on 25 November 2013, provides powers for the construction and operation of Phase One of High Speed Two (HS2) (the 'Proposed Scheme'). The Additional Provision covers changes which involve the acquisition or use of land outside the original limits of the Bill, additional access rights, or other extensions of the powers conferred by the Bill.
Additional Provision Environmental Statement (AP ES)	A report that describes whether and how the works associated with the Additional Provision give rise to significant effects that are new or different from those already described in the main ES.
high pressure gas distribution pipeline	A local area gas network which distributes gas at greater than 7bar (unit of pressure).
high pressure gas transmission pipeline	A national network of large-diameter pipelines used to transport gas around the network at greater than 7bar. This gas is pumped at high pressure through the use of compressor stations. The gas then leaves the transmission system and enters the distribution network. Within the distribution network, the gas is then transported through a number of reducing pressure tiers to the consumer.
main ES	This refers to the original HS2 Phase One Environmental Statement that was deposited along with the High Speed Rail (London - West Midlands) Bill in November 2013.
National Grid	A private company that owns and manages the national grid (electricity) and the national transmission system (gas) within the UK.
national grid	The high-voltage electricity transmission network in the UK.
original scheme	The Proposed Scheme within the main ES.
oversail	<p>During works to overhead power lines, cranes will often be used. If part of the crane extends into the airspace above a surrounding property (e.g. the garden of a nearby dwelling), this is referred to as oversailing.</p> <p>Where overhead power lines overlap property or land, this is also referred to as oversailing.</p> <p>During normal operations in high winds, overhead power lines can sometimes be blown, such that they swing out from their normal alignment. When this covers a property, this is referred to as oversailing.</p>
pylon	A tall lattice-like structure (usually made of steel) which is used to support overhead power lines. Also known as an electricity transmission tower.
reconductoring	The process of installing or replacing conductors (i.e. wires) on a stretch of overhead power line. This will be done through the use of winches.
refurbishment (overhead line)	Replacement of some or all of the components/materials (e.g. steelwork for pylons, wires, fittings) that make up overhead lines. The refurbishment can be full (i.e. replacing all the components that make up the overhead line), or partial (e.g. replacing some fittings only).

AP ES Glossary of terms and list of abbreviations

Term	Definition
reinstatement (overhead line)	Following a temporary diversion, overhead lines may be returned to their former position and alignment. This is known as reinstatement.
revised scheme	Aspects of the HS2 Phase One scheme outlined in the main ES that have been updated/alterd since the deposit of the hybrid Bill submitted in November 2013, and which form part of the Additional Provision.
upgrade (overhead line)	Increasing the power flow along an overhead power line.
utility	A commodity or service, such as electricity, gas or fuel, that is provided by a public or private service provider. These are often delivered to customers via pipes, cables etc. under the ground. They can also be delivered above the ground, for example, via overhead power lines.
utility diversion	Where the current alignment of utilities, either above or below ground, would prevent the construction of certain components of the Proposed Scheme, they may be re-routed, or the height or depth altered to facilitate construction. For example, raising the height of the existing pylons to provide clearance over the proposed HS2 route.
winches	Mechanical devices that pull in or let out wires (conductors). They also adjust the tension of wires on the overhead power line.

Abbreviation/acronym	Meaning
AP	Additional Provision
AP ES	Additional Provision Environmental Statement

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