

High Speed Rail (Crewe – Manchester)

Supplementary Environmental Statement 1 and Additional Provision 1 Environmental Statement

Non-technical summary

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1 Introduction



1.1 Purpose of this Non-technical summary

This document is the Non-technical summary (NTS) of the Supplementary Environmental Statement 1 (SES1) and the Additional Provision 1 Environmental Statement (AP1 ES), which the Government has submitted to Parliament in support of the High Speed Rail (Crewe – Manchester) Bill ('the Bill'). Its main purpose is to provide a summary, in non-technical language, of any new or different likely residual significant environmental effects arising from the updates and changes reported in the SES1, and the amendments reported in the AP1 ES. These effects are compared to those contained within the Environmental Statement (ES) which accompanied the Bill submitted to Parliament in January 2022 ('the main ES').

1.2 Background to High Speed Two

High Speed Two (HS2) is a new high speed rail network proposed by the Government to connect major cities in Britain.

HS2 is being built in phases. Phase One is the section between London and the West Midlands. It was the subject of an ES deposited with the High Speed Rail (London – West Midlands) Bill in November 2013 and works for Phase One are now proceeding in accordance with the High Speed Rail (London – West Midlands) Act 2017.

Phase Two will extend the route north from Phase One and is being taken forward in stages. Phase 2a comprises the section of the route between the West Midlands and Crewe. The High Speed Rail (West Midlands – Crewe) Bill and ES was deposited in Parliament in July 2017 and works for Phase 2a are now proceeding in accordance with the High Speed Rail (West Midlands – Crewe) Act 2021.

The full Phase 2b scheme comprises of two sections: Crewe – Manchester, with a connection to the West Coast Main Line (WCML) and the West Midlands – Leeds via the East Midlands and South Yorkshire.

The Oakervee Review, published in February 2020, concluded that the HS2 project should proceed, based on a number of recommendations. It concluded that Phase 2b of HS2, a Y-shaped network, was the right strategic answer for the country. However, the Oakervee Review also concluded that Phase 2b should be considered as part of an Integrated Rail Plan (IRP) and that the full Phase 2b scheme should be split into smaller schemes. At that time, the Government announced its decision to proceed with the legislation to allow for the development of the High Speed Rail (Crewe – Manchester) scheme (the Western Leg) in the first instance and that the full Phase 2b scheme could be legislated for in two or more hybrid Bills. This ensured work on the HS2 project continued whilst the IRP was being developed, to minimise delay.

The HS2 East scheme, comprising the southern section of the Eastern Leg, from the West Midlands to the East Midlands, was subsequently announced in the IRP published in November 2021.

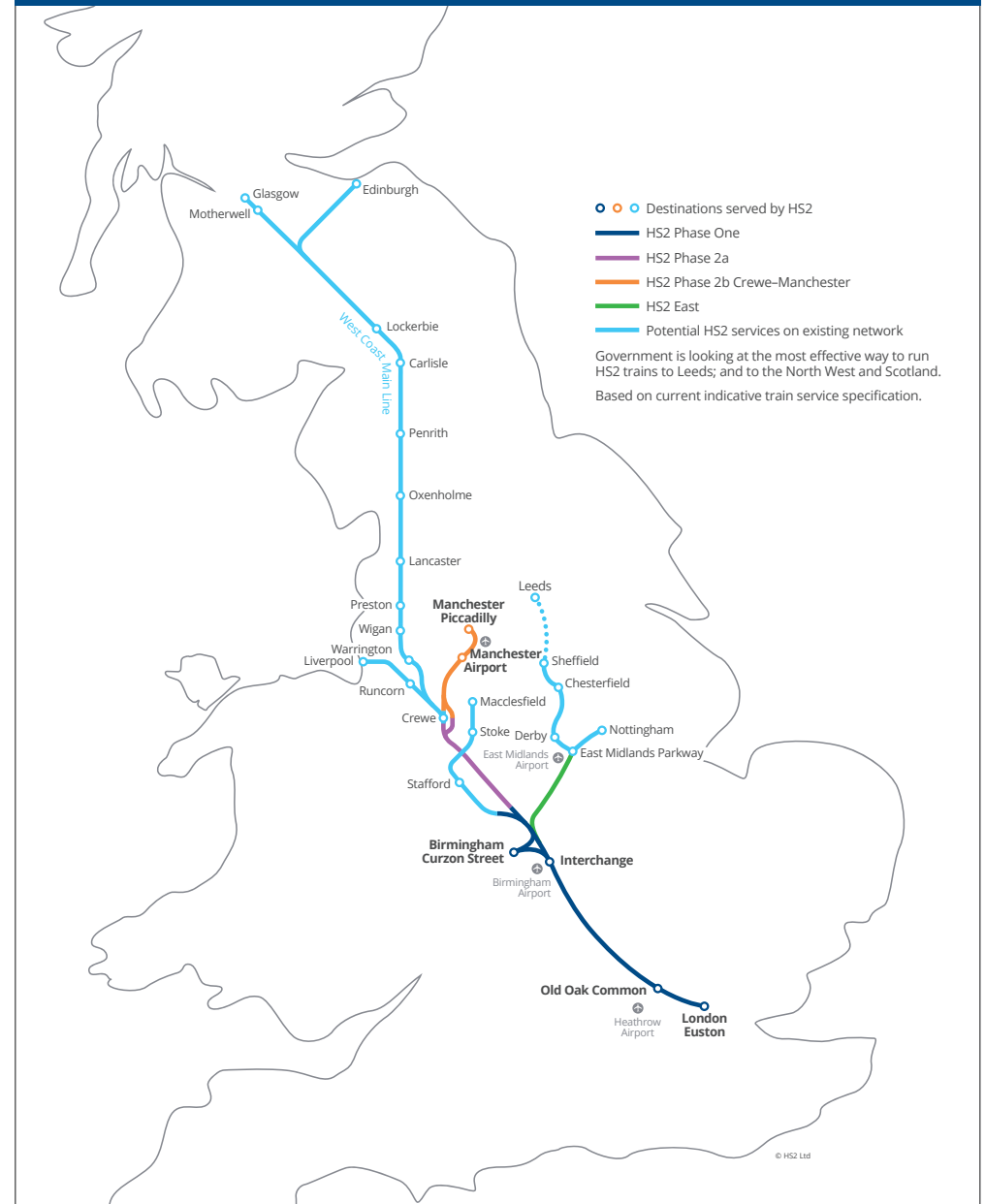
The High Speed Rail (Crewe – Manchester) Bill was introduced into Parliament together with the main ES in January 2022. If enacted by Parliament, the Bill will provide the powers to construct, operate and maintain the Phase 2b Crewe – Manchester section of HS2.

The 'original scheme' is the Bill scheme submitted to Parliament in January 2022. This was assessed in the main ES¹ which presented the findings of the environmental impact assessment (EIA) for the scheme proposed at the time of deposit of the Bill. The main ES also outlines the assessment scope and methodology, identifies likely significant environmental effects, mitigation measures to avoid, prevent or reduce likely significant environmental effects, and any residual significant environmental effects that remain after all mitigation has been put in place.

¹ High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement*. Available online at: <https://www.gov.uk/government/collections/hs2-phase2b-crewe-manchester-environmental-statement>.

Changes made through the SES1 and AP1 ES do not change the principle of the original scheme in terms of provision of a route between Crewe and Manchester and the essential components of the construction and operation of that scheme.

Figure 1: The HS2 network



1.3 Development of policy since the main ES

The Integrated Rail Plan published in November 2021² sets out a plan for the development of train services across Great Britain and how the Government intends to bring together the development of HS2 Phase 2b, Northern Powerhouse Rail, the Midlands Rail Hub, and other major rail schemes and programmes for the North and Midlands. It confirmed the Government's commitment to build HS2 from Crewe to Manchester with new stations at Manchester Airport and Manchester Piccadilly.

The Union Connectivity Review was also published in November 2021³. Its aim was to review how transport connectivity can support economic growth and quality of life across the UK, and to make recommendations as to whether and how best to improve transport connectivity between the nations of the UK. Evidence from this review suggested that alternatives to the HS2 WCML connection included in the original scheme could offer increased benefits. These benefits include reducing journey times and providing additional operational flexibility when scheduling services. The review stated that further work is required to better understand the case for and against any such options and recommended the Government considers options for alternative connections north of Crewe between HS2 and the WCML.

The changes proposed to the original scheme in the SES1 and AP1 ES have been developed to reflect policy decisions by the Secretary of State in the light of the Integrated Rail Plan and Union Connectivity Review. The proposed changes and amendments will continue to support the Government's overarching strategic objectives for a future integrated rail network that improves transport connectivity and enhances quality of life and economic opportunities.

1.4 Supplementary Environmental Statement and amendments to the Bill

Since the main ES, a number of changes to the design and construction assumptions have occurred. New environmental baseline information has also become available and the need for a number of corrections to the main ES has been identified.

Any new or different significant effects that are likely to result from changes to the design and construction assumptions within the existing Bill powers and limits, and as a result of the new environmental baseline information and corrections, compared to the main ES, are reported in the SES1.

In a number of other cases, changes to the Bill are needed in order to make amendments to the original scheme, where these include requirements for the acquisition or use of land outside the existing powers of the Bill, additional access rights or other extensions of the powers conferred by the Bill. These changes require the submission of an Additional Provision (AP1). The AP1 ES reports any new or different significant environmental effects of these amendments, compared to the main ES, having taken into account the environmental information in the SES1, where appropriate.

Both the SES1 and AP1 ES provide an update to the main ES and should be read in conjunction with it. The SES1 is presented first, and the AP1 ES follows and bases its comparison upon effects reported in the main ES, as amended by the SES1.

The SES1 and the AP1 ES will each be the subject of a public consultation in accordance with Parliamentary procedure.

2 Department for Transport (2021), *Integrated Rail Plan for the North and Midlands CP490*. Her Majesty's Stationery Office, London. Available online at: <https://www.gov.uk/government/publications/integrated-rail-plan-for-the-north-and-the-midlands>.

3 Department for Transport (2021), *Union connectivity review, Final Report*. Department for Transport, London. Available online at: <https://www.gov.uk/government/publications/union-connectivity-review-final-report>.

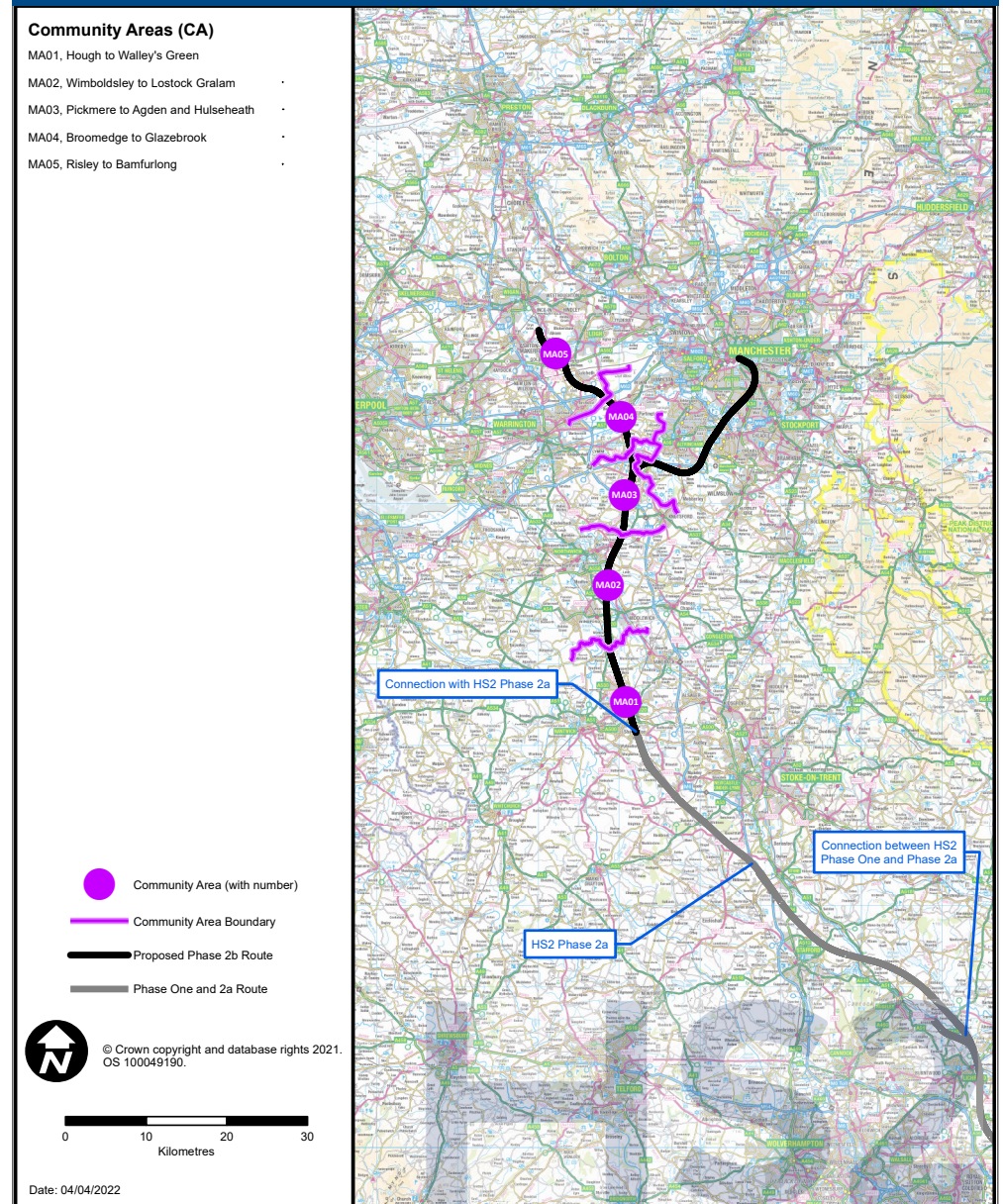
1.5 Scope of the SES1 and AP1 ES

The SES1 and AP1 ES report the assessment of changes to the design and construction assumptions, updates to the environmental baseline information and any corrections to the main ES for the section of the scheme in the following community areas (Figure 2):

- MA01: Hough to Walley's Green;
- MA02: Wimboldsley to Lostock Gralam;
- MA03: Pickmere to Agden and Hulseheath;
- MA04: Broomedge to Glazebrook; and
- MA05: Risley to Bamfurlong.

Changes to the design and construction assumptions and environmental baseline information for the remaining community areas and off-route works will be reported in a separate, future SES (referred to as SES2) and AP ES (referred to as AP2 ES).

Figure 2: Community areas included in the scope of the SES1 and AP1 ES



1.6 Terminology used to describe the scheme

The following terms are used to differentiate between the original scheme described in the main ES and subsequent changes and amendments:

- ‘the SES1 scheme’ – the original scheme with any changes described in SES1 (that is the SES1 changes as defined below); and
- ‘the AP1 revised scheme’ – the original scheme as amended by SES1 changes and AP1 amendments (that is the AP1 amendments as defined below).

The following terms are used to differentiate between changes included in the SES1 and those included in the AP1 ES:

- ‘SES1 design changes’ – changes to the scheme design reported in the SES1 that do not require additional powers;
- ‘SES1 changes’ – all changes reported in the SES1 (including SES1 design changes) that do not require additional powers. This may include new baseline information, changes to the design and construction assumptions, and corrections; and
- ‘AP1 amendments’ – amendments to the scheme reported in the AP1 ES that include requirements for additional powers in the Bill.

1.7 Structure of the SES1 and the AP1 ES

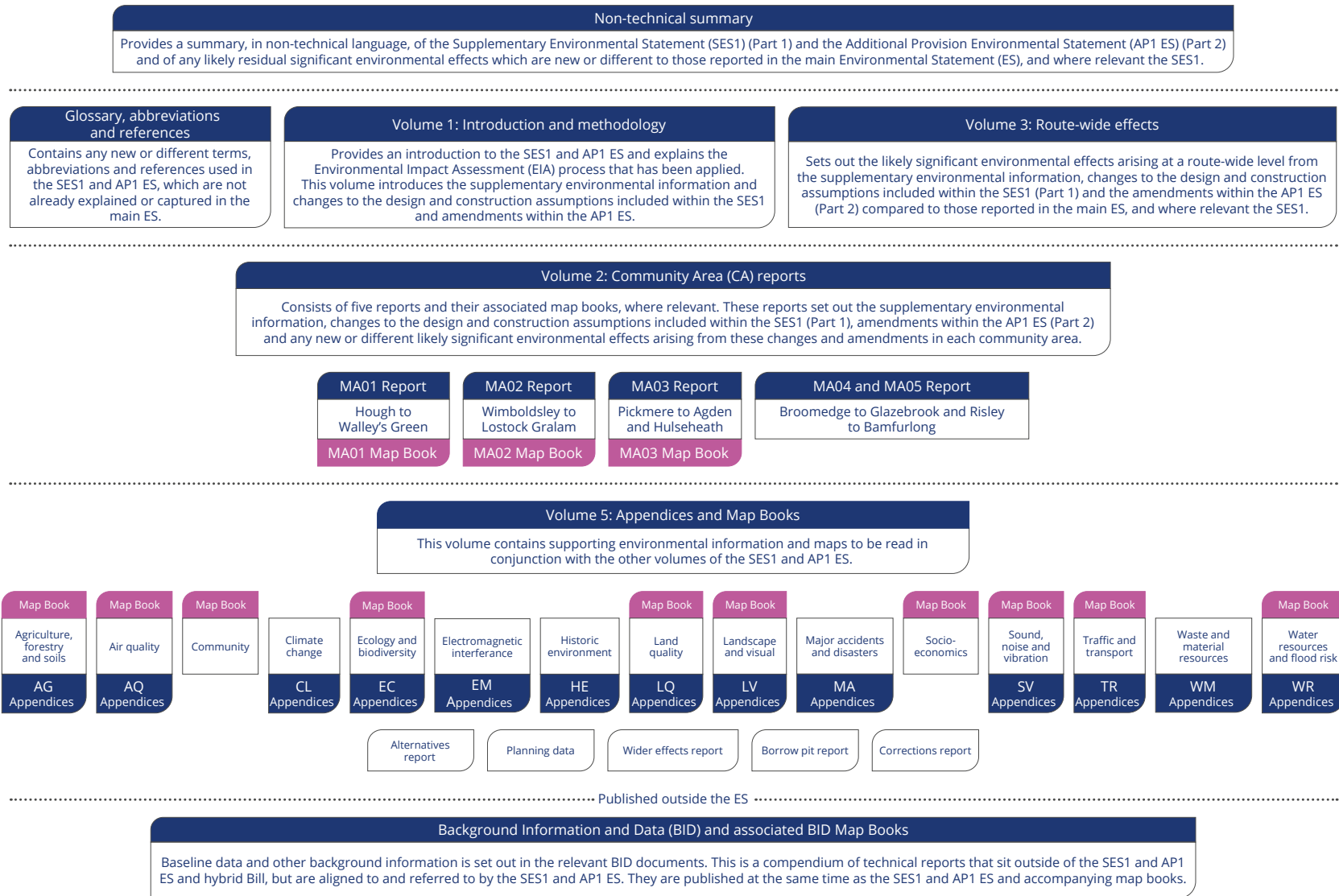
This report is part of the suite of documents that make up the SES1 and AP1 ES for High Speed Rail (Crewe – Manchester). The SES1 and the AP1 ES are separate documents, however, they are bound together and presented in a number of volumes described below:

- This **Non-technical summary (NTS)**. This provides a summary in non-technical language of the SES1 (Part 1) and the AP1 ES (Part 2). It presents a summary of any likely residual significant environmental effects, (i.e. effects which are likely to remain after mitigation measures are put in place), both beneficial and adverse, which are new, different or have been removed compared to those reported in the main ES;
- **Glossary of terms, list of abbreviations and references**. This contains any new or different terms and abbreviations used in the SES1 and the AP1 ES, which are not already explained in the main ES and provides the references cited in each of the volumes listed below;
- **Volume 1: Introduction to the SES1 and the AP1 ES**. This introduces the supplementary environmental information and changes to the design and construction assumptions included within the SES1 and amendments within the AP1 ES. The report explains the EIA process that has been applied;
- **Volume 2: Community Area reports and map books**. These report the supplementary environmental information and changes to the design and construction assumptions included within the SES1 (Part 1), amendments within the AP1 ES (Part 2) and any new, different or removed likely significant environmental effects arising from these changes and amendments in the community areas within the scope of the SES1 and AP1 ES;
 - these effects are compared to those reported in the main ES and as amended by the SES1 for the AP1 amendments;

-
- the maps relevant to each community area are provided in separate Volume 2 map books and should be read in conjunction with the relevant community area report;
 - the community area assessments for MA04: Broomedge to Glazebrook and MA05: Risley to Bamfurlong are combined into one report for Volume 2 of the SES1 and AP1 ES;
 - **Volume 3: Route-wide effects.** This describes any new or different likely significant environmental effects arising at a route-wide level from the supplementary environmental information and changes to the design and construction assumptions included within the SES1 (Part 1) and the amendments within the AP1 ES (Part 2) compared to those reported in the main ES (as amended by the SES1 for the AP1 amendments); and
 - **Volume 5: Appendices and map books.** These contain supporting environmental information and associated maps.

A Volume 4: Off-route effects report was produced as part of the main ES. An Off-route effects report has not been produced as part of this SES1 and AP1 ES. Any new or different off-route effects will be reported as part of SES2 and AP2 ES.

Figure 3: Structure of the SES1 and AP1 ES



Background information and data

Certain reports and maps containing background information and data (BID) have been produced, which do not form part of the SES1 and AP1 ES. These documents are available at <https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-supplementary-environmental-statement-1-and-additional-provision-1-environmental-statement>. The BID reports and maps present relevant survey information, and other relevant background material.

1.8 Approach to mitigation and monitoring

As set out in the main ES, legislation requires an ES to include measures to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment. They also require a description of any proposed monitoring arrangements of significant adverse effects on the environment.

The same approach to mitigation and monitoring described in the main ES applies to the effects set out in the SES1 and AP1 ES. This includes the draft Code of Construction Practice (CoCP), which sets out measures to manage and control the effects of construction. The draft CoCP was submitted with the Bill.

Other new or different mitigation measures are described within Volumes 2 and 3 of the SES1 and AP1 ES, where relevant.

1.9 Consultation on the SES1 and the AP1 ES

A formal public consultation is required by Parliament on both the SES1 and the AP1 ES. Members of the public will have a period of at least 42 days within which to make representations following the deposit of the SES1 and AP1 ES in Parliament and the first publication of the necessary newspaper notices that follows. Parliamentary officials will appoint an independent assessor who will summarise the issues raised in representations received from members of the public and provide a report to Parliament before the Third Reading of the Bill. The SES1 and AP1 ES and details of how to respond to the consultation can be viewed at <https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-supplementary-environmental-statement-1-and-additional-provision-1-environmental-statement>.

There will also be a separate petitioning period in relation to the AP1. Within this period, persons whose property or interests are specially and directly affected by the amendments to the Bill for which powers are sought under AP1 have the right to petition against the AP.

More information on who may petition against the AP, and how to do so, is available on Parliament's website www.parliament.uk.

1.10 Assessment approach

Scope of the assessment

A scoping exercise has been undertaken by environmental technical specialists to determine whether or not the SES1 changes and the AP1 amendments have the potential to give rise to any new or different likely significant environmental effects compared with those reported in the main ES. The scoping exercise considered the construction and operational effects of the SES1 changes and AP1 amendments for the following environmental topics:

- agriculture, forestry and soils;
- air quality;
- climate change (assessed at a route-wide level, rather than at the local community area level);
- community;
- ecology and biodiversity;
- electromagnetic interference (assessed at a route-wide level, rather than at the local community area level);
- health;
- historic environment;
- land quality;
- landscape and visual;
- major accidents and natural disasters (assessed at a route-wide level, rather than at the local community area level);

- socio-economics;
- sound, noise and vibration;
- traffic and transport;
- waste and material resources (assessed at a route-wide level, rather than at the local community area level); and
- water resources and flood risk.

Those SES1 changes and AP1 amendments identified as having the potential to result in new or different likely significant environmental effects were then subject to further assessment.

Part 1 of this report presents a summary of the likely significant effects as a result of the SES1 changes. Part 2 of this report presents a summary of the likely significant effects as a result of the AP1 amendments. In addition, Part 2 reports new or different likely significant effects as a result of changes in traffic flows. These relate to changes associated with SES1 changes and AP1 amendments, where the change in traffic flows cannot be directly attributed to a specific SES1 change or an AP1 amendment.

1.11 Assessment methodology

The Environmental Impact Assessment (EIA) Scope and Methodology Report was published as part of Volume 5 of the main ES in January 2022. The EIA process for the SES1 and the AP1 ES has followed that used for the main ES, subject to the methodology amendments in the SES1 and AP1 ES.

Since the main ES, there has been an update to the methodology for the assessment of air quality. The air quality methodology was provided in a technical note in Part B of the EIA Scope and Methodology Report for the main ES. The updated methodology is provided in Volume 5 of the SES1 and AP1 ES.

Since the main ES, there has been new guidance for the assessment of traffic and transport. In the main ES, future baseline traffic volumes were calculated for 2030, 2038 and 2046. However, the 2046 future baseline in the main ES has been updated to 2051 in order to give the assessment greater resilience to long-term growth in travel demand. Consequently, the operational assessment of the AP1 revised scheme has been undertaken for 2038 and 2051. A technical note setting out further details on the traffic and transport assessment methodology is provided in Volume 5 of the SES1 and AP1 ES.

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Part 1: Supplementary Environmental Statement 1



2 Introduction to the Supplementary Environmental Statement 1

2.1 Introduction

This part of the NTS relates to the SES1. It reports whether the updates, changes to the design and construction assumptions, or corrections (the 'SES1 changes') would result in any new or different likely residual significant environmental effects from those reported in the main ES at the community area level.

The SES1 is summarised on a community area basis in this NTS. For each community area the following information is included where relevant:

- updated or new baseline information where it is relevant to the reporting of likely significant residual environmental effects that are new or different to those reported in the main ES. This includes additional information concerning the environmental conditions for the following environmental topics:
 - air quality;
 - community;
 - ecology and biodiversity;
 - health;
 - land quality;
 - socio-economics;
 - sound, noise and vibration;
 - traffic and transport; and
 - water resources and flood risk;
- changes to construction assumptions that are being made within the existing powers of the Bill;
- SES1 design changes;
- corrections to the main ES; and
- details of any new or different likely residual significant effects from those reported in the main ES which are a result of the SES1 changes at a community area level.

2.2 Summary of the changes included in the SES1

The SES1 changes to the design and construction assumptions include:

- Removal of the HS2 WCML connection (SES1-004-001). Since the deposit of the Bill, the Secretary of State has decided to remove the HS2 WCML connection from near Hoo Green junction on the HS2 network to the Lily Lane junction on the WCML, near Golborne, included in the original scheme, from the High Speed Rail (Crewe – Manchester) Bill and has given this commitment to Parliament. The HS2 Phase 2b scheme will include a new short stub to provide for a future connection at Hoo Green. This will enable any future connection to the WCML north of Crewe in this location to be built with minimal disruption to the operation of HS2;
- Removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002). As reported in the main ES, the Bill provides for four borrow pits in the Wimboldsley to Lostock Gralam area (MA02) to provide material to construct elements of the original scheme. The SES1 scheme will remove one of the four borrow pits reported in the main ES in the Wimboldsley to Lostock Gralam area (MA02);
- Changes to the Peacock Lane realignment (SES1-003-002). The construction of Peacock Lane overbridge in the Pickmere to Agden and Hulseheath area (MA03) is no longer required and the realignment of Peacock Lane has been amended;
- Change to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001) in the Pickmere to Agden and Hulseheath area (MA03). A new route has been identified for the Scottish Power 132kV power line diversion which will avoid Belt Wood Ancient Woodland Inventory (AWI) site;
- Enhancement of landscape mitigation at Walley's Green embankment (SES1-002-001) in the Wimboldsley to Lostock Gralam area (MA02). Opportunities for maximising the re-use of surplus material through enhancement to landscape earthworks have been sought; and
- Changes to construction workforce at 26 compounds across the community areas.

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3 Hough to Walley's Green community area (MA01)



3.1 New environmental baseline information

Since the main ES, additional baseline information has become available that relates to the following environmental topics in the Hough to Walley's Green area:

- air quality – revised traffic data for the baseline and future baseline years have become available for the air quality assessment;
- community – the future baseline has been updated with an associated increase in community resources within the area through implementation of a committed development;
- ecology and biodiversity – additional Phase 1 habitat, pond and canal, bat and great crested newt surveys have been completed, and new baseline data relating to the designation of nature conservation areas has been published by Cheshire Wildlife Trust;
- health – the future baseline has been updated with an associated increase in health resources within the area through implementation of a committed development;
- land quality – environmental regulatory data has been updated which includes an additional pollution incident to controlled waters, a new discharge consent, two environmental permits associated with food manufacture and two additional petrol station sites;
- socio-economics – inclusion of one additional committed development which has altered the baseline data;
- sound, noise and vibration – revised road traffic information for baseline and future baseline years have become available for the sound, noise and vibration assessment;

- traffic and transport – additional traffic information has been used in the development of updated baseline and future baseline models; and
- water resources and flood risk – updated datasets have become available for groundwater source protection zones, discharge consents and licensed water abstractions.

3.2 Changes to the design and construction assumptions within the existing powers of the Bill

Since the main ES, a route-wide review of earthworks and movement of materials has been undertaken, and changes to assumed construction methods have been made. This has resulted in a need to alter the indicative construction programme.

There will also be changes to construction workforce at six compounds.

There are no SES1 changes in the Hough to Walley's Green area (MA01).

3.3 Corrections to the main ES

Since the main ES the need for a number of corrections to its contents has been identified. The corrections include instances where there has been a need to correct the Volume 2 Community Area report for the Hough to Walley's Green area because of the potential to alter the significant environmental effects reported in the main ES or a factual inaccuracy relating to a significant effect that has been identified. Corrections also clarify elements of the scheme description reported in the main ES.

Each correction has been reviewed to consider whether there is potential for any likely new or different significant environmental effects from those described in the main ES. Where relevant, these corrections have been taken into account in the technical assessments reported within the SES1.

3.4 Summary of significant residual environmental effects for the Hough to Walley's Green area (MA01) in the SES1

The additional baseline information, changes to the design, changes to the construction assumptions and corrections have been reviewed and those that give rise to new or different likely significant residual effects within the Hough to Walley's Green area are reported in the following paragraphs.

Ecology and biodiversity

Effects arising during construction

Since the main ES, additional great crested newt and bat surveys have been undertaken which result in different effects on great crested newt and bat compared to those reported in the main ES. However, the level of significance of the effects remains the same as those reported in the main ES.

Sound, noise and vibration

Effects arising during construction

The main ES identified a significant adverse construction noise effect in the vicinity of approximately 250 dwellings at Coppenhall, in the vicinity of Broughton Road. The SES1 changes to the existing baseline sound levels will give rise to a different likely temporary residual adverse significant construction noise effect on this residential community, due to a decrease in the number of dwellings affected from approximately 250 properties to approximately 230 properties.

Traffic and transport

Effects arising during construction

The main ES reports an incorrect effect on congestion and delay for vehicle occupants at the A532 Earle Street/A532 Manchester Bridge/William Street/Grand Junction Way junction during construction. The correct effect is moderate adverse.

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4 Wimboldsley to Lostock Gralam community area (MA02)



4.1 New environmental baseline information

Since the main ES, additional baseline information has become available that relates to the following environmental topics in the Wimboldsley to Lostock Gralam area:

- air quality – revised traffic data for the baseline and future baseline years have become available for the air quality assessment;
- ecology and biodiversity – additional Phase 1 habitat, hedgerow, National Vegetation Classification, pond and canal, river habitat, bat, great crested newt, otter and water vole surveys have been completed, and new baseline data relating to the designation of nature conservation areas have been received;
- land quality – environmental regulatory data has been updated which includes an additional 14 pollution incidents to controlled waters, two substantiated pollution incidents, a new discharge consent, and four environmental permits associated with a petrol station site and a gas governing station;
- sound, noise and vibration – revised road traffic information for baseline and future baseline years have become available for the sound, noise and vibration assessment;
- traffic and transport – additional traffic information has been used in the development of updated baseline and future baseline models; and
- water resources and flood risk – additional water quality data have been collected for Puddinglake Brook, Gad Brook and Wade Brook, and updated datasets have become available for groundwater source protection zones, discharge consents and licensed water abstractions.

4.2 Changes to the design and construction assumptions within the existing powers of the Bill

Since the main ES, a route-wide review of earthworks and movement of materials has been undertaken, and changes to assumed construction methods have been made. This has resulted in a need to alter the indicative construction programme.

There will also be changes to construction workforce at 11 compounds.

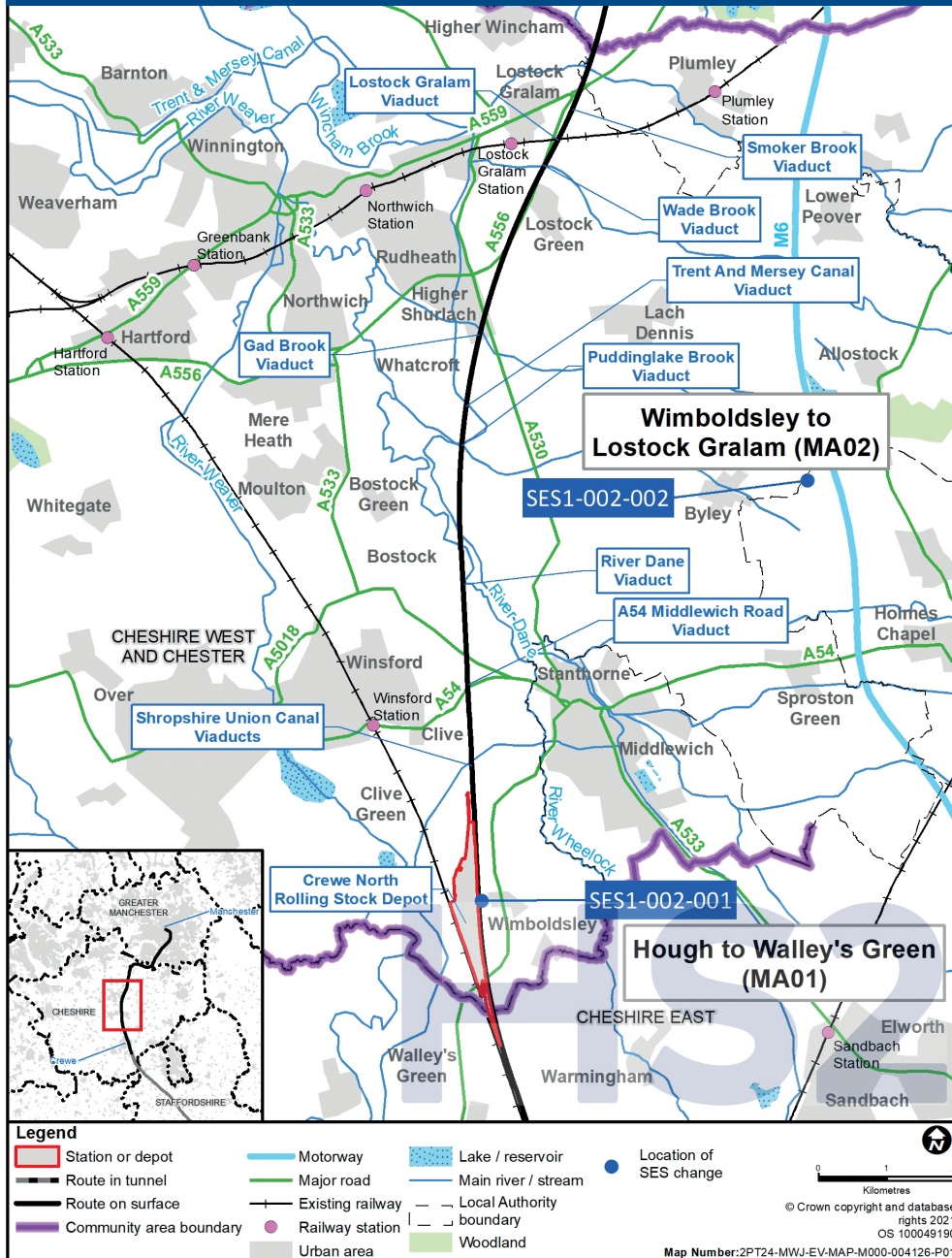
Table 1 presents a summary of the changes to the design and construction assumptions within the Wimboldsley to Lostock Gralam area and provides a description of the original scheme and the SES1 scheme.

Figure 4 shows the locations of the SES1 engineering design changes within the Wimboldsley to Lostock Gralam area.

Table 1: Summary of changes to the design not requiring a change to the Bill in the Wimboldsley to Lostock Gralam area

Name of SES1 design change	Description of the original scheme	Description of the SES1 scheme
Enhancement of landscape mitigation at Walley's Green embankment SES1-002-001	The provision of landscape earthworks and landscape mitigation planting on the eastern side of Walley's Green embankment. The Bill also includes a HS2 maintenance access road alongside the eastern side of the HS2 route.	The landscape earthworks along the eastern side of the Walley's Green embankment will be reduced in steepness, which will improve the integration of the embankment slopes into the surrounding landscape along the east of Crewe North rolling stock depot (RSD). The proposed HS2 maintenance access road, included within the original scheme, will be realigned to follow the lower edge of the new landscape earthworks.
Removal of MA02 Borrow Pit D, north of Moss Lane SES1-002-002	The provision of four borrow pits (Borrow Pits A, B, C and D) in the Wimboldsley to Lostock Gralam area to provide material to construct elements of the original scheme, in particular to construct railway embankments.	There is no longer a requirement for granular material to be generated from MA02 Borrow Pit D as a result of the removal of the HS2 WCML (WCML) connection (SES1-004-001) and associated infrastructure. Therefore, the MA02 Borrow Pit D has been removed from the scheme. MA02 Borrow Pits A, B and C will be retained.

Figure 4: Locations of the SES1 engineering and utility design changes not requiring a change to the Bill in the Wimboldsley to Lostock Gramlam area



4.3 Corrections to the main ES

Since the main ES, the need for a number of corrections to its contents has been identified. The corrections include instances where there has been a need to correct the Volume 2 Community Area report for the Wimboldsley to Lostock Gramlam area because of the potential to alter the significant environmental effects reported in the main ES or a factual inaccuracy relating to a significant effect that has been identified. Corrections also clarify elements of the scheme description reported in the main ES.

Each correction has been reviewed to consider whether there is potential for any likely new or different significant environmental effects from those described in the main ES. Where relevant, these corrections have been taken into account in the technical assessments reported within the SES1.

4.4 Summary of significant residual environmental effects for the Wimboldsley to Lostock Gramlam area (MA02) in the SES1

The additional baseline information, changes to the design, changes to the construction assumptions and corrections have been reviewed and those that give rise to new or different likely significant residual effects within the Wimboldsley to Lostock Gramlam area are reported in the following paragraphs.

Agriculture, forestry and soils

Effects arising during construction

The removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002) from the original scheme will remove a temporary major/moderate adverse significant effect from Wash Lane Farm and remove a temporary moderate adverse significant effect from Pear Tree Farm, Cranage.

Community

Effects arising from operation

The main ES reported a major adverse in-combination effect on approximately 25 residential properties in Stanthorne. The removal of the noise effect as a result of changes to the sound, noise and vibration baseline will result in the removal of a residual effect on these 25 residential properties.

Ecology and biodiversity

Effects arising during construction

On a precautionary basis, it is assumed that the SES1 scheme will result in a net loss in hedgerow of 54.6km (reduced from 56.9km as reported in the main ES). This will remain a permanent adverse residual effect that is significant at the county/metropolitan level, as reported in the main ES. In addition to the mitigation described in the main ES, opportunities will be sought for additional retention and replacement of hedgerow within the land required for temporary works.

Health

Effects arising from operation

The main ES reported an adverse neighbourhood quality effect for residents in Stanthorne. The removal of the noise effect as a result of changes to the sound, noise and vibration baseline will result in the removal of the adverse neighbourhood quality effect in Stanthorne.

Historic environment

Effects arising during construction

The main ES reported a permanent residual moderate adverse significant effect on the former RAF Cranage Airfield, a non-designated heritage asset of low value. The SES1 scheme will remove the likely residual significant effect on the asset as a result of the removal of MA02 Borrow Pit D (SES1-002-002).

Land quality

Effects arising during construction

As a result of the removal of MA02 Borrow Pit D (SES1-002-002), the significant moderate beneficial residual effect associated with the potential remediation of land contamination at MA02 Borrow Pit D will not occur.

Landscape and visual

Effects arising during construction

The removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002), will remove likely residual significant construction effects at the following viewpoints:

- view south-west from King's Lane Farm, King's Lane;
- view north-west from Bypass Cranage 7/1, A54 Middlewich Road; and
- view north-east from Moss Lane.

Effects arising from operation

The enhancement of landscape mitigation at Walley's Green embankment (SES1-002-001), will give rise to a different likely residual significant operational effect at the view west from Bellsmithy, A530 Nantwich Road and the view west from Wimboldsley, A530 Nantwich Road. However, the level of effect will remain moderate adverse, as reported in the main ES

Socio-economics

Effects arising during construction

The main ES reported a temporary adverse significant in-combination effect on the Holford Hall Estate wedding venue, located east of Lostock Gralam, as a result of noise effects and heavy goods vehicle (HGV) traffic. The SES1 change to the construction design programme will result in the venue being subject to a different adverse residual significant in-combination effect due to an increase in the duration of the significant noise effects.

Sound, noise and vibration

Effects arising during construction

The main ES identified a significant adverse construction noise effect at Holford Hall, a wedding venue located off the A556 Chester Road in Plumley. The SES1 changes to the construction programme will give rise to a different likely temporary residual adverse significant construction noise effect on the venue due to an increased impact duration.

Effects arising from operation

The main ES identified a likely significant adverse operational airborne noise effect on a community basis with a noise impact at approximately 25 dwellings in Stanthorne in the vicinity of Birch Lane and Coalpit Lane. Higher existing baseline noise levels in this area will result in the removal of the significant operational noise effect in the vicinity of approximately 15 dwellings at Stanthorne, which is not considered to be significant on a community basis.

Water and flood risk

Effects arising during construction

The removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002) will lead to the removal of the temporary and permanent moderate adverse effects reported in the main ES on the glaciofluvial sheet deposits (Secondary A aquifer) and the temporary moderate adverse effect on Puddinglake Brook.

Traffic and transport

Effects arising during construction

The need for a temporary closure on Coalpit Lane during utility works should have been reported in the main ES. This correction will lead to a new temporary minor adverse significant effect with regard to changes in journey lengths for vehicle occupants and non-motorised users on Coalpit Lane.

The main ES reports a major adverse effect on congestion and delay for vehicle occupants at the A54 Holmes Chapel Road/Pochin Way/Centurion Way junction during construction. The correct effect is moderate adverse.

The main ES reports a minor adverse effect on congestion and delay for vehicle occupants at the A556 Chester Road/A559 Manchester Road junction during operation in 2046. The main ES should have reported no effect.

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5 Pickmere to Agden and Hulseheath community area (MA03)



5.1 New environmental baseline information

Since the main ES, additional baseline information has become available that relates to the following environmental topics in the Pickmere to Agden and Hulseheath area:

- air quality – revised traffic data for the baseline and future baseline years have become available for the air quality assessment;
- ecology and biodiversity – additional Phase 1 habitat, hedgerow, National Vegetation Classification, pond and canal, bat, great crested newt, otter and water vole surveys have been completed, and new baseline data relating to the designation of nature conservation areas have been received;
- land quality – environmental regulatory data has been updated which includes a new discharge consent to the Rostherne Brook and two new discharges to groundwater;
- sound, noise and vibration – revised road traffic information for baseline and future baseline years have become available for the sound, noise and vibration assessment;
- traffic and transport – additional traffic information has been used in the development of updated baseline and future baseline models; and
- water resources and flood risk – removal of a high value groundwater receptor (the well at Heyrose Farm, Over Tabley, Knutsford) from the assessment and updated datasets have become available for groundwater source protection zones, discharge consents and licensed water abstractions.

5.2 Changes to the design and construction assumptions within the existing powers of the Bill

Since the main ES, a route-wide review of earthworks and movement of materials has been undertaken, and changes to assumed construction methods have been made. This has resulted in a need to alter the indicative construction programme.

There will also be changes to construction workforce at nine compounds.

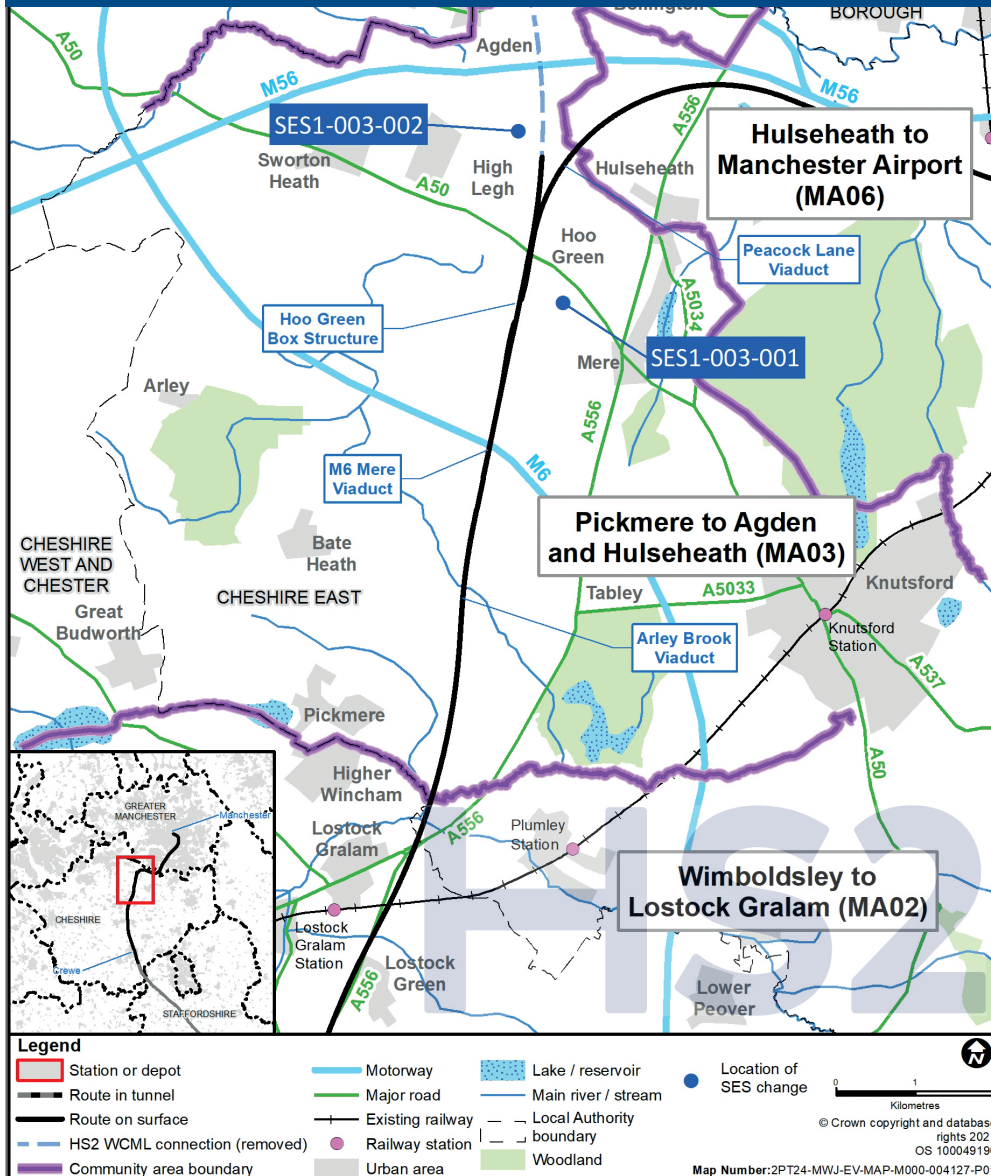
Table 2 presents a summary of the changes to the design and construction assumptions within the Pickmere to Agden and Hulseheath area and provides a description of the original scheme and the SES1 scheme.

Figure 5 shows the locations of the SES1 engineering design changes within the Pickmere to Agden and Hulseheath area.

Table 2: Summary of changes to the design not requiring a change to the Bill within the Pickmere to Agden and Hulseheath area

Name of SES1 design change	Description of the original scheme	Description of the SES1 scheme
<p>Change to the diversion of a Scottish Power 132kV underground route, near Belt Wood</p> <p>SES1-003-001</p>	<p>Land would be permanently required for the diversion of a Scottish Power 132kV power line, extending from the Bucklow Hill Lane/Hulseheath Lane junction to the southern connection with the existing line within and in the vicinity of Belt Wood, passing through Belt Wood Local Wildlife Site and Ancient Woodland Inventory site covering an area of 10.5ha of lowland mixed deciduous woodland.</p>	<p>The Scottish Power 132kV power line will be rerouted between the Bucklow Hill Lane/Hulseheath Lane junction and the southern connection to the existing line, with the majority of the power line underground. There will be a short section (140m) of overhead line including one steel tower located at the southern end of the diversion.</p> <p>The rerouted power line will avoid 1.1ha of Belt Wood, including all of Belt Wood Ancient Woodland (400m2).</p>
<p>Changes to the Peacock Lane realignment</p> <p>SES1-003-002</p>	<p>Peacock Lane would be permanently realigned to cross over the HS2 WCML connection on Peacock Lane overbridge, and to cross under the HS2 route beneath Peacock Lane viaduct, decreasing journey length by 21m. Back Lane would also be permanently diverted to tie-in with Peacock Lane realignment.</p>	<p>Peacock Lane overbridge will no longer be required so the Peacock Lane realignment will pass north of the Hoo Green north cutting instead of over it.</p> <p>Landscape mitigation planting on the area identified in the original scheme for Peacock Lane overbridge will be removed but the highway realignment will be bound by hedgerows to the north and south.</p>
<p>Removal of the HS2 WCML connection</p> <p>SES1-004-001</p>	<p>The Bill provides for a section of the route in the Pickmere to Agden and Hulseheath area to connect with the WCML at the A58 Lily Lane (near Bamfurlong) in the Risley to Bamfurlong area (MA05).</p> <p>The section of the WCML connection in the Pickmere to Agden and Hulseheath area (MA03) in the original scheme would be 3.2km from a location where it diverges from the HS2 route west of Hulseheath, to the southern boundary of the Broomedge to Glazebrook area (MA04).</p> <p>There would be infrastructure and mitigation associated with the HS2 WCML connection in the Pickmere to Agden and Hulseheath area including line of route elements such as High Legh and Agden cuttings.</p>	<p>The HS2 WCML connection from a location immediately north of the Peacock Lane auto-transformer feeder station to Lily Lane junction near Golborne, on the WCML will be removed from the Bill scheme.</p> <p>As a consequence, the line of route elements and associated infrastructure will be removed. Modifications to the existing WCML for the HS2 WCML connection in this location, as reported in the main ES, would no longer be required. A connection to the WCML will still be provided through the Crewe Northern Connection.</p> <p>The following will be retained within the High Speed Rail (Crewe – Manchester) Bill scheme:</p> <ul style="list-style-type: none"> • a new short stub to provide for a future connection at Hoo Green. This will enable a future connection to the WCML north of Crewe in this location to be built with minimal disruption to the operation of HS2; and • powers to undertake works at Preston and Carlisle stations and powers to provide a depot at Annandale (see Volume 4, Off-route works of the main ES) to serve a future connection to the WCML.

Figure 5: Locations of the SES1 engineering and utility design changes not requiring a change to the Bill in the Pickmere to Agden and Hulseheath area



5.3 Corrections to the main ES

Since the main ES the need for a number of corrections to its contents has been identified. The corrections include instances where there has been a need to correct the Volume 2 Community Area report for the Pickmere to Agden and Hulseheath area because of the potential to alter the significant environmental effects reported in the main ES or a factual inaccuracy relating to a significant effect that has been identified. Corrections also clarify elements of the scheme description reported in the main ES.

Each correction has been reviewed to consider whether there is potential for any likely new or different significant environmental effects from those described in the main ES. Where relevant, these corrections have been taken into account in the technical assessments reported within the SES1.

5.4 Summary of significant residual environmental effects for the Pickmere to Agden and Hulseheath area (MA03) in the SES1

The additional baseline information, changes to the design, changes to the construction assumptions and corrections have been reviewed and those that give rise to new or different likely significant residual effects within the Pickmere to Agden and Hulseheath area are reported in the following paragraphs.

Agriculture, forestry and soils

Effects arising during construction

The removal of the HS2 WCML connection (SES1-004-001) and the change to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001) will reduce the overall area of best and most versatile (BMV) agricultural land required in the Pickmere to Agden and Hulseheath area. However, the overall effect of the SES1 scheme on the agricultural land resource will remain major/moderate, as reported in the main ES.

The change to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001) will reduce a major adverse significant effect at Knowlspit Farm with Bentleyhurst Farm (MA03/19) to a major/moderate adverse effect, due to a reduction in the area of land required.

Community

Effects arising during construction

Changes to the Peacock Lane realignment (SES1-003-002) and removal of the HS2 WCML connection (SES1-004-001) will result in different significant in-combination residual effects on:

- approximately five residential properties in the vicinity of Budworth Road, Tabley Superior due to updates to the sound, noise and vibration baseline and the construction programme increasing to the duration of noise effects combining with visual effects; and
- approximately 15 residential properties on Chapel Lane, Thowler Lane and Peacock Lane in Hulseheath due to a reduction in the number of properties affected by five and an increase in the duration of the noise effect.

Effects arising from operation

Changes to the sound, noise and vibration baseline combined with significant visual effects as reported in the main ES, will result in a new major adverse in-combination effect on approximately 40 residential properties in the vicinity of Pickmere Lane and School Lane.

The removal of the HS2 WCML connection (SES1-004-001) and updates to the sound, noise and vibration baseline will result in a different significant residual effect on an additional five properties on Back Lane, Thowler Lane and Peacock Lane due to noise and visual effects. In total, there will be a different major adverse in-combination effect on 20 residential properties in Hulseheath due to noise and visual effects, an increase of five properties compared to that reported in the main ES.

The removal of the HS2 WCML connection (SES1-004-001) will result in the removal of a major adverse in-combination effect on five residential properties in Winterbottom.

Ecology and biodiversity

Effects arising during construction

On a precautionary basis, it is assumed that the SES1 scheme will result in a net loss in hedgerow of 40.2km in this area, which is 6.7km less than the loss reported in the main ES, due to the re-routing of a Scottish Power 132kV power line diversion (SES1-003-001) and the removal of the HS2 WCML connection (SES1-004-001). This will remain a permanent adverse residual effect that is significant at the county/metropolitan level, as reported in the main ES. In addition to the mitigation described, opportunities will be sought for additional retention and replacement of hedgerow within the land required for temporary works.

The change to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001) means that the Belt Wood AWI site will not be affected by the SES1 scheme. This will remove the permanent adverse significant effect at the national level reported in the main ES.

The removal of the HS2 WCML connection (SES1-004-001) will remove the significant adverse effects at up to county/metropolitan level reported in the main ES for a meta-population of great crested newt located north of High Legh and population of great crested newt in a pond located south-west of Hale.

Effects arising from operation

The removal of the HS2 WCML connection (SES1-004-001) will remove significant adverse regional level effects caused by potential for collisions of trains with bats of the assemblage between the M56, the River Bollin and the Bridgewater Canal within the Pickmere to Agden and Hulseheath area (MA03) and Broomedge to Glazebrook area (MA04).

Health

Effects arising during construction

Updates to the sound, noise and vibration baseline and new construction traffic data, will result in an increase to the duration of noise effects and therefore a different adverse neighbourhood quality effect for residents in the vicinity of Budworth Road, Tabley Superior.

The removal of the HS2 WCML connection (SES1-004-001) and changes to the Peacock Lane realignment (SES1-003-002) will reduce the number of properties affected by significant adverse noise effects. The duration of noise effects is expected to increase as a result of construction works. This change will result in a different significant adverse neighbourhood quality effect for residents in Hulseheath.

Effects arising from operation

Changes to the sound, noise and vibration baseline will result in a new adverse neighbourhood quality effect for residents in the vicinity of Pickmere Lane and School Lane. The operation of the SES1 scheme will result in significant visual effects. Residents are likely to experience these features of the Proposed Scheme as changing the quality of their neighbourhood and are likely to regard that change as adverse, both in diminishing the amenity of the area and in reducing its rural character and tranquillity.

The removal of the HS2 WCML connection (SES1-004-001) will remove the significant noise effect in Winterbottom and therefore remove the adverse neighbourhood quality effect reported in the main ES.

Updates to the sound, noise and vibration baseline, and the removal of the HS2 WCML connection (SES1-004-001) will result in additional properties experiencing significant noise effects. This will result in a different adverse neighbourhood quality effect for residents on Back Lane, Thowler Lane and Peacock Lane in Hulseheath compared to the effect reported in the main ES.

Historic environment

Effects arising during construction

Removal of the HS2 WCML connection (SES1-004-001) will remove the likely residual moderate adverse significant effect on Ovenback Cottage (Grade II listed) and the Group of levelled rectilinear banks and ditches representing the former gardens of Agden Hall (non-designated heritage asset).

Landscape and visual

Effects arising during construction

Change to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001), changes to the Peacock Lane realignment (SES1-003-002) and removal of the HS2 WCML connection (SES1-004-001) will give rise to a different likely residual significant construction effect for the Arley Lower Wooded Farmland Landscape Character Area (LCA). However, the level of effect will remain major adverse, as reported in the main ES.

The change to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001) will give rise to a different likely residual significant construction effect on the view west from Bentleyhurst Farm and Bridleway Mere 1/1 and the view south-west from the A50 Cliff Lane/Warrington Road/Knutsford Road. The level of effect will reduce but remain moderate adverse, as reported in the main ES.

Changes to the Peacock Lane realignment (SES1-003-002) and the removal of the HS2 WCML connection (SES1-004-001) will give rise to a different likely residual significant construction effect at the view south from Thowler Lane and the view east from Moss Lane. The level of effect will reduce but remain major adverse, as reported in the main ES. These SES1 changes will also give rise to a different likely residual significant construction effect at view south-west from Agden Lane and the level of significance reported in the main ES will reduce from major adverse to moderate adverse.

The SES1 changes will result in the removal of the following likely residual significant landscape and visual effects reported in the main ES on:

- residents of Agden Lane and Moss Lane;
- residents of Agden Hall and 'Four Winds';
- users of Footpaths Agden 1/2, 1/4 and 5/1;

- residents on Lymm Road and Agden Park Lane;
- users of the Cheshire Ring Canal Walk, Footpath Agden 9/2 and recreational boat users on the Bridgewater Canal; and
- residents of Woolstencroft Cottage and Woolstencroft Farm and users of Footpath Agden 6/2.

Effects arising from operation

Change to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001), changes to the Peacock Lane realignment (SES1-003-002) and removal of the HS2 WCML connection (SES1-004-001) will give rise to a different likely residual significant operational effect for the Arley Lower Wooded Farmland LCA. However, the level of effect will remain major adverse (significant) as reported in the main ES.

Changes to the Peacock Lane realignment (SES1-003-002) and removal of the HS2 WCML connection (SES1-004-001) will give rise to a different likely residual significant operational effect for the view south from Thowler Lane. The effect will reduce but will remain moderate adverse (significant).

The SES1 changes will remove the following likely residual significant landscape and visual effects reported in the main ES for:

- residents of Moss Lane and Peacock Lane and users of Footpath High Legh 4/1;
- road users on Agden Lane, Thowler Lane and Boothbank Lane (in the adjoining Hulseheath to Manchester Airport area (MA06));
- residents of Agden Lane and Moss Lane;
- residents of Agden Hall and 'Four Winds' and users of Footpaths Agden 2/3, 2/4 and 3/3;
- users of Footpaths Agden 1/2, 1/4 and 5/1;

- users of the Cheshire Ring Canal Walk, Footpath Agden 9/2 and recreational boat users on the Bridgewater Canal; and
- residents of Woolstencroft Cottage and Woolstencroft Farm and by users of Footpath Agden 6/2.

Sound, noise and vibration

Effects arising during construction

Different significant residual adverse noise effects from construction activities on residential communities in Tabley Superior are likely as a result of the changes to the Peacock Lane realignment (SES1-003-002) and removal of the HS2 WCML connection (SES1-004-001) and changes to existing baseline sound levels increasing the duration of impact at this community.

Different significant residual adverse noise effects from construction activities on residential communities in Hulseheath are likely as a result of the removal of the HS2 WCML connection (SES1-004-001) decreasing the number of properties affected at this community to approximately 15 dwellings.

The SES1 changes to the existing baseline sound levels will give rise to a different likely temporary residual adverse significant construction noise effect on residential communities in Pickmere due to construction activities.

Effects arising from operation

SES1 changes to existing baseline noise levels and the removal of the HS2 WCML connection (SES1-004-001) will give rise to different residual likely significant adverse operational noise effects on residential communities in Hulseheath, due to an increase in the number of properties affected.

SES1 changes to existing baseline noise levels will give rise to a new residual likely significant adverse operational noise effect on residential communities in Pickmere.

The SES1 changes will remove a significant adverse operational airborne noise effect on a community basis at approximately five dwellings in the vicinity of Winterbottom Lane.

Traffic and transport

Effects arising during construction

Removal of the HS2 WCML connection (SES1-004-001) and changes to the Peacock Lane realignment (SES1-003-002) will remove the following likely residual temporary significant effects reported in the main ES:

- moderate adverse effect on non-traffic related severance for non-motorised users of Agden Lane;
- moderate adverse effect on non-traffic related severance for users of Footpath Agden 2/4;
- moderate adverse effect on non-traffic related severance for users of Footpath Agden 4/1;
- minor adverse effect on non-traffic related severance for users of Footpath Agden 1/2; and
- moderate cumulative adverse effect due to changes in journey lengths for vehicle users on the M56 due to weekend and overnight closures.

The need for a temporary closure on Hulseheath Lane during utility works should have been identified in the main ES. This correction will lead to a new minor adverse significant effect with regard to changes in journey lengths for vehicle occupants and non-motorised users on Hulseheath Lane.

Effects arising from operation

Removal of the HS2 WCML connection (SES1-004-001) and changes to the Peacock Lane realignment (SES1-003-002) will remove the following likely residual permanent significant effects reported in the main ES:

- minor adverse effect due to changes in journey lengths for vehicle users on Agden Lane;
- moderate adverse effect on non-traffic related severance for non-motorised users of Agden Lane;
- moderate adverse effect on non-traffic related severance for users of Footpath Agden 2/4;
- moderate adverse effect on non-traffic related severance for users of Footpath Agden 4/1; and
- minor adverse effect on non-traffic related severance for users of Footpath Agden 1/2.

Water resources and flood risk

Effects arising during construction

The change to a utility diversion (SES1-003-001) SES1 design change will lead to the removal of the permanent moderate adverse effect reported in the main ES on the potential spring at Belt Wood east.

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**6 Broomedge to Glazebrook community area (MA04)
and Risley to Bamfurlong community area (MA05)**



6.1 Changes to the design and construction assumptions within the existing powers of the Bill

Since the deposit of the Bill, the Secretary of State has decided to remove the HS2 WCML connection, included in the original scheme, from the High Speed Rail (Crewe – Manchester) Bill and has given this commitment to Parliament. As a result, the WCML connection from near the Hoo Green junction on the HS2 network to the Lily Lane junction, near Golborne, on the WCML will be removed. Modifications to the existing WCML for the HS2 WCML connection in this location, as reported in the main ES, would no longer be required.

Table 3 presents a summary of this change to the design and construction assumptions within the Broomedge to Glazebrook and Risley to Bamfurlong areas and provides a description of the original scheme and the SES1 scheme.

Table 3: Summary of changes to the design not requiring a change to the Bill within the Broomedge to Glazebrook (MA04) and the Risley to Bamfurlong (MA05) areas

Name of SES1 design change	Description of the original scheme	Description of the SES1 scheme
<p>Removal of the HS2 WCML connection</p> <p>SES1-004-001</p>	<p>The Bill provides for the HS2 WCML connection between the Hoo Green junction (south of Peacock Lane overbridge) in the Pickmere to Agden and Hulseheath area (MA03) and the A58 Lily Lane (near Bamfurlong) in the Risley to Bamfurlong area (MA05).</p> <p>The section of the original scheme in the Broomedge to Glazebrook area (MA04) would be approximately 7.3km from the northern boundary of the Pickmere to Agden and Hulseheath area (MA03) to the southern boundary of the Risley to Bamfurlong area (MA05).</p> <p>The section of the original scheme in the Risley to Bamfurlong area would be approximately 12.7km from the northern boundary of the Broomedge to Glazebrook area (MA04) to the northern border of the Risley to Bamfurlong area (MA05) where the route would connect with the WCML at the A58 Lily Lane junction.</p> <p>There would be infrastructure and mitigation associated with the WCML connection in the Broomedge to Glazebrook and Risley to Bamfurlong areas including line of route elements such as Manchester Ship Canal viaduct and M62 West viaduct and Lowton cutting.</p>	<p>The HS2 WCML connection from a location immediately north of the Peacock Lane auto-transformer feeder station (in the Pickmere to Agden and Hulseheath area (MA03)) to Lily Lane junction near Golborne, on the WCML will be removed from the Bill scheme. Modifications to the existing WCML for the HS2 WCML connection in this location, as reported in the main ES, would no longer be required.</p> <p>The 7.3km section of the HS2 WCML connection in the Broomedge to Glazebrook area as set out in the original scheme, with the exception of the wetland habitat creation (restoration) at Little Woolden Moss, will be removed. The 12.7km section of the HS2 WCML connection in the Risley to Bamfurlong area, as set out in the original scheme, will be removed.</p> <p>As a consequence of the SES1 design change, all civil engineering and railway systems compounds and associated construction activities, with the exception of some construction traffic routes, in the Broomedge to Glazebrook area and Risley to Bamfurlong area, will not be required</p> <p>A connection to the WCML will still be provided through the Crewe Northern Connection.</p>

6.2 Summary of significant residual environmental effects for the Broomedge to Glazebrook area (MA04) and Risley to Bamfurlong area (MA05) in the SES1

With the exception of the effects reported in Section 12 (Part 2: AP1 ES, Broomedge to Glazebrook community area (MA04) and Risley to Bamfurlong community area (MA05)) of this report, all significant effects reported in the main ES from construction and operation activities in the Broomedge to Glazebrook area and Risley to Bamfurlong area will be removed as a result of the SES1 scheme.

7 Volume 3, Route-wide effects



7.1 Introduction

Volume 3 presents a summary of the new, different or removed likely residual environmental effects that have been identified on a route-wide basis as a result of the SES1 changes. Further information is provided in Volume 3, Route-wide effects of the SES1.

Changes as a result of the SES1 scheme are reported in this section for the following topics: agriculture, forestry and soils; ecology and biodiversity; health; socio-economics; and water resources and flood risk.

Some route-wide topic assessments of the SES1 changes and AP1 amendments have been assessed collectively due to the nature of the topic assessment methodology. These assessments are reported in Section 13 (Part 2: AP1 ES, Volume 3, Route-wide effects) of this document.

Agriculture, forestry and soils

Temporary effects

The main ES reported that a total of approximately 1,995ha of agricultural land would be temporarily required within the original scheme, of which 856ha is BMV land. The total agricultural land within the SES1 scheme required temporarily is approximately 1,052ha, of which approximately 474ha is BMV land. These reductions are largely due to the removal of the HS2 WCML connection (SES1-004-001). The total area required temporarily for the construction of the SES1 scheme, which will be restored to agriculture, will be 556ha.

These changes do not result in any new or different temporary significant route-wide level effects on agriculture, forestry or soils.

Permanent effects

The total area of agricultural land permanently required for the SES1 scheme will be approximately 496ha, compared to 927ha total agricultural land reported in the main ES. This is largely due to the removal of the HS2 WCML connection (SES1-004-001). The SES1 scheme will permanently require approximately 184ha of BMV land (Grade 2 and Subgrade 3a), compared to 311ha of BMV land (Grade 1, Grade 2 and Subgrade 3a) in the original scheme.

The main ES reports that approximately 115ha of agricultural land would be permanently required for newly planted woodland or trees for visual screening or habitat, and approximately 12ha of agricultural land would be used for floodplain storage. For the SES1 scheme, a total of approximately 73ha of land will be used for newly planted woodland or trees on agricultural land for visual screening or habitat. A total of 2ha will be used for providing floodplain storage.

These changes will not result in any new or different permanent significant route-wide level effects on agriculture, forestry or soils.

Ecology and biodiversity

Non-statutory designations

As a result of the SES1 scheme, there will be a new direct adverse effect on Bank Hall Farm Flush Local Wildlife Site (LWS) that is significant at the county/metropolitan level. However, the removal of the HS2 WCML connection (SES1-004-001) will result in the removal of effects reported in the main ES at Fox Covert and Meadows Site of Biological Importance (SBI), within the Broomedge to Glazebrook area (MA04), and Gorse Covert Mounds LWS, Silver Lane Ponds LWS, Eleven Acre Common LWS and Ponds Near Lightshaw Lane SBI within the Risley to Bamfurlong area (MA05). As a result, there will be 30 non-statutory nature conservation sites affected

by the SES1 scheme, four fewer than the 34 identified in the main ES. The overall regional level effect identified in the main ES will not be changed by the reduction in the number of sites affected.

Change to the diversion of a Scottish Power 132kV underground route, near Belt Wood (SES1-003-001) will remove the loss of woodland habitat (400m²) from Belt Wood AWI site which was reported in the main ES. Removal of the HS2 WCML connection (SES1-004-001) will also remove the loss of ancient woodland at Coroner's Wood AWI (0.5ha). The number of AWI sites where there will be a significant adverse effect at the national level is therefore reduced from 17, as reported in the main ES, to 15. However, the overall effect of the SES1 scheme on ancient woodland remains significant at a national level.

Health

Employment and income

The main ES reported the creation of an estimated 87,800 person years of construction employment (equivalent to 8,800 permanent full time construction jobs) at construction work sites along the HS2 route. The SES1 changes will reduce the amount of new employment created by the construction of the SES1 scheme to 67,800 person years of construction employment (equivalent to 6,800 permanent full-time construction jobs). This will result in a different (reduced) beneficial health effect compared with the main ES.

Transport

The SES1 changes will result in a minor reduction in the number of rail possessions and blockades in the Hough to Walley's Green area (MA01) and Wimboldsley to Lostock Gralam area (MA02), and the removal of all possessions and blockades affecting the WCML Crewe to Carlisle between Golborne junction and Springs Bank junction in the Risley to Bamfurlong area (MA05). As a result of the changes to the possessions and blockades

in these three community areas, there will be a different (reduced) adverse route-wide effect on traveller stress to the effect reported in the main ES.

Housing

The SES1 changes will reduce the number of residential demolitions reported in the main ES by 24 properties, to 63 properties. This will result in a different (reduced) route-wide adverse health effect compared with the main ES.

Socio-economics

Construction effects

There will be a reduction from 87,800 person years of construction employment (equivalent of 8,800 permanent full-time construction jobs) reported in the main ES, to 67,800 person years of construction employment (equivalent of 6,800 permanent full-time construction jobs) for the SES1 scheme. However, the route-wide major beneficial significant effect will remain, as reported in the main ES.

As a result of the removal of the HS2 WCML connection (SES1-004-001) jobs in the Risley to Bamfurlong area (MA05) will no longer be displaced. The total number of jobs displaced by construction of the SES1 scheme will be reduced to 6,210, compared to the 6,500 displaced jobs reported in the main ES for the original scheme.

With the SES1 changes, 1,050 jobs may be lost route-wide from businesses directly and indirectly affected during the construction phase, a reduction from 1,100 reported in the main ES. The significance of effect will remain moderate adverse as reported in the main ES.

The total number of jobs that are estimated to be lost due to businesses being displaced as a result of in-combination or isolation effects is expected to reduce from a total of 550 jobs to 470 jobs as a result of the SES1 scheme. This will change the effect of that reported in the main ES from moderate to a minor adverse effect, which is not significant.

Operational effects

There will be a reduction from 4,200 direct operational jobs created reported in the main ES (and amended by correction in SES1) to 2,720 direct operational jobs due to the removal of the HS2 WCML connection (SES1-004-001), which includes changes to operational jobs associated with off-route works at Annandale depot, Carlisle Station and Preston Station. Although the number of operational jobs is reduced, route-wide, the significant effect will remain major beneficial for direct operational employment reported in the main ES as a result of the SES1 changes.

Water resources and flood risk

Water Framework Directive

The Water Framework Directive (WFD) aims to protect and enhance the quality of the water environment. It takes a holistic approach to the sustainable management of water by considering the interactions between surface water, groundwater and water-dependent ecosystems.

The SES1 changes will not result in any new or different adverse effects that pose a risk of causing a deterioration of the current status of any WFD surface or groundwater water body, or preventing any WFD water body from achieving its status objectives.

The SES1 changes will remove a number of the adverse effects identified in the main ES that had the potential to cause a deterioration in water body status and/or prevent the future achievement of water body status objectives.

Adverse effects identified in the main ES will remain for the following surface water bodies:

- Wistaston Brook;
- Weaver (Marbury Brook to Dane);
- Puddinglake Brook;

- Wade Brook; and
- Timperley Brook.

These adverse effects relate to impacts from highway drainage discharges and may give rise to the potential risk of the SES1 scheme being non-compliant with the statutory objectives of the WFD.

A WFD Regulation 19 exemption is a legal instrument seeking to proceed with the Proposed Scheme despite the potential for deterioration of water bodies. In order to avoid the necessity of seeking an exemption under the WFD Regulations, additional mitigation measures are therefore still required to manage the risk of status deterioration within these water bodies. A range of mitigation measure options have been identified in consultation with the Environment Agency with the aim to ensure no residual risks of status deterioration will remain.

It is currently anticipated that it will be feasible to develop and implement mitigation measures to ensure that there is no residual risk of deterioration in status for these water bodies, though further detailed work is required to inform the best suitable solution.

Whilst every effort will be made to ensure a Regulation 19 derogation application is not required, if it is unavoidable, an assessment will be prepared on a route-wide and/or specific water body basis, as appropriate, in consultation with the Environment Agency (as the competent regulatory authority) and reported to Parliament during passage of the Bill.

Flood risk

Removal of the HS2 WCML connection (SES1-004-001) will remove the potential for a significant adverse effect on flood risk at the commercial, industrial and residential receptors associated with the retaining walls on the north and south banks of the Manchester Ship Canal.

Part 2: Additional Provision 1 Environmental Statement



8 Introduction to the Additional Provision 1 Environmental Statement

8.1 Introduction

Since the main ES, a number of amendments to the original scheme have been identified. These amendments include requirements to use land outside the existing powers of the Bill and additional access rights or other extensions of the powers included in the Bill. These amendments to the Bill are now being sought under AP1.

Part 2 of this NTS is presented on a community area basis, in sections 9 to 12. For each community area the following information is included:

- a summary of the amendments that require an additional provision to be included within the Bill;
- a summary of residual significant environmental effects as a result of the amendments; and
- a summary of combined effects of amendments within the community area due to changes in construction traffic flows.

Figures 6, 7 and 8 show the approximate location of the AP1 amendments within each of the community areas.

8.2 Summary of the changes included in the AP1

The changes introduced through the AP1 amendments include:

- realignment and extension of Crewe tunnel including associated works to vent shafts, headhouse buildings, overhead power lines and power supply;
- realignment and amendments to reception tracks at Crewe North rolling stock depot;
- M6 works including the provision of temporary traffic signals and the realignment of the M6 between junction 19 and junction 20;
- realignment and extension of the viaduct at the A556 Shurlach Road and Winnington Wood;
- modifications to road realignments and junctions, property or maintenance access and pedestrian and cycle path provision and diversions; and
- landscape earthworks, landscape mitigation planting and surface water drainage.

9 Hough to Walley's Green community area (MA01)



9.1 Summary of amendments in the Hough to Walley's Green area (MA01) within the AP1 ES

Table 4 provides a summary of each engineering amendment reported within the AP1 ES, along with a description of the original scheme, which is used as the baseline for the comparison of new and different significant environmental effects.

Figure 6 shows the approximate location of each AP1 amendment within the Hough to Walley's Green area.

Table 4: Summary of the AP1 amendments requiring changes to the Bill powers in the Hough to Walley's Green area

Name of amendment	Description of the original scheme	Description of the AP1 revised scheme
Additional land permanently required for the realignment and extension of Crewe tunnel AP1-001-001	Crewe tunnel, a twin bored tunnel 6.2km in length and up to 43m in depth, would be provided, passing under Crewe.	Crewe tunnel will be extended at the northern portal by approximately 620m, emerging 60m to the north of the existing Parkers Road. Crewe tunnel will have a lower vertical alignment between Middlewich Street ventilation shaft and Crewe tunnel north portal.
Additional land permanently required for the provision of a power supply to Crewe tunnel AP1-001-002	A new electricity supply, two 33kv Scottish Power underground cables, for 4.3km in length, would be installed from the existing Scottish Power primary substation in south-west Crewe to Crewe tunnel north portal, located within the public highway on Middlewich Road, Pyms Lane, Badger Avenue, Underwood Lane, Bradfield Road, and Broughton Road.	The electricity supply will be installed within the public highway on Halton Drive, Sunnybank Road, West Street, Bowen Cooke Avenue, Badger Avenue, Underwood Lane, Bradfield Road, and Broughton Road.
Change to Bill powers required for the diversion of Footpath Crewe 12/1 AP1-001-003	A section of Footpath Crewe 12/1 would be diverted up to 2km west and north of its current alignment. The footpath would connect with Footpath Crewe 29/1 and Footpath Leighton 7/1 on the western side of the WCML (WCML).	The diversion of Footpath Crewe 12/1 will be extended by 275m, alongside the southern edge of the Footpath Crewe 29/1 overbridge approach ramp, to join the diverted Footpath Crewe 12/1 to Footpath Crewe 12/2.
Additional land temporarily required for modifications to Warmingham Road and Groby Road junction AP1-001-004	The Bill provides for temporary junction improvements at the junction of Warmingham Road and Groby Road to allow construction traffic movements.	The junction of Warmingham Road and Groby Road will be temporarily modified to a greater extent than shown in the main ES. The junction will be modified to include carriageway widening to enable the formation of a right-turn lane to the south of the junction on Warmingham Road and a left turn lane to the north of the junction on Warmingham Road. These junction alterations will enable safer turning manoeuvres and manage potential traffic conflicts.
Change to Bill powers required for the relocation of an access point and realignment of Hoggins Brook at Moss Lane AP1-001-005	The Bill provides for a HS2 attenuation pond and a trackside laydown area, located at Moss Lane, Crewe. An existing track to a Network Rail road rail access point (RRAP) at this location would be improved.	The Network Rail RRAP will be relocated approximately 180m north. The existing access from Moss Lane to the Network Rail RRAP will be extended. This requires alterations to landscape mitigation earthworks, a new drainage ditch and alterations to the Hoggins Brook watercourse realignment.

Name of amendment	Description of the original scheme	Description of the AP1 revised scheme
<p>Additional land permanently required for the provision of landscape earthworks adjacent to Footpath Minshull Vernon 8/1 accommodation overbridge</p> <p>AP1-001-006</p>	<p>Landscape earthworks would be provided on the north-eastern embankment of Footpath Minshull Vernon 8/1 accommodation overbridge and the realigned Parkfield Farm access. There would also be an area of woodland habitat creation at the base of the slope and a HS2 maintenance access at the bottom of the landscape earthworks.</p>	<p>Landscape earthworks will be provided on the north-eastern embankment of Footpath Minshull Vernon 8/1 accommodation overbridge and the realigned Parkfield Farm access. These landscape earthworks will be less steep than proposed in the main ES to help integrate the Footpath Minshull Vernon 8/1 accommodation overbridge into the surrounding landscape.</p> <p>As described in the main ES, there will also be an area of woodland habitat creation at the base of the slope and a HS2 maintenance access at the bottom of the landscape earthworks.</p>
<p>Additional land permanently required for the provision of landscape earthworks adjacent to Coppenhall Moss north embankment</p> <p>AP1-001-007</p>	<p>An area of landscape mitigation planting would be provided along the eastern side of the HS2 route, west of Park House Farm, to help integrate the HS2 route into the surrounding landscape.</p>	<p>A landscape earthwork, 300m long and up to 2m in height, will be provided to the east of the HS2 route, and to the west of Park House Farm, to provide visual screening. This new landscape earthwork will adjoin the landscape earthwork along Walley's Green embankment in the Wimboldsley to Lostock Gralam area (MA02).</p>

9.2 Assessment of amendments in the Hough to Walley's Green area (MA01) in the AP1 ES

Agriculture

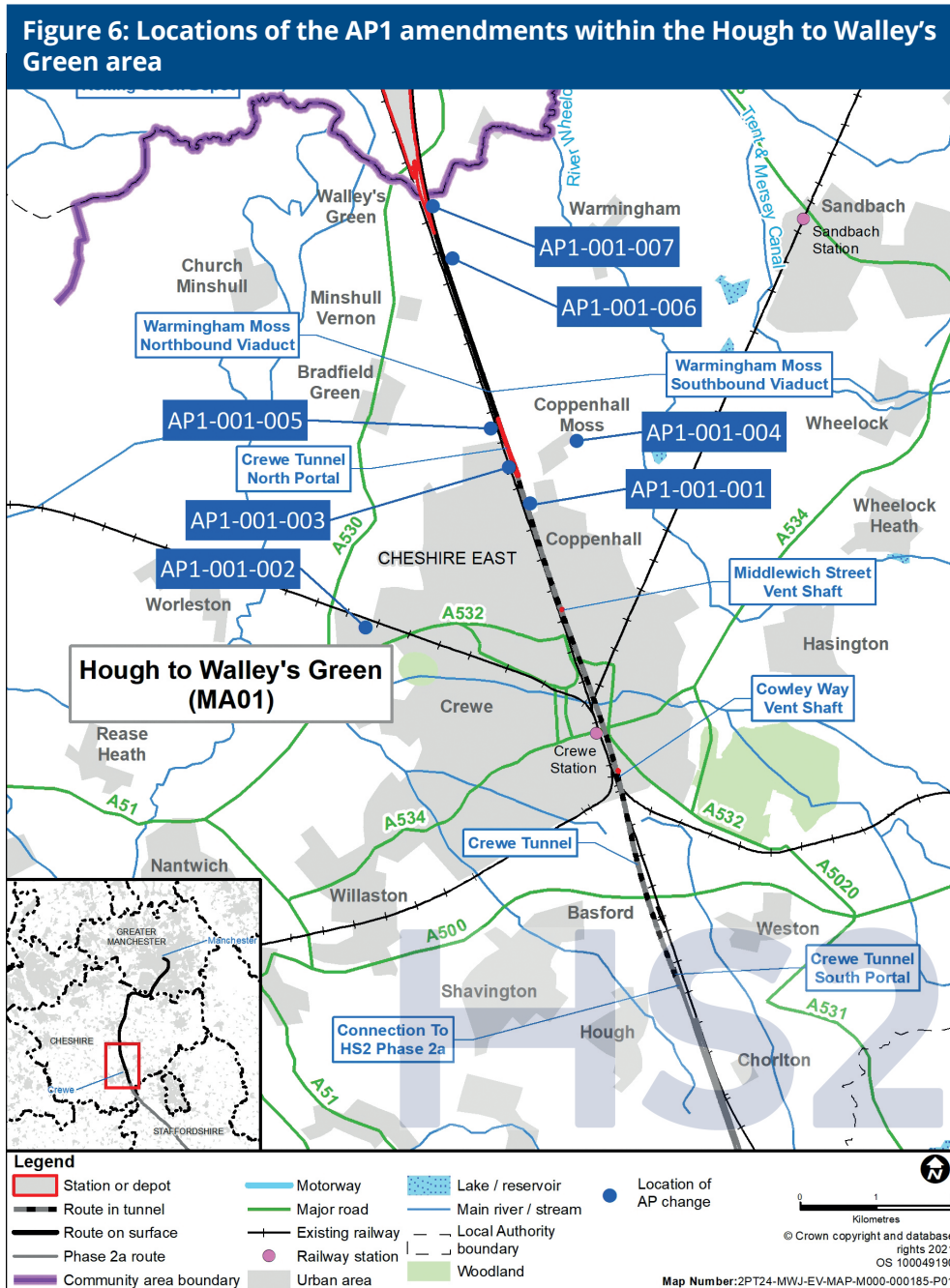
Effects arising during construction

The realignment and extension of Crewe tunnel (AP1-001-001) will reduce the temporary effect on Chaise Farm from major/moderate adverse, to moderate adverse, while a new permanent moderate adverse effect will be introduced to the holding due to the permanent land required. A new permanent moderate adverse effect will also be introduced to the Land at Parkers Road. At Bridge Farm, both the temporary moderate adverse effect and the permanent moderate adverse effects reported in the main ES will be removed.

Community

Effects arising during construction

The realignment and extension of Crewe tunnel (AP1-001-001) will mean that Bridge Farm is no longer demolished. Amendment AP1-001-001 will result in a new major adverse in-combination effect on amenity for residents of approximately 10 residential properties at the junction of Warmingham Road and Waldron's Lane, Coppenhall Moss, due to HGV traffic effects and new noise and visual effects. This amendment will also result in a different major adverse in-combination effect on approximately 250 residential properties in the vicinity of Broughton Road, Coppenhall, due to significant road traffic noise and air quality effects, and the removal of noise and visual effects. The level of significance is the same as that reported in the main ES.



The realignment and extension of Crewe tunnel (AP1-001-001) will result in the removal of the significant moderate adverse in-combination effect on amenity for residents of approximately 45 properties in the vicinity of Wareham Drive, Crewe, due to the removal the significant noise and visual effects.

Modifications to Warmingham Road and Groby Road junction (AP1-001-004) will result in a new moderate adverse in-combination effect on amenity for residents at approximately 10 residential properties in the vicinity of these roads, due to temporary HGV traffic effects and new noise and visual effects. In addition, this amendment will give rise to a different major adverse in-combination temporary effect on Oakfield Lodge school as a result of new noise and visual effects combining with HGV traffic effects reported in the main ES. The level of significance is the same as reported in the main ES.

Ecology and biodiversity

Effects arising during construction

The main ES reports a net loss of 10.1km of hedgerow habitat across the Hough to Walley's Green area, which represents an adverse residual effect that is significant at the county/metropolitan level. The realignment and extension of Crewe tunnel (AP1-001-001) will result in a different significant effect due to the loss of an additional 349m of hedgerow habitat. However, this will not change the level of significance of the adverse residual effect on hedgerows, as reported within the main ES.

The realignment and extension of Crewe tunnel (AP1-001-001) will, on a precautionary basis, result in a permanent moderate adverse effect on the hydrology at Sandbach Flashes SSSI due to a potential reduction in flow of Tributary of Fowle Brook 1, which is significant at the national level. On a precautionary basis, this is assumed to result in an adverse effect on any surface water dependent habitats present within these units of the SSSI.

If required, an appropriate mitigation strategy will be developed to avoid significant effect on the conservation status of Sandbach Flashes SSSI, as far as is reasonably practicable.

Health

Effects arising during construction

The realignment and extension of Crewe tunnel (AP1-001-001) will result in a new adverse neighbourhood quality effect for residents in the vicinity of Warmingham Road and Waldron's Lane in Coppenhall Moss, due to the combination of HGV traffic and noise and visual effects. However, the amendment will remove the adverse neighbourhood quality effects for residents along the B5076 North Street and the B5076 Bradfield Road reported in the main ES, due to the removal of significant HGV and air quality effects. The removal of significant noise, visual and air quality effects will also lead to the removal of the adverse neighbourhood effect reported in the main ES for residents in the vicinity of Broughton Road, Coppenhall. Additionally, amendment AP1-001-001 will remove significant noise and visual effects, thus removing the adverse neighbourhood quality effect, for residents in the vicinity of Wareham Drive, Crewe.

The realignment and extension of Crewe tunnel (AP1-001-004) will result in a new adverse neighbourhood quality effect for residents in the vicinity of Warmingham Road and Groby Road due to new noise and visual effects combining with the significant HGV traffic effect reported in the main ES. In addition, this amendment will result in a different health effects on users of Oakfield Lodge School due to new construction noise and visual effects combining with HGV traffic effects reported in the main ES. This may reduce the beneficial wellbeing effects associated with educational attainment.

Historic environment

Effects arising during construction

Changes to the land required for the construction of the AP1 revised scheme as a result of the realignment and extension of Crewe tunnel (AP1-001-001) will remove the likely residual significant effects on Bridge Farm and former farmstead, Parkers Road, a non-designated asset of low heritage value, reported in the main ES.

Landscape and visual

Effects arising during construction

The realignment and extension of Crewe tunnel (AP1-001-001) will give rise to a different likely residual significant construction effect, for the Crewe Fringe Mosslands LCA, however the level of effect will remain moderate adverse as reported in the main ES.

The realignment and extension of Crewe tunnel (AP1-001-001) will also give rise to different likely residual significant construction effects at the following viewpoints:

- view east from Bleasdale Road and north from Thornfields, Leighton, Crewe – the effect will increase to major adverse from moderate adverse reported in the main ES; and
- view west from Broughton Road, Coppenhall, Crewe – the effect will reduce to moderate adverse from major adverse reported in the main ES.

The realignment and extension of Crewe tunnel (AP1-001-001) will also give rise to a new likely residual significant construction effect at the view north-west from the White Lion public house, Coppenhall Moss. The effect will increase to moderate adverse (significant) from minor adverse reported in the main ES, which was not significant.

The realignment and extension of Crewe tunnel (AP1-001-001) will also give rise to new likely major adverse residual significant construction effects at the following viewpoints:

- view north-east from Parkers Road; and
- view west from Footpath Crewe 30/1, Kent's Lane.

The realignment and extension of Crewe tunnel (AP1-001-001) will give rise to new likely residual significant construction night-time effects at the following viewpoints:

- view north-west from The White Lion public house, Coppenhall Moss – the effect will increase to moderate adverse;
- view east from Bleasdale Road and north from Thornfields, Leighton, Crewe – the effect will be moderate adverse; and
- view west from Footpath Crewe 30/1, Kent's Lane – the effect will be major adverse.

The provision of a power supply to Crewe tunnel (AP1-001-002) will give rise to a new likely residual significant moderate adverse construction effect for views west from Halton Drive which is a new viewpoint in an area that would be unaffected by the original scheme.

Modifications to Warmingham Road and Groby Road junction (AP1-001-004) will give rise to new likely residual significant construction effects at the following new viewpoints, which are located in an area where there will be changes from the original scheme:

- view north-west from Groby Road viewpoint – the effect will be moderate adverse; and
- view east from Footpath Crewe 28/1 viewpoint – the effect will be moderate adverse.

Effects arising from operation

The realignment and extension of Crewe tunnel (AP1-001-001) will give rise to different likely residual significant operational effects, at the following viewpoints at year 15 operation, but the level of effect will remain moderate adverse as reported in the main ES:

- view north from public open space bordering the B5076 Middlewich; and
- view south-east from public open space bordering the B5076 Middlewich Street.

The realignment and extension of Crewe tunnel (AP1-001-001) will also give rise to new likely residual significant operational visual effects at the following viewpoints, at year 15 operation:

- view north-east from Parkers Road – the effect will be major adverse; and
- view west from Footpath Crewe 30/1, Kent's Lane – the effect will be moderate adverse.

Socio-economics

Effects arising during construction

The realignment and extension of Crewe tunnel (AP1-001-001) will remove the adverse isolation effect reported in the main ES on The White Lion public house in north Crewe, as the existing Parker Road overbridge will be retained and will remain open for customers arriving by vehicle from Coppenhall, north Crewe. However, as a result of this amendment, during construction there will be new significant visual effects, as well as significant effects from HGV construction traffic. Construction works may discourage customers from using the facility, and therefore the amendment is assessed to have a new significant adverse residual significant in-combination effect on this business.

The provision of a power supply to Crewe tunnel (AP1-001-002) will remove the likely residual significant effects reported in the main ES on the committed development at Bentley Motors Ltd (MA01/127) on Pyms Lane as it removes the requirement for the permanent acquisition of land with existing planning permission.

Sound, noise and vibration

Effects arising during construction

The realignment and extension of Crewe tunnel (AP1-001-001) will result in the removal of the likely temporary residual adverse significant construction noise effect on the residential communities of Coppenhall and Crewe north, reported in the main ES. However, the amendment will give rise to a new likely temporary residual adverse significant construction noise effect on the residential community of Coppenhall Moss.

In addition, a decrease in the duration of the noise impact from specific construction activities as a result of the realignment and extension of Crewe tunnel (AP1-001-001) will result in different likely temporary residual adverse significant effects on the non-residential buildings at: Cemetery Lodge, Market Close; Orbitas Bereavement Services, Market Close; and Crewe Cemetery and Crematorium, Market Close.

Modifications to Warmingham Road and Groby Road junction (AP1-001-004) will give rise to a new adverse noise effect at approximately 10 dwellings in the vicinity of these roads as result of construction activities. This may be considered by the local community as an effect on the acoustic character of the area and hence be perceived as a change in the quality of life for that community. This is considered to be a likely significant effect when assessed on a community basis.

In addition, modifications to Warmingham Road and Groby Road junction (AP1-001-004) will give rise to a different likely temporary residual adverse significant noise effects from construction activities on the non-residential

buildings at Oakfield Lodge School, Warmingham Road are likely as a result of the amendment. This different temporary adverse effect may take the form of activity disturbance during the daytime to users of Oakfield Lodge School.

Effects arising from operation

The realignment and extension of Crewe tunnel (AP1-001-001) will remove potential significant adverse effects identified for 35 residential dwellings above Crewe tunnel due to ground-borne noise. In addition, as a result of the amendment Bridge Farm, Parkers Road, Crewe, which was due to be demolished in the original scheme, is now to be retained. However, in the absence of proposed mitigation to control the ground-borne noise levels, this amendment will give rise to a new likely significant adverse effect on an individual property basis.

The main ES identified a likely significant beneficial effect related to airborne noise during operation due to decreases in sound from railways (including reduction in noise from the existing WCML) in the vicinity of approximately 75 dwellings at Leighton, Crewe. The realignment and extension of Crewe tunnel (AP1-001-001) will reduce noise levels further at dwellings in this community so will increase the number of dwellings beneficially affected to approximately 145 dwellings. This will give rise to a different likely significant beneficial operational noise effect on the residential community.

The main ES, as updated by the SES1, identified a likely significant adverse operational ground-borne noise and vibration effect in the vicinity of approximately 285 dwellings at Crewe. The realignment and extension of Crewe tunnel (AP1-001-001) will reduce operational ground-borne noise levels in several of these dwellings through lowering of the tunnel alignment, though the increase in the length of Crewe tunnel will introduce ground-borne noise and vibration impacts at approximately 30 additional dwellings. Overall, the number of dwellings affected at this community will be approximately 275. Therefore, there will be a different likely significant

residual adverse operational ground-borne noise effect on residential communities in Crewe.

The realignment and extension of Crewe tunnel (AP1-001-001) will also give rise to a different likely significant residual adverse ground-borne noise effect from operation of the AP1 revised scheme at ChuffChuff, Middlewich Street, Crewe due to decreased ground-borne noise impacts on the teaching facilities.

Traffic and transport

Effects arising during construction

Realignment and extension of Crewe tunnel (AP1-001-001) will give rise to a different (decreased) moderate adverse significant effect on the users of Footpath Crewe 29/1 due to the decreased duration of the temporary diversion compared to that reported in the main ES.

The realignment and extension of Crewe tunnel (AP1-001-001) will also remove the following significant temporary effects reported in the main ES:

- minor adverse significant effect on non-traffic related severance for non-motorised users of Footpath Crewe 13/1;
- major adverse effect on parking at Crewe Truck Stop and Café;
- major adverse effect on vehicle occupants on Parkers Road; and
- moderate adverse effect on public transport users of bus routes 12 and 317 on Parkers Road.

The provision of a power supply to Crewe tunnel (AP1-001-002) will give rise to a new likely residual temporary minor adverse significant effect on non-traffic related severance for users of Bowen Cooke Avenue footway, due to an increase in journey length of up to 125m.

Effects arising from operation

The realignment and extension of Crewe tunnel (AP1-001-001) will give rise to a different (increased) major adverse significant effect due to the permanent loss of 90 out of 120 HGV parking spaces at Crewe Truck Stop and Café.

9.3 Assessment of combined effects of changes and amendments in the Hough to Walley's Green area (MA01) due to changes in traffic flows

This section reports the combined assessment of new or different significant construction traffic and traffic related effects, as a result of changes in construction traffic flows. These relate to changes associated with SES1 changes and AP1 amendments, where the change in traffic flows cannot be directly attributed to a specific SES1 change or an AP1 amendment.

The assessment has also considered any impacts in the Hough to Walley's Green area associated with SES1 changes and AP1 amendments in other community areas.

Traffic and transport effects are reported first, since the effects arise from changes in construction traffic flows. Other topics where a significant effect has been identified, are then reported in the following sequence:

- community;
- health; and
- sound, noise and vibration.

Traffic and transport

Effects arising during construction

The AP1 revised scheme will result in the following changes to the congestion and delay effects for vehicle occupants, as reported in the main ES:

- new major adverse effect on two junctions;
- new moderate adverse effect on two junctions;
- change from moderate adverse effect to major adverse effect on four junctions;
- change from minor adverse effect to moderate adverse effect on three junctions;
- change from major adverse effect to moderate adverse effect on two junctions;
- change from major adverse effect to minor adverse effect on one junction;
- change from moderate adverse effect to minor adverse effect on four junctions;
- change from major adverse effect to moderate beneficial effect on one junction; and
- significant adverse effects removed on 11 junctions (two major, five moderate, four minor).

The AP1 revised scheme will result in the following changes to the traffic-related severance effects for non-motorised users, as reported in the main ES:

- new major adverse effect on two roads;
- new moderate adverse effect on eight roads;
- new minor adverse effect on four roads;
- different (increased) major adverse significant effects on five roads;
- change from moderate adverse effect to major adverse effect on two roads;
- different (decreased) major adverse significant effects on three roads;
- change from moderate adverse effect to minor adverse effect on one road;
- change from major adverse effect to moderate adverse effect on four roads;
- change from major adverse effect to minor adverse effect on two roads; and
- significant adverse effects removed on 37 roads (20 major and 17 moderate).

Community

Effects arising during construction

The combination of new HGV traffic effects and new noise and visual effects as a result of the AP1 amendments will result in a new temporary moderate adverse in-combination effect on amenity for approximately 10 residential properties in the vicinity of Warmingham Road and Groby Road.

In addition, the AP1 revised scheme will result in new significant noise and visual effects on Oakfield Lodge School while the HGV traffic effects reported in the main ES will remain the same. This will result in a different major adverse in-combination effect on Oakfield Lodge School, which is significant.

Health

Effects arising during construction

The AP1 revised scheme will remove the significant HGV and air quality effects, and therefore remove the adverse neighbourhood quality effect for residents along the B5076 North Street in Crewe and for residents along the B5076 Bradfield Road in Crewe.

New construction traffic data and changes to the sound, noise and vibration assessment as a result of this new data, will remove the significant air quality and traffic noise effects reported in the main ES for residents in the vicinity of Broughton Road, Coppenhall and will remove the significant traffic noise effect for residents along Sydney Road, Crewe and along the A530 Middlewich Road in Bradfield Green. This will result in the removal of the adverse neighbourhood quality effects for residents in these locations.

Sound, noise and vibration

Effects arising during construction

As a result of the AP1 revised scheme, construction traffic in this area will give rise to a new likely temporary residual adverse significant noise effect on a community basis at approximately 25 residential dwellings on Waldron's Lane between Warmingham Road and Stoneley Road, and on Stoneley Road between Groby Road and Waldron's Lane.

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10 Wimboldsley to Lostock Gralam community area (MA02)



10.1 Summary of amendments in the Wimboldsley to Lostock Gralam area (MA02) in the AP1 ES

Table 5 provides a summary of each engineering amendment reported within the AP1 ES, along with a description of the original scheme, which is used as the baseline for the comparison of new and different significant environmental effects.

Figure 7 shows the approximate location of each AP1 engineering amendment within the Wimboldsley to Lostock Gralam area.

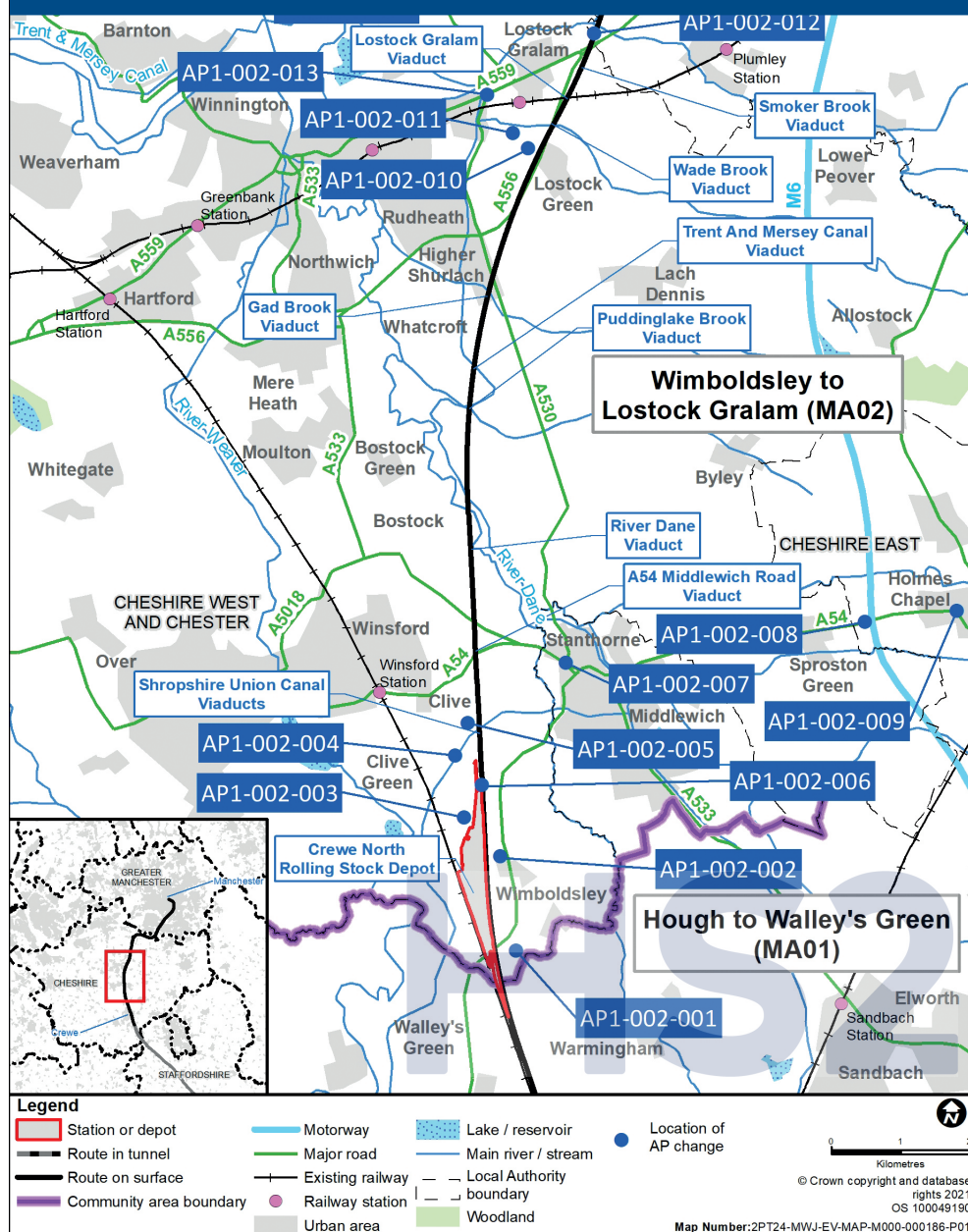
Table 5: Summary of the AP1 amendments requiring changes to the Bill powers in the Wimboldsley to Lostock Gralam area

Name of amendment	Description of the original scheme	Description of the AP1 revised scheme
Additional land temporarily required for the provision of surface water drainage at A530 Nantwich Road satellite compound AP1-002-001	Land would be required for the temporary establishment of A530 Nantwich Road satellite compound. No drainage was proposed for this compound as part of the original scheme.	The extension of a 10m wide strip of the land required temporarily for construction from the A530 Nantwich Road satellite compound to allow for a gravity surface water drainage outfall (an outfall ditch and/or carrier drain) to Hoggins Brook watercourse during construction.
Additional land permanently required for the provision of landscape mitigation planting at Wimboldsley AP1-002-002	Landscape mitigation planting, landscape earthworks and hedgerow planting to the east of the HS2 route and west of Wimboldsley Community Primary School.	Additional landscape mitigation planting as well as changes to the original scheme design mitigation planting programme, to bring forward landscape mitigation and hedgerow planting into the earliest stage of the scheme as advanced works, where reasonably practicable, to assist in the screening of construction works.
Change to Bill powers required for the retention of Footpath Wimboldsley 1/1 between the Shropshire Union Canal towpath and Crewe North Rolling Stock Depot AP1-002-003	The permanent closure of Footpath Wimboldsley 1/1 between the Shropshire Union Canal and A530 Nantwich Road. No diversions are proposed.	Footpath Wimboldsley 1/1 from the Shropshire Union Canal up to the access road into Crewe North RSD will remain open as a route for pedestrians to access the Crewe North RSD via a small earthwork ramp. A section of Footpath Wimboldsley 1/1 will be realigned along the proposed Stanthorne Park Mews accommodation access.
Additional land permanently required for the provision of a shared use cycle and pedestrian path at Clive Green Lane AP1-002-004	The permanent realignment of Clive Green Lane, from a point 120m south of its existing alignment. The realigned Clive Green Lane would connect to the A530 Nantwich Road and Coal Pit Lane via a new roundabout to replace the existing junction.	A new 3m shared use pedestrian and cycle path, with 1.5m wide verges on either side and associated drainage, parallel to Clive Green Lane from its junction with Clive Back Lane to the existing Clive Green Lane canal bridge. The existing steps to the canal will be replaced by a ramp 130m in length.
Additional land temporarily required for the provision of surface water drainage at Shropshire Union Canal North satellite compound AP1-002-005	Land would be required for the temporary establishment of Shropshire Union Canal North satellite compound. No drainage was proposed for this compound as part of the original scheme.	The extension by a 120m long strip of the land required for construction from the Shropshire Union Canal North satellite compound to allow for a temporary gravity surface water drainage outfall (an outfall ditch and/or carrier drain) to Tributary of River Weaver 4 watercourse during construction.
Change to Bill powers required for the realignment of reception tracks at Crewe North rolling stock depot AP1-002-006	Crewe North rolling stock depot (RSD) and associated connections and infrastructure.	An amendment to the alignment of the Crewe North RSD HS2 reception tracks to improve operational safety and timetable robustness. The route of the Crewe North RSD northern reception tracks will be realigned between Clive Green South embankment No.3 (west of Lea House Farm) and Stanthorne North embankment. Associated changes to earthworks, drainage, viaducts and Middlewich box structure.

Name of amendment	Description of the original scheme	Description of the AP1 revised scheme
Additional land required for modifications to the A54 Chester Road/A530 Croxton Lane junction AP1-002-007	There would be temporary construction traffic route along the A54 Chester Road. No mitigation was provided in the original scheme.	Modifications to the existing junction arrangement consisting of changing from a mini roundabout to a junction with traffic signals, carriageway widening to enable the formation of a right-turn lane on A530 Newton Bank Road and a left turn lane on A54 Chester Road.
Additional land required for the provision of temporary traffic signals around the M6 junction 18 AP1-002-008	There would be a temporary construction vehicle access route from the strategic road network at the M6 at junction 18, and onto the A54 Holmes Chapel Road.	Introduction of temporary traffic management to mitigate the impact of the construction traffic movements on existing road users. The installation of temporary traffic lights is proposed on the A54 eastbound approach arm and on the gyratory. Additional land will be temporarily required within the highway boundary.
Additional land permanently required for the widening of the A54 Middlewich Road and Chester Road junction AP1-002-009	No effects were identified in this location and therefore no provision made in the original scheme.	The junction of the A54 Middlewich Road and Chester Road will be permanently widened to enable the construction of a right-turn lane on the A54 Middlewich Road to improve capacity.
Additional land permanently required for modifications to the A556 Shurlach Road and Birches Lane and provision of a shared use cycle and pedestrian path along A556 Shurlach Road AP1-002-010	The permanent realignment of the A556 Shurlach Road up to 90m to the north-west of its current alignment for 2.3km, including improvement of the junction with Birches Lane/Lostock Hollow.	A 3m wide shared use pedestrian and cycle path, and associated highway drainage, will be constructed with a separation of at least 3.5m from the A556 Shurlach Road west edge of carriageway between the A530 King Street/A556 Shurlach Road roundabout and the A556 Shurlach Road/Birches Lane junction. Additionally, the central reserve of the realigned A556 Shurlach Road will be widened along the bend to improve visibility on the A556 southbound on the approach to the A556/A530 roundabout.
Additional land permanently required for the underground realignment of a 11kV Scottish Power Energy Network overhead line at Birches Lane AP1-002-011	The permanent diversion of a Scottish Power 11kV overhead power line for 1.3km, to pass under the route of the original scheme and the A556 Shurlach Road realignment 95m north of Birches Lane.	The Scottish Power 11kV underground cable diversion will be re-routed to the south of a property on Birches Lane, removing it from the property's garden and will tie back into the diversion route of the utility presented in the original scheme 165m west of the property.
Additional land permanently required for the realignment and extension of Smoker Brook viaduct at the A556 Shurlach Road and Winnington Wood AP1-002-012	Smoker Brook viaduct for the HS2 route to cross over Peover Eye, Smoker Brook and the associated floodplain, the A559 Manchester Road and Linnards Lane. Smoker Brook viaduct would be 806m in length and 25m in height above ground level.	Smoker Brook viaduct will be extended to 827m in length, commencing further south to accommodate the access track adjacent to the southern abutment and will be moved 8m west to tie into the revised railway alignment that will result from the amendment. The extension will enable the installation of a rail expansion device.

Name of amendment	Description of the original scheme	Description of the AP1 revised scheme
<p>Additional land permanently required for modifications to A530 Griffiths Road and A559 Manchester Road junction</p> <p>AP1-002-013</p>	<p>There would be a temporary construction traffic route along the A530 Griffiths Road and A559 Manchester Road.</p>	<p>The carriageway of the A530 Griffiths Road will be widened from a single carriageway in both directions to enable the formation of a right-turn lane and the introduction of traffic signals.</p>
<p>Additional land permanently required for the provision of a combined HS2 maintenance access track from Linnards Lane and accommodation access for Warrens Lake Cottage</p> <p>AP1-002-014</p>	<p>An access track from Linnards Lane 70m west of the HS2 route for the creation of an area of environmental mitigation planting.</p>	<p>The maintenance access provided for the original scheme will no longer be required. The existing access for Warrens Lake Cottage will be extended. The 75m new section of access track extending beyond Warrens Lake Cottage included as part of the amendment will be of a similar width and construction, also with a turning head.</p>

Figure 7: Locations of the AP1 amendments within the Wimboldsley to Lostock Gralam area



10.2 Assessment of amendments in the Wimboldsley to Lostock Gralam area (MA02) in the AP1 ES

Community

Effects arising during construction

Additional land required for modifications to the A54 Chester Road/ A530 Croxton Lane junction (AP1-002-007) will result in a new moderate adverse in-combination effect on amenity on approximately 30 residential properties in the vicinity of these roads as a result of new significant construction noise and visual effects.

Additional land permanently required for modifications to the A54 Middlewich Road and Chester Road junction (AP1-002-009) will result in a new moderate adverse in-combination effect on amenity on approximately 35 residential properties in the vicinity of these roads, as a result of new significant airborne noise and visual effects.

Ecology and biodiversity

Effects arising during construction

The main ES, as amended by SES1, reports a net loss of 54.6km of hedgerows across the Wimboldsley to Lostock Gralam area, which represents an adverse residual effect that is significant at the county/ metropolitan level.

The provision of a shared use cycle and pedestrian path at Clive Green Lane (AP1-002-004) will result in the loss of an additional 104m of hedgerow habitat in this location; this will result in a different effect but will not change the level of significance of the adverse residual effect on hedgerows, as reported within the main ES and as amended by SES1.

The realignment and extension of Smoker Brook viaduct at the A556 Shurlach Road and Winnington Wood (AP1-002-012) will result in the loss of an additional 245.9m of hedgerow habitat in this location. However, this will not change the level of significance of the adverse residual effect on hedgerows, as reported within the main ES and as amended by SES1.

As stated in the main ES, on a precautionary basis, an unknown number of veteran trees will be lost within Leonard's and Smoker Brook LWS which will result in a permanent adverse residual effect that is significant at the national level in each case. The realignment and extension of Smoker Brook viaduct at the A556 Shurlach Road and Winnington Wood (AP1-002-012) will result in the loss of different veteran trees in this location, however, this will not change the level of significance reported in the main ES.

Health

Effects arising during construction

Modifications to the A54 Chester Road/A530 Croxton Lane junction (AP1-002-007) will result in a new adverse neighbourhood quality effect for residents in the vicinity of the A54 Chester Road/A530 Newton Bank junction, Middlewich as a result of new significant airborne noise effects combining with new significant visual effects.

Modifications to the A54 Middlewich Road and Chester Road junction (AP1-002-009) will result in a new adverse neighbourhood quality effect for residents in the vicinity of the A54 Chester Road, A54 Middlewich Road and the B5308 Middlewich Road in Holmes Chapel as a result of new significant airborne noise effects and visual effects.

People in these communities are likely to experience these effects as changing the quality of their neighbourhood and to regard that change as adverse, diminishing the amenity of the settlement.

Landscape and visual

Effects arising during construction

The provision of a shared use cycle and pedestrian path at Clive Green Lane (AP1-002-004) will give rise to a different likely residual significant construction effects for the view east from the Shropshire Union Canal (Middlewich Branch) Park Farm, however, the level of significance of the effect reported will remain major adverse as reported in the main ES.

Modifications to the A54 Chester Road/A530 Croxton Lane junction (AP1-002-007) will give rise to a new likely residual significant construction effect in an area which was not affected by the original scheme for views north-west from A54 Chester Road, Middlewich. The level of effect will be moderate adverse.

Modifications to the A54 Middlewich Road and Chester Road junction (AP1-002-009) will give rise to a new likely significant residual construction effect at the view west from the B5308 Middlewich Road. Effects will be moderate adverse (significant).

Additional land permanently required for the underground diversion of a 11kV Scottish Power Energy Network overhead line at Birches Lane (AP1-002-011) give rise to a different likely significant residual construction effect at view north-east from Springbank Farm, Birches Lane (VP 312-02-001). The effect will slightly decrease but will remain major adverse (significant).

Effects arising from operation

Additional land permanently required for the provision of landscape mitigation planting at Wimboldsley (AP1-002-002) will give rise to different likely residual significant operation effects at the following viewpoints, both in the day-time and night-time, though will not change the level of significance of the effects reported in the main ES and as amended by SES1:

- view west from Bellsmithy, A530 Nantwich Road. The effect will reduce but will remain moderate adverse; and
- view west from Wimboldsley, A530 Nantwich Road. The effect will reduce but will remain moderate adverse.

Additional land permanently required for the provision of a shared use cycle and pedestrian path at Clive Green Lane (AP1-002-004) will give rise to a different likely residual significant operational effect at the view east from the Shropshire Union Canal (Middlewich Branch) Park Farm. Effects will increase but will remain major adverse (significant).

Socio-economics

Effects arising during construction

Modifications to the A54 Chester Road/A530 Croxton Lane junction (AP1-001-007) will result in new significant visual effects during construction, as well as significant effects from HGV construction traffic. This will result in a new adverse residual in-combination effect on The Golden Lion Hotel which may discourage customers from using this facility.

Sound, noise and vibration

Effects arising during construction

Modifications to the A54 Chester Road/A530 Croxton Lane junction (AP1-002-007) will give rise to a new likely temporary residual adverse significant construction noise effect on the residential community of Middlewich. In addition, noise from specific construction activities has been identified as resulting in new likely temporary residual adverse significant effects on the non-residential buildings at Middlewich Cemetery, Chester Road.

Modifications to the A54 Middlewich Road and Chester Road junction (AP1-002-009) will give rise to a new likely temporary residual adverse significant construction noise effect on the residential community of Holmes Chapel.

Traffic and transport

Effects arising during operation

Additional land permanently required for the provision of a shared use cycle and pedestrian path at Clive Green Lane (AP1-002-004) will give rise to a new likely residual permanent moderate adverse effect for traffic and transport on the Shropshire Union Canal (Middlewich Branch), National Cycle Route 5 and Footpath Winsford 3/1, which is significant. This is due to the increase in journey length for pedestrians by up to 609m. In addition, the new shared use cycle and pedestrian path will give rise to a new minor beneficial effect for traffic and transport on non-traffic related severance, which is significant, due to a decrease in journey length of 474m for cyclists between Middlewich and Clive Green Lane.

Additional land permanently required for modifications to the A556 Shurlach Road and Birches Lane and provision of a shared use cycle and pedestrian path along A556 Shurlach Road (AP1-002-010) will remove the likely significant residual permanent moderate adverse effect on non-traffic related severance for non-motorised users of Cookes Lane reported in the main ES. The amendment will also give rise to a new likely significant residual permanent moderate beneficial effect on non-traffic related severance as a result of the new public right of way at Lostock Green, due to the decrease in journey length for cyclists of up to 2.6km.

10.3 Assessment of combined effects of changes and amendments in the Wimboldsley to Lostock Gralam area (MA02) due to changes in traffic flows

This section reports the combined assessment of new or different significant construction traffic effects, as a result of changes in construction traffic flows. These relate to changes associated with SES1 changes and AP1 amendments, where the change in traffic flows cannot be directly attributed to an SES1 change or an AP1 amendment.

The assessment has also considered any impacts in the Wimboldsley to Lostock Gralam area associated with SES1 changes and AP1 amendments in the adjoining community area.

Traffic and transport effects are reported first, since the effects arise from changes in construction traffic flows. Other topics where a significant effect has been identified, are then reported in the following sequence:

- community;
- health;

- socio-economics;
- sound, noise and vibration; and
- water resources and flood risk.

Traffic and transport

Effects arising during construction

The AP1 revised scheme will result in the following changes to the congestion and delay effects for vehicle occupants, as reported in the main ES:

- new major adverse effect on six junctions;
- new moderate adverse effect on two junctions;
- new minor adverse effect on two junctions;
- significant beneficial effect removed on one junction (one minor);
- change from minor adverse effect to major adverse effect on three junctions;
- change from moderate adverse effect to minor adverse effect on three junctions;
- change from major adverse effect to moderate adverse effect on two junctions;
- change from major adverse effect to minor adverse effect on four junctions;
- different (decreased) major adverse significant effects on six junctions; and
- significant adverse effects removed on 14 junctions (eight major, four moderate and two minor).

The AP1 revised scheme will result in the following changes to the traffic-related severance effects for non-motorised users, as reported in the main ES:

- new major adverse effect on six roads;
- new moderate adverse effect on nine roads;
- new minor adverse effect on two roads;
- significant beneficial effects removed on five roads (two minor and three moderate);
- change from moderate beneficial effect to moderate adverse effect on one road;
- change from moderate adverse effect to major adverse effect on one road;
- different (decreased) major adverse significant effects on four roads;
- change from moderate adverse effect to minor adverse effect on one road;
- change from major adverse effect to moderate adverse effect on four roads;
- significant adverse effects removed on 38 roads (six major, 26 moderate and six minor); and
- new minor beneficial effect on one road.

Effects arising during operation

The AP1 revised scheme will result in the following changes to the congestion and delay effects for vehicle occupants in 2038, as reported in the main ES:

- new major adverse effect on two junctions;
- new moderate adverse effect on three junctions;
- new minor adverse effect on two junctions;
- change from moderate adverse effect to major adverse effect on two junctions;
- significant adverse effects removed on five junctions (three major, one moderate and one minor); and
- new minor beneficial effect on two junctions.

The AP1 revised scheme will result in the following changes to the congestion and delay effects for vehicle occupants in 2051, as reported in the main ES for 2046:

- new major adverse effect on five junctions;
- new moderate adverse effect on two junctions;
- new minor adverse effect on four junctions;
- change from moderate adverse effect to major adverse effect on one junction;
- change from moderate adverse effect to minor adverse effect on one junction;
- change from minor adverse effect to minor beneficial effect on one junction;

- change from moderate adverse effect to minor beneficial effect on one junction;
- significant adverse effects removed on five junctions (three major, one moderate and one minor); and
- new moderate beneficial effect on one junction.

The AP1 revised scheme will result in the following changes to the traffic-related severance effects for non-motorised users in 2038, as reported in the main ES:

- new major adverse effect on six roads;
- new moderate adverse effect on 12 roads;
- new minor adverse effect on six roads;
- significant beneficial effects removed on three roads (three moderate);
- change from major beneficial effect to moderate beneficial effect on one road;
- significant adverse effects removed on 19 roads (two major, 16 moderate and one minor);
- new moderate beneficial effect on five roads; and
- new major beneficial effect on one road.

The changes to the traffic-related severance effects for non-motorised users in 2051, as reported in the main ES for 2046, will be:

- new major adverse effect on eight roads;
- new moderate adverse effect on 28 roads;
- new minor adverse effect on eight roads;

- significant beneficial effects removed on 16 roads (one minor, 11 moderate and four major);
- change from minor adverse effect to moderate adverse effect on one road;
- change from major adverse effect to moderate adverse effect on one road;
- change from moderate adverse effect to moderate beneficial effect on one road;
- change from major adverse effect to major beneficial effect on one road;
- significant adverse effects removed on 17 roads (two major, 11 moderate and four minor); and
- new moderate beneficial effect on 15 roads.

Community

Effects arising during construction

Changes to the sound, noise and vibration assessment as a result of new construction traffic data will remove the significant traffic noise effect reported in the main ES and therefore remove the significant moderate adverse in-combination effects on amenity on approximately 40 residential properties on the B5309 Centurion Way, Middlewich. In addition, the removal of MA02 Borrow Pit D, north of Moss Lane will remove the significant HGV traffic and traffic noise effects on approximately 30 residential properties on the B5081 Byley Road, Byley and therefore remove the in-combination effect on amenity for residents of these properties.

New construction traffic data will result in a different major adverse in-combination effect on amenity on approximately 35 residential

properties in Holmes Chapel as a result of a new HGV traffic effects combining with the in-combination noise and visual effects.

Changes to the sound, noise and vibration assessment as a result of new construction traffic data will result in new moderate in-combination community effects on:

- approximately five residential properties on the A530 Nantwich Road in Wimboldsley as a result of new HGV traffic effects combining with visual effects that were reported in the main ES;
- Wimboldsley Community Primary School in Wimboldsley as a result of new HGV traffic effects combining with visual effects that were reported in the main ES;
- approximately 40 properties in the vicinity of the A556 in Lostock Gralam as a result of a new traffic noise effect combining with visual and HGV traffic effects that were reported in the main ES;
- Lostock Lodge Care Home in Lostock Gralam as a result of a new traffic noise effects and visual effects that were reported in the main ES;
- Lostock Tiny Tots Pre-School in Lostock Gralam as a result of new traffic noise and HGV traffic effects; and
- Lostock Gralam Church Hall in Lostock Gralam as a result of new traffic noise and HGV traffic effects.

Health

Effects arising during construction

The combination of HGV traffic, as a result of new construction traffic data and an increase in HGV traffic movements, and visual effects will result in a new adverse neighbourhood quality effect on residents of the A530 Nantwich Road in Wimboldsley.

Changes to the sound, noise and vibration assessment as a result of new construction traffic data will remove the significant traffic noise effect and

will therefore remove the adverse neighbourhood quality effect along the B5309 Centurion Way, Middlewich.

The removal of MA02 Borrow Pit D, north of Moss Lane (SES1-002-002) will remove the significant HGV traffic and traffic noise effects. This will remove the adverse neighbourhood quality effect along the B5081 Byley Road in Byley reported in the main ES.

The B5308 Middlewich Road is a designated route for construction traffic. A significant HGV traffic effect will combine with the noise and visual effects at properties in the vicinity of the A54 Chester Road, A54 Middlewich Road and the B5308 Middlewich Road in Holmes Chapel. This will result in a different adverse neighbourhood quality effect for residents of these properties compared to that reported in the main ES.

Changes to the sound, noise and vibration assessment as a result of new construction traffic data have resulted in a new adverse neighbourhood quality effect for residents in the vicinity of the A556 in Lostock Gralam.

Changes to the sound, noise and vibration assessment as a result of new construction traffic data have also resulted in adverse a new traffic noise effect that will be noticeable for residents of Lostock Lodge Care Home. Temporary changes to the care home's environment may be noticeable for some residents and, for those affected, this will lead to a reduction in the wellbeing benefits associated with the care home environment.

Station Road in Lostock Gralam is a designated route for construction traffic and will experience a significant increase in HGV traffic movements. These significant HGV traffic effects will combine with significant traffic noise effects at both the Lostock Tiny Tots Pre-School in Lostock Gralam and St John the Evangelist Church Hall in Lostock Gralam. Changes to the pre-school's environment will have an adverse effect on the beneficial wellbeing effects associated with early years education while at St John the Evangelist Church Hall the temporary effects will affect quality of life by limiting opportunities for accessing a community facility. These will result in an adverse health effects.

Socio-economics

Effects arising during construction

The changes in traffic flows will result in new adverse residual significant in-combination effects during construction on The Verdin Arms public house; a group of 12 businesses at Hopley House; Lostock Tiny Tots Pre-School; and Lostock Lodge Care Home.

Sound, noise and vibration

Effects arising during construction

The AP1 revised scheme will reduce the road traffic movements on these roads, and therefore reduce the associated construction traffic noise levels along Darnhall School Lane, Winsford between the B5074 Swanlow Lane and Glebe Green Drive compared to the main ES. As a result, there will be a different likely temporary residual adverse significant noise effect on residential dwellings along these roads.

Construction traffic will also give rise to a new likely temporary residual adverse significant noise effect on residential dwellings on Salary Row, Broseley Way and Harris Road, which are adjacent to the A556 Shurlach Road between Birches Lane and the A559 Manchester Road. There will also be new likely temporary residual adverse significant noise effects on the following non-residential dwellings:

- Parish Church of St John the Evangelist, Church Hall, Lostock Gralam;
- Lostock Tiny Tots Pre-School, Lostock Gralam; and
- Lostock Lodge Care Home, Cheshire Avenue.

Changes to the sound, noise and vibration assessment as a result of new construction traffic data will remove an adverse significant residual effect on approximately 40 residential properties on the B5309 Centurion Way, Middlewich and approximately 30 residential properties on the B5081 Byley Road, Byley.

Water resources and flood risk

Effects arising during construction

The combined effects of changes and amendments in the Wimboldsley to Lostock Gralam area due to changes in construction traffic flows will lead to the removal of the permanent moderate adverse effects reported in the main ES on the water quality in Tributary of River Weaver 2 and Tributary of Gad Brook 3 and the temporary moderate significant effects on Puddinglake Brook, Gad Brook and Tributary of Gad Brook 3.

The highways discharges from the realigned A54 Middlewich Road have the potential to result in a new significant moderate adverse effect on the glacial till Secondary (Undifferentiated) aquifer around Birch Lane Drain.

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11 Pickmere to Agden and Hulseheath community area (MA03)



11.1 Summary of amendments in the Pickmere to Agden and Hulseheath area (MA03) in the AP1 ES

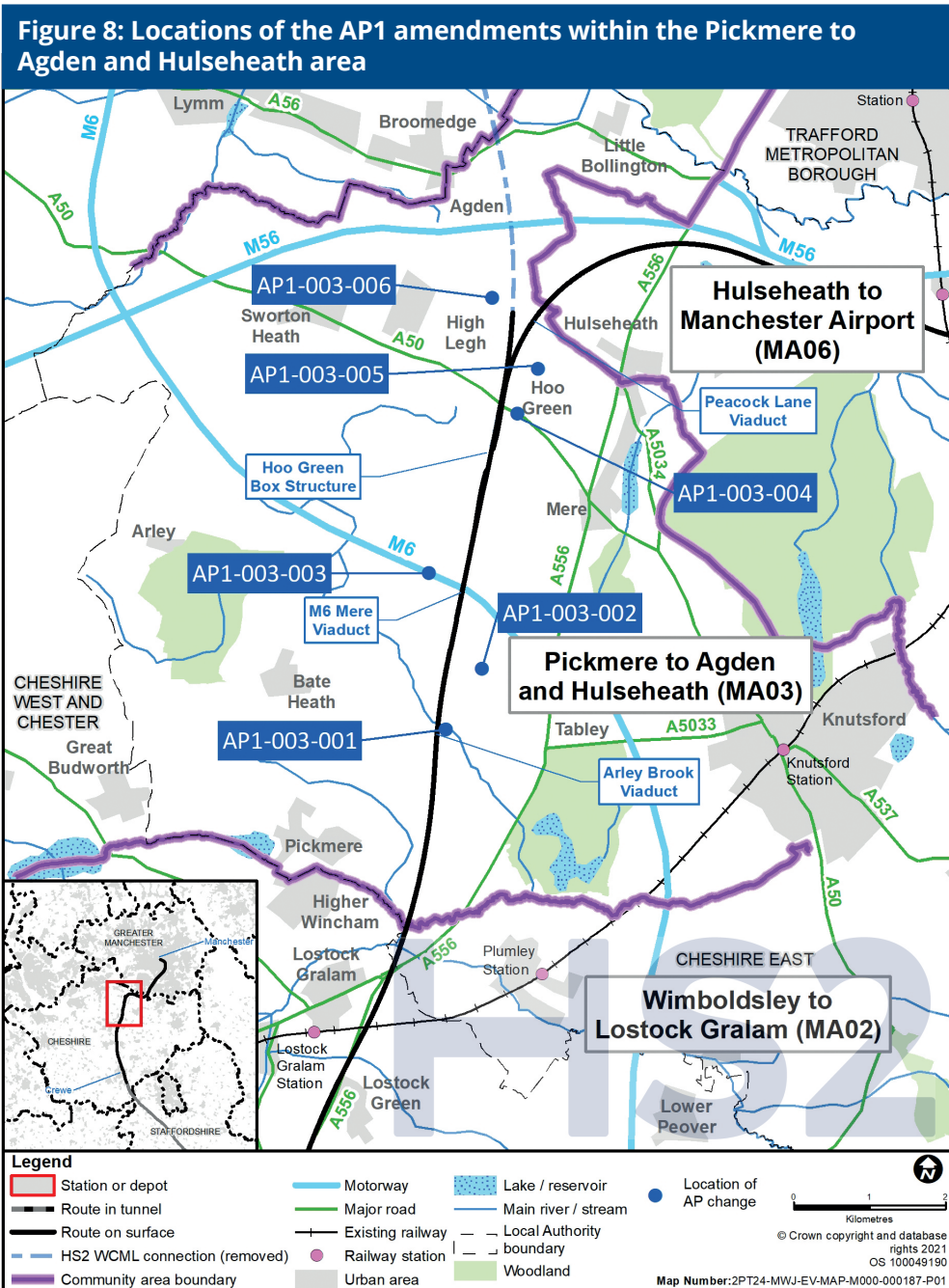
Table 6 provides a summary of each engineering amendment reported within the AP1 ES, along with a description of the original scheme, which is used as the baseline for the comparison of new and different significant environmental effects.

Figure 8 shows the approximate location of each AP1 engineering amendment within the Pickmere to Agden and Hulseheath area.

Table 6: Summary of the AP1 amendments requiring changes to the Bill powers in the Pickmere to Agden and Hulseheath area

Name of amendment	Description of the original scheme	Description of the AP1 revised scheme
<p>Additional land permanently required to improve visibility on the approach to Flittogate Lane junction</p> <p>AP1-003-001</p>	<p>The B5391 Pickmere Lane would be realigned 62m north of its existing alignment for 422m, crossing under the HS2 route beneath Arley Brook viaduct. Flittogate Lane would also be diverted, 260m north of its existing alignment for 491m. A new three-arm priority controlled (give way) T-junction would be formed at the connection with the B5391 Pickmere Lane realignment.</p> <p>There would be a 60m stopping sight distance (SSD) for traffic travelling southbound on Pickmere Lane. Due to the existing road alignment the view would be obstructed by vegetation to the west of the bridge over Waterless Brook. The increased proximity of the junction of the diverted Flittogate Lane to Waterless Brook has the potential to increase vehicle collisions between southbound traffic and vehicles turning into Flittogate Lane.</p>	<p>There will be an increase in the width of the highway verge to increase the SSD to 120m for southbound traffic using the Pickmere Lane/Flittogate Lane junction. This will reduce the amount of wetland habitat creation and hedgerow planting provided at this location.</p>
<p>Additional land permanently required to modify HS2 access near Heyrose Farm</p> <p>AP1-003-002</p>	<p>The Heyrose Farm access would be closed to the south of Heyrose Farm where it crosses the HS2 route, with access to properties retained on the eastern side through improvements, including the creation of a vehicle turning head and a passing bay. The access road would also be used by HS2 maintenance teams.</p>	<p>The HS2 access road will be extended to Old Hall Lane removing the need for the turning head as there will be sufficient room for vehicles to turn around at the junction with Old Hall Lane.</p>
<p>Additional land permanently required to lengthen the realignment of the M6 between junction 19 and junction 20</p> <p>AP1-003-003</p>	<p>The M6 would be widened by 2m along its existing alignment over a length of 425m, 1.6km north-west of junction 19, to accommodate a pier for the proposed M6 Mere viaduct within the central reservation.</p>	<p>The M6 central reservation will be widened by up to 7m along its existing alignment over a length of 830m to enable a 70mph speed limit during the majority of the construction period.</p>
<p>Airspace rights required for the diversion of a National Grid 400kV overhead power line near A50 Warrington Road</p> <p>AP1-003-004</p>	<p>The diversion of a National Grid 400kV overhead power line for 775m to the north of A50 Warrington Road overbridge and to the east of the HS2 route.</p>	<p>A section of existing 400kV overhead line that passes over the A50 Warrington Road will be re-strung. This change requires additional land in the form of airspace rights to enable the restringing of power lines.</p>

Name of amendment	Description of the original scheme	Description of the AP1 revised scheme
Additional land temporarily required for the provision of surface water drainage at Bowden View satellite compound AP1-003-005	The temporary use of land for construction of the original scheme on the eastern side of the HS2 route, which includes the establishment of the Bowden View satellite compound and site haul routes.	Additional land will be required temporarily to allow for a gravity surface water drainage outfall to the Tributary of Millington Clough 1 watercourse during construction.
Additional land temporarily required for the provision of surface water drainage at Peacock Lane satellite compound AP1-003-006	The temporary use of land for construction of the original scheme on the eastern and western sides of the HS2 route, which includes the establishment of the Peacock Lane satellite compound.	Additional land will be required temporarily to allow for a gravity surface water drainage outfall to the Tributary of Millington Clough 3 watercourse during construction.



11.2 Assessment of amendments in the Pickmere to Agden and Hulseheath area (MA03) in the AP1 ES

Ecology and biodiversity

Effects arising during construction

The main ES reported that construction of the original scheme would, on a precautionary basis, result in the loss of at least two veteran trees within Arley and Waterless Brook Corridor LWS. On a precautionary basis, the additional land permanently required to improve visibility to Flittogate Lane junction (AP1-003-001) will result in the potential loss of additional veteran trees within the LWS. This may give rise to a new permanent adverse residual effect on veteran trees, which is significant at the national level in each case, due to the loss of additional woodland habitat.

Landscape and visual

Effects arising during construction

The realignment and extension of Smoker Brook viaduct (AP1-002-012) in the Wimboldsley to Lostock Gralam area (MA02) will give rise to a different likely residual significant construction effect for the view east from Footpath Pickmere 5/1 and Providence Farm. The level of the effect will slightly increase but remain major adverse.

Additional land permanently required to improve visibility on the approach to Flittogate Lane junction (AP1-003-001) will give rise to a different likely residual significant construction effect for views west from Budworth Road. The level of the effect will slightly increase but remain major adverse.

The modification of HS2 access near Heyrose Farm (AP1-003-002) will give rise to a different likely residual significant construction effect for views west from Old Hall Lane. The level of the effect will slightly decrease but remain major adverse.

Effects arising from operation

Additional land permanently required to improve visibility on the approach to Flittogate Lane junction (AP1-003-001) will give rise to a different likely residual significant effect on views west from Budworth Road. The effect will slightly increase but will remain moderate adverse as per reported in the main ES.

11.3 Assessment of combined effects of changes and amendments in the Pickmere to Agden and Hulseheath area (MA03) due to changes in traffic flows

This section reports the combined assessment of new or different significant traffic and traffic related effects, as a result of changes in traffic flows. These relate to changes associated with SES1 changes and AP1 amendments, where the change in traffic flows cannot be directly attributed to a specific SES1 change or an AP1 amendment.

The assessment has also considered any impacts in the Pickmere to Agden and Hulseheath area associated with SES1 changes and AP1 amendments in other community areas.

Traffic and transport effects are reported first, since the effects arise from changes in traffic flows. Other topics where a significant effect has been identified, are then reported in the following sequence:

- community;
- health;
- socio-economics;
- sound, noise and vibration; and
- water resources.

Traffic and transport

Effects arising during construction

The AP1 revised scheme will result in the following changes to the congestion and delay effects for vehicle occupants, as reported in the main ES:

- new major adverse effect on six junctions;
- new moderate adverse effect on one junction;
- different (increased) major adverse significant effects on two junctions;
- change from moderate adverse effect to major adverse effect on one junction;
- change from major adverse effect to moderate adverse effect on one junction;
- change from major adverse effect to minor adverse effect on two junctions;

- change from moderate adverse effect to minor adverse effect on one junction; and
- change from minor adverse effect to minor beneficial effect on one junction.

The AP1 revised scheme will result in the following changes to the traffic-related severance effects for non-motorised users, as reported in the main ES:

- new major adverse effect on seven roads;
- new moderate adverse effect on four roads;
- new minor adverse effect on one road;
- different (increased) major adverse significant effects on three roads;
- change from moderate adverse effect to major adverse effect on seven roads;
- change from minor adverse effect to moderate adverse effect on one road; and
- change from major adverse effect to moderate adverse effect on one road.

The AP1 revised scheme will remove significant adverse effects on 23 roads (13 major, seven moderate and three minor).

Effects arising from operation

The AP1 revised scheme will result in the following changes to the congestion and delay effects for vehicle occupants in 2038:

- new major adverse effect on one junction; and
- new minor beneficial effect on one junction.

For delay effects for vehicle occupants in 2051 the AP1 revised scheme will result in a change from a minor adverse effect to a moderate adverse effect on one junction.

The AP1 revised scheme will result in the following changes to the traffic-related severance effects for non-motorised users in 2038:

- change from moderate adverse effect to moderate beneficial effect on one road;
- change from major beneficial effect to major adverse effect on one road;
- new major adverse effect on five roads;
- new moderate adverse effect on three roads;
- new minor adverse effect on one road; and
- new moderate beneficial effect on two roads.

The changes to the traffic-related severance effects for non-motorised users in 2051 will be:

- change from major adverse effect to moderate adverse effect on one road;
- change from minor adverse effect to moderate adverse effect on one road;
- change from moderate adverse effect to moderate beneficial effect on two roads;
- change from major beneficial effect to moderate beneficial effect on one road;
- new major adverse effect on three roads;
- new moderate adverse effect on two roads;
- new minor adverse effect on one road; and
- new moderate beneficial effect on three roads.

The AP1 revised scheme will remove the following likely residual significant effects reported in the main ES:

- adverse effects for vehicle occupants in 2038 at six junctions (one major, two moderate and three minor);
- adverse effects for vehicle occupants in 2051 at five junctions (two major, one moderate and two minor);
- beneficial effects for non-motorised users in 2038 on six roads (five moderate, one major);
- adverse effects for non-motorised users in 2038 on 14 roads (one major, 13 moderate);
- beneficial effects for non-motorised users in 2051 on three roads (three major); and
- adverse effects for non-motorised users in 2051 on 11 roads (one major, nine moderate, one minor).

Community

Effects arising during construction

Changes to the sound, noise and vibration baseline and new construction traffic data will result in a new major adverse in-combination effect on amenity on approximately 10 residential properties in the vicinity of Pickmere Lane and School Lane, Pickmere. This is due to a significant increase in HGV traffic movements combined with the new noise effect and visual effects reported in the main ES.

New construction traffic data will also result in different major adverse in-combination effect on amenity on approximately five residential properties in the vicinity of Budworth Road. This is as a result of significant in-combination effect on amenity reported in the main ES, as amended

by the SES1, from significant noise and visual effects, combining with a new HGV traffic effect and a new traffic noise effect. There will also be a different major adverse in-combination effect on amenity on approximately 15 residential properties in Hulseheath due to the removal of traffic noise effects.

The AP1 revised scheme will remove the significant moderate adverse in-combination effect reported in the main ES on approximately 50 residential properties along the B5569 Chester Road in Mere due to changes to the sound, noise and vibration assessment and the removal of traffic noise effects.

Health

Effects arising during construction

Changes to the sound, noise and vibration baseline and new construction traffic data will result in a new adverse neighbourhood quality effect for residents in the vicinity of Pickmere Lane and School Lane as a result of a significant increase in HGV traffic movements. People in this community are likely to experience these effects as changing the quality of their neighbourhood and to regard that change as adverse, both in diminishing the amenity of the village and in reducing the sense of its rural character.

Changes to the sound, noise and vibration assessment as a result of new construction traffic data have resulted in the removal of the significant traffic noise effect and therefore, the removal of the neighbourhood quality effect for residents along the B5569 Chester Road in Mere.

A new significant HGV traffic effect will combine with a new traffic noise effect and noise and visual effects which will result in a different adverse neighbourhood quality effect in the vicinity of Budworth Road.

New construction traffic data will result in a different adverse neighbourhood quality effect on amenity for residents in the vicinity of Chapel Lane, Thowler Lane and Peacock Lane in Hulseheath.

Socio-economics

Effects arising during construction

The changes in construction traffic flows will result in new significant effects from HGV construction traffic combining with noise and visual effects reported in the main ES. This will result in a different adverse residual significant in-combination effect on Heyrose Golf Club. There will also be new adverse residual significant in-combination effects on Tabley Brook Kennels and Cattery, and on Millington Livery Yard as a result of new significant effects from HGV traffic

Sound, noise and vibration

Effects arising during construction

As a result of the AP1 revised scheme, construction traffic in this area will give rise to a new likely temporary residual adverse significant noise effect on adjacent residential properties on Budworth Road between Frog Lane and Old Hall Lane.

The AP1 revised scheme will remove the following likely residual significant effects reported in the main ES:

- indirect effect on properties on Chapel Lane and Peacock Lane between Hulseheath Lane and Back Lane;
- indirect effect on properties on the B5569 Chester Road between the A50 Chester Road and the A5034 Mereside Road; and
- indirect effect on properties on Chapel Lane between the B5569 Chester Road and Hulseheath Lane.

Water resources and flood risk

Effects arising during construction

On a precautionary basis, it is anticipated that there will be a permanent moderate adverse significant residual effect on the water quality in the glacial till Secondary (Undifferentiated) aquifer relating to highway discharges from the M6 realignment (permanent moderate adverse effect) and temporary construction traffic on the A556 close the Chapel Lane (temporary moderate adverse effect).

The AP1 revised scheme will remove the moderate adverse effects on Tributary of River Weaver 2 and Tributary of Gad Brook 3 reported in the main ES.

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**12 Broomedge to Glazebrook community area (MA04)
and Risley to Bamfurlong community area (MA05)**



12.1 Summary of amendments in the Broomedge to Glazebrook area (MA04) and Risley to Bamfurlong area (MA05) in the AP1 ES

Since the deposit of the Bill, the Secretary of State has decided to remove the HS2 WCML connection, included in the original scheme, from the High Speed Rail (Crewe – Manchester) Bill and has given this commitment to Parliament.

As a result of the removal of the HS2 WCML connection (SES1-004-001), there are no AP1 amendments for the Broomedge to Glazebrook (MA04) and the Risley to Bamfurlong (MA05) community areas. With the exception of the combined effects due to changes in traffic flows reported in Section 12.2 of this report, all significant effects reported in the main ES from construction and operation activities in the Broomedge to Glazebrook area and Risley to Bamfurlong area will be removed as a result of the AP1 scheme.

12.2 Assessment of combined effects of changes and amendments in the Broomedge to Glazebrook area (MA04) and Risley to Bamfurlong area (MA05) areas due to changes in traffic flows

This section reports the combined assessment of new, remaining or different significant construction traffic and traffic related effects, as a result of changes in construction traffic flows. These relate to changes associated with SES1 changes in this area, where the change in traffic flows cannot be directly attributed to a specific SES1 change or an AP1 amendment in other community areas.

The assessment has also considered any impacts in the Broomedge to Glazebrook area and in the Risley to Bamfurlong area associated with SES1 changes and AP1 amendments in other community areas.

The assessment includes all changes to construction traffic. The primary contributors to the changes in construction traffic are the changes to the movement of excavated material, construction programme and construction assumptions. The main reason for this is the removal of the HS2 WCML connection (SES1-004-001). The assessment takes into account measures to reduce the need to move material by the road network and use of site haul routes to limit construction traffic on the road network.

Broomedge to Glazebrook community area (MA04)

Traffic and transport

Effects arising during construction

The AP1 revised scheme will result in the following changes to the congestion and delay effects for vehicle occupants, from those reported in the main ES:

- different (increased) major adverse significant effects on one junction;
- change from major adverse effect to minor adverse effect on one junction; and
- change from major adverse effect to moderate adverse effect on two junctions.

The AP1 revised scheme will result in the following changes to the traffic-related severance effects for non-motorised users, as reported in the main ES:

- new moderate adverse effect on one road, Salford Western Gateway (between M60 junction 11 southbound link and Trafford Way);
- change from minor adverse effect to moderate adverse effect on one road; and
- change from minor beneficial effect to major adverse effect on one road.

Socio-economics

Effects arising during construction

The SES1 design change to remove the HS2 WCML connection (SES1-004-001) will result in the removal of all socio-economic significant effects reported in the main ES in the Broomedge to Glazebrook area, apart from the temporary moderate adverse significant isolation effect on the Saracens Head public house. The isolation effect reported in the main ES remains a significant temporary adverse effect due to traffic congestion during construction at the junction of A6144 Bent Lane/A6144 Paddock Lane/Paddock Lane.

Risley to Bamfurlong community area (MA05)

Traffic and transport

Effects arising during construction

The AP1 revised scheme will result in the following changes to the congestion and delay effects for vehicle occupants, as reported in the main ES:

- change from major adverse effect to minor adverse effect on two junctions;
- change from major adverse effect to moderate adverse effect on six junctions; and
- different (decreased) major adverse significant effects on one junction.

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13 Volume 3, Route-wide effects



13.1 Introduction

Volume 3 presents a summary of the new, different or removed likely residual environmental effects that have been identified on a route-wide basis as a result of the AP1 revised scheme. Further information is provided in Volume 3, Route-wide effects of the SES1 and AP1 ES.

Changes as a result of the AP1 scheme are reported in this section for: agriculture, forestry and soils; climate change; ecology and biodiversity; health; socio-economics; traffic and transport; waste and material resources; and water resources and flood risk.

Agriculture, forestry and soils

Temporary effects

The AP1 revised scheme will temporarily require an area of agricultural land in England of approximately 1,060ha, of which approximately 417ha is BMV land in England, which is an increase of 8ha of BMV land compared to the original scheme, as amended by SES1.

The original scheme, as amended by SES1, would restore approximately 556ha to agriculture. The total area required temporarily for the construction of the AP1 revised scheme, which will be restored to agriculture, will be 564ha.

The AP1 revised scheme will not result in any new or different temporary significant route-wide level effects on agriculture, forestry or soils.

Permanent effects

The original scheme, as amended by SES1, would permanently require 496.1ha of agricultural land of which 184ha is BMV land. The total area of land required permanently for the AP1 revised scheme will be approximately 496.5ha, of which approximately 146ha is BMV land (Grade 2 and Subgrade 3a).

The original scheme, as amended by SES1, would permanently require 72.78ha of agricultural land for newly planted woodland or trees for visual screening or habitat, and 2ha for floodplain storage. For the AP1 revised scheme, a total of approximately 72.96ha of land will be used for newly planted woodland or trees on agricultural land for visual screening or habitat. A total of approximately 2ha will be used for providing floodplain storage.

The AP1 revised scheme will not result in any new or different permanent significant route-wide level effects on agriculture, forestry or soils.

Climate change

Greenhouse gas (GHG) implications of SES1 changes and AP1 amendments

As a result of the AP1 revised scheme there will be a decrease in construction GHG emissions, and a decrease in operational GHG emissions between 2038 (scheme opening year) and 2050. However, this change in GHG emissions does not result in any new or different significant effects.

Ecology and biodiversity

Designated sites

On a precautionary basis, the additional land permanently required for the realignment and extension of Crewe tunnel (AP1-001-001) will result in a new significant effect on one additional statutory site of nature conservation importance (Sandbach Flashes SSSI). It has not been possible to rule out potential effects on water dependant habitats due to changes in surface-water flows.

HS2 Ltd will continue to investigate this issue, and will develop appropriate measures to mitigate or compensate for this effect if required. On a precautionary basis, the AP1 revised scheme will therefore result in significant adverse effects to two SSSIs rather than one as reported in the main ES which are reported as significant at the national level.

Health

Airborne noise

Health burden of noise within the study area

The AP1 revised scheme will reduce the health impact due to noise within the airborne sound study area (defined as 1km either side of the HS2 route in rural areas and 500m either side in urban areas) reported in the main ES.

Sleep disturbance

The AP1 revised scheme will reduce the number of dwellings with the potential for occupants to experience a decrease in sleep disturbance from 1,900 reported in the main ES, to approximately 1,300. The AP1 revised scheme will also reduce the number of dwellings with the potential for occupants to experience an increase sleep disturbance from approximately 1,500 reported in the main ES to approximately 1,100.

Annoyance

The AP1 revised scheme will result in approximately 1,050 dwellings with the potential for reduced noise annoyance, compared to the 1,350 dwellings reported in the main ES. The AP1 revised scheme will also reduce the number of dwellings with the potential for occupants to experience noise annoyance or an increase in noise annoyance from 2,600 reported in the main ES to approximately 1,100. This represents a reduction in the overall health impact of annoyance due to noise.

Noise and cardiovascular effects

The AP1 revised scheme will result in a decrease in the number of dwellings whose occupants may have the potential to reduce noise-induced hypertension, reducing the risk of stroke or dementia from 1,200 dwellings to 600 dwellings. The SES1 changes and AP1 amendments also result in a decrease in the number of dwellings where the AP1 revised scheme has the potential to increase that risk, compared to the main ES from 1,150 dwellings to 800 dwellings. This represents a reduction in the overall assessed health impact of hypertension (stroke and dementia) due to noise.

The AP1 revised scheme will result in a decrease in the number of dwellings whose occupants have the potential for reduced risk of acute myocardial infarctions (AMI) due to noise, from 1,100 dwellings to 450 dwellings. The SES1 changes and AP1 amendments also result in a decrease in the number of dwellings whose occupants will have the potential for increased risk of AMI, compared to the main ES from 500 dwellings to 350 dwellings. This represents a reduction in the overall health impact of AMI due to noise at these dwellings.

Socio-economics

As a result of the AP1 amendments, the total number of jobs displaced by construction of the original scheme as amended by the SES1 (6,210 jobs) will reduce to 5,400 displaced jobs. This change is as a result of jobs no longer being displaced due to removal of the requirement for land from Bentley Motors Ltd on Pyms Lane to construct the scheme in Wimboldsley to Lostock Gralam area (MA02).

The AP1 revised scheme will result in a decrease in the number of jobs lost route-wide from businesses directly and indirectly affected during the construction phase from approximately 1,050 for the original scheme as amended by the SES1, to 920 for the AP1 revised scheme. This will reduce the significance of the effect from moderate adverse to a minor adverse effect, which is not significant.

The AP1 amendments to the original scheme, as amended by SES1, will therefore result in the removal of a significant effect in relation to job displacement as a result of direct and indirect construction effects.

Traffic and transport

Impacts on the railway network during construction

Removal of the HS2 WCML connection (SES1-004-001) will result in the removal of possessions and blockades on the WCML Crewe to Carlisle between Golborne junction and Springs Bank junction in the Risley to Bamfurlong area (MA05), and the consequential removal of the significant major adverse effects on rail passengers and freight associated with these, as reported in the main ES.

In addition, there will be a reduction in the number of blockades in the Hough to Walley's Green area (MA01) from three to two as a result of a removal of one blockade associated with signalling commissioning for the Crewe Northern Connection.

However, at a route-wide level, the conclusion of the main ES that the substantial number and extended duration of the possessions and blockades will lead to a significant major adverse effect on WCML rail passengers and freight, is unchanged as a result of the AP1 revised scheme.

Waste and material resources

Effects arising during construction

The quantity of inert waste arising from the construction of the AP1 revised scheme that will require off-site disposal to landfill during the period 2025 to 2038 will be approximately 5.4 million tonnes, an increase of 839,375 tonnes over the quantity reported in the main ES. This increase is largely due to the removal of the HS2 WCML connection (SES1-004-001), due to the reduced opportunities to reuse excavated material. Off-site disposal to landfill of this waste will result in a minor adverse effect, the same level of effect as reported in the main ES, which is not significant.

The total quantity of non-hazardous waste arising from the construction of the AP1 revised scheme that will require off-site disposal to landfill during the period 2025 to 2038 is approximately 367,506 tonnes, a decrease of 49,542 tonnes over the quantity reported in the main ES. Off-site disposal to landfill of this waste will result in a moderate adverse effect, which is significant. The level of effect remains unchanged from the main ES.

The total quantity of hazardous waste arising from the construction of the AP1 revised scheme requiring off-site disposal to landfill during the period 2025 to 2038 will be approximately 19,050 tonnes, a decrease of 3,558 tonnes over the quantity reported in the main ES. Off-site disposal to landfill of this waste will result in a minor adverse effect, the same level of effect reported in the main ES, which is not significant.

Water resources and flood risk

Water Framework Directive compliance

The Water Framework Directive (WFD) aims to protect and enhance the quality of the water environment. It takes a holistic approach to the sustainable management of water by considering the interactions between surface water, groundwater and water-dependent ecosystems.

The AP1 revised scheme will not result in any new or different adverse effects that pose a risk of causing a deterioration of the current status of any WFD surface or groundwater water body, or preventing any WFD water body from achieving its status objectives.

The AP1 amendments remove a number of the adverse effects identified in the main ES, as amended by SES1, that had the potential to cause a deterioration in water body status.

Adverse effects identified in the main ES, as amended by SES1, remain, for two surface water bodies: Wade Brook and Timperley Brook. These adverse effects relate to impacts from highway drainage discharges and may give rise to the potential risk of the AP1 revised scheme being non-compliant with the statutory objectives of the WFD.

A WFD Regulation 19 exemption is a legal instrument seeking to proceed with the Proposed Scheme despite the potential for deterioration of water bodies. In order to avoid the necessity of seeking an exemption under the WFD Regulations, additional mitigation measures are therefore still required to manage the risk of status deterioration within these two water bodies. A range of mitigation measure options have been identified in consultation with the Environment Agency with the aim to ensure no residual risks of status deterioration will remain.

It is currently anticipated that it will be feasible to develop and implement mitigation measures to ensure that there is no residual risk of deterioration in status for these water bodies, though further detailed work is required to inform the best suitable solution.

Whilst every effort will be made to ensure a WFD Regulation 19 exemption assessment is not required, if it is unavoidable an assessment will be prepared on a route-wide and/or specific water body basis, as appropriate, in consultation with the Environment Agency (as the competent regulatory authority) and reported to Parliament during passage of the Bill.

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