

High Speed Rail (Crewe – Manchester) Environmental Statement

Volume 5: Appendix CT-007-00001

Cross-topic

Working draft Environmental Statement
Consultation Summary Report

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Working draft Environmental Statement
Consultation Summary Report



Department for Transport

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

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1 Introduction

1.1 Introduction to High Speed Two

1.1.1 High Speed Two (HS2) is a new high speed railway proposed by the Government to connect major cities in Britain. It will transform intercity and long distance passenger rail travel in the UK, providing the first major increase in intercity rail capacity for over a century and freeing up substantial capacity for rail travel and freight on the conventional rail network. London, Birmingham, Manchester and cities in the Midlands, the North and Scotland will be served by high speed trains running at speeds of up to 360kph (225mph) on HS2 lines and on the existing conventional rail network. As part of the Proposed Scheme, new stations will be built at Manchester Piccadilly and Manchester Airport, in addition to the new stations in London and the West Midlands included in HS2 Phase One.

Phase One

1.1.2 HS2 is being built in phases. Phase One comprises the first section of the HS2 network of approximately 230km between London and the West Midlands, which will commence operations between 2029 and 2033. It was the subject of an Environmental Statement (ES) deposited with the High Speed Rail (London – West Midlands) hybrid Bill in November 2013. The High Speed Rail (London – West Midlands) hybrid Bill received Royal Assent in February 2017. Advance works on Phase One commenced in July 2017, with the main works commencing in April 2020.

Phase Two

1.1.3 In January 2013, the Government announced its initial preferred route for Phase Two between the West Midlands, Leeds and Manchester. Following some minor amendments, the proposed route was subject to a seven-month public consultation from July 2013 until January 2014.

Phase 2a

1.1.4 In two reports, HS2 Plus¹ and Rebalancing Britain², the then HS2 Ltd Chairman, Sir David Higgins recommended accelerating the section of the Phase Two route between the West

¹ High Speed Two Ltd (2014), *HS2 Plus – A report by David Higgins*. Available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/374695/HS2_Plus_-_A_report_by_David_Higgins.pdf.

² High Speed Two Ltd (2014), *Rebalancing Britain – From HS2 towards a national transport strategy*. Available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/374709/Rebalancing_Britain_-_From_HS2_towards_a_national_transport_strategy.pdf.

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Midlands and Crewe to deliver some of the benefits that HS2 will bring to the region and the north of England and Scotland sooner. In the November 2015 Command Paper High Speed Two: East and West: The next steps to Crewe and beyond³, the Government announced its intention to bring forward the route between the West Midlands and Crewe, and set out the preferred line of route for what is known as Phase 2a. Phase 2a comprises the section of the route between the West Midlands and Crewe. The High Speed Rail (West Midlands – Crewe) hybrid Bill, together with an Environmental Statement (ES), was prepared for the Phase 2a proposals and deposited in Parliament in July 2017. The High Speed Rail (West Midlands – Crewe) hybrid Bill received Royal Assent in February 2021.

Phase 2b

- 1.1.5 On 15 November 2016 the Government set out the majority of its preferred route⁴ between Crewe and Manchester and between the West Midlands and Leeds, referred to as Phase 2b and to complete what is known as the ‘Y network’. Alongside the preferred route of the full Phase 2b scheme, the Government also announced a consultation on seven route refinement areas.
- 1.1.6 On 17 July 2017, the Government announced a decision on these refinements and confirmed the remainder of the preferred route for the full Phase 2b scheme.
- 1.1.7 The full Phase 2b scheme announced comprised the route from:
- Crewe to Manchester (approximately 85km), with a connection onto the West Coast Main Line (WCML) - referred to as ‘the Phase 2b Western Leg’ and the route of the Proposed Scheme in the High Speed Rail (Crewe – Manchester) hybrid Bill; and
 - the West Midlands to Leeds via the East Midlands and South Yorkshire – ‘the Eastern Leg’, which will be legislated for separately.
- 1.1.8 In October 2018, HS2 Ltd launched two parallel consultations on the working draft ES and the working draft Equality Impact Assessment (EQIA) Report for the full Phase 2b proposed scheme (including both Eastern Leg and Western Leg). The Consultation ran for 10 weeks, launching on 11 October 2018 and closing on 21 December 2018.
- 1.1.9 On 6 June 2019, the Government launched a national consultation on 11 proposed design refinements to the Phase 2b scheme. These refinements included proposed infrastructure for HS2 to accommodate future potential Northern Powerhouse Rail (NPR) services.

³ Department for Transport (2015), *High Speed Two: East and West: The next steps to Crewe and beyond November 2015*. Cm 9157. Available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/480712/hs2-east-and-west.pdf.

⁴ Department for Transport (2016), *High Speed Two: From Crewe to Manchester, the West Midlands to Leeds and beyond*. Cm 9355. Available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/568208/high-speed-two-crewe-manchester-west-midlands-leeds-web-version.pdf.

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- 1.1.10 In August 2019, the Department for Transport (DfT) announced that Douglas Oakervee would chair an independent review of HS2, referred to as the 'Oakervee Review'. The review was asked to assemble and test all the existing evidence in order to allow the Government to make properly informed decisions on the future of all Phases of the HS2 project.
- 1.1.11 The Oakervee Review, published on 11 February 2020⁵, concluded that the HS2 project should proceed, based on a number of recommendations. These included the need for Phase 2b to be considered as part of an Integrated Rail Plan (IRP) for the North and Midlands and for the full Phase 2b scheme to be split into smaller sections.
- 1.1.12 In February 2020 the Government recommitted to providing better rail connectivity between London, the Midlands and the North, ensuring all parts of the country benefit from opportunities for economic development and prosperity. The Government committed to preparing an IRP (including consideration of the Eastern and Western Legs), informed by a 'Rail Needs Assessment' undertaken by the National Infrastructure Commission (NIC).
- 1.1.13 At that time the Government also announced⁶ its decision to proceed with the legislation to allow for the development of the Phase 2b Western Leg (the Proposed Scheme) separately and that, subject to the IRP, 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.
- 1.1.14 The IRP was published in late 2021⁷. In terms of the Proposed Scheme, the IRP confirmed that the HS2 Crewe – Manchester hybrid Bill should proceed to deposit in Parliament. The outcomes will be taken into account in the on-going development of the Proposed Scheme.
- 1.1.15 The conclusions of the IRP will be taken into account in the on-going development of the Western Leg Proposed Scheme.

Phase 2b Western Leg design refinement

- 1.1.16 On 7 October 2020, the Government provided a Western Leg route-wide update and launched a national consultation on four further proposed design refinements that were relevant to the Western Leg of the Phase 2b route. This included changes to allow the HS2 route to be used by future NPR trains to link cities across the North of England.

⁵ Oakervee, D. (2020), *Oakervee review of HS2*. Available online at: <https://www.gov.uk/government/publications/oakervee-review-of-hs2>.

⁶ Department for Transport (2020), *Terms of reference for an integrated rail plan for the north and midlands*. Available online at: <https://www.gov.uk/government/publications/high-speed-north-an-integrated-rail-plan-for-the-north-and-midlands-terms-of-reference/terms-of-reference-for-an-integrated-rail-plan-for-the-north-and-midlands>.

⁷ Department for Transport (2021), *Integrated Rail Plan for the North and Midlands*. Available online at: [Integrated Rail Plan for the North and Midlands - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/integrated-rail-plan-for-the-north-and-midlands).

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- 1.1.17 The NIC published the Rail Needs Assessment for the Midlands and the North in December 2020⁸. The NIC developed a menu of options for a programme of rail investments in the Midlands and the North, using three different illustrative budget options: focussing on upgrades (baseline budget only); prioritising regional rail links; and prioritising long distance links. The Proposed Scheme was included in the scope of all options.
- 1.1.18 In June 2021, HS2 Ltd published a route wide update⁹ of the Proposed Scheme and included the latest design proposals.

High Speed Rail (Crewe – Manchester) hybrid Bill

- 1.1.19 As announced by Government, the powers for the Western Leg Proposed Scheme are being sought through a hybrid Bill named the High Speed Rail (Crewe – Manchester) Bill, with the aim of receiving Royal Assent in early 2024, construction assumed to commence in 2026, and operation planned to start in 2038.
- 1.1.20 The Proposed Scheme that is the subject of this ES consists of:
- the HS2 Western Leg from Crewe to Manchester, including:
 - new stations at Manchester Airport and Manchester Piccadilly;
 - a depot north of Crewe;
 - maintenance facilities north of Crewe and at Ashley; and
 - a connection onto the WCML near Bamfurlong;
 - the Crewe Northern Connection, connecting the route of the Proposed Scheme with the WCML and enabling future NPR services to connect with HS2;
 - provision for the NPR London to Liverpool, Manchester to Liverpool, and Manchester to Leeds junctions, to enable these future NPR routes to connect with HS2; and
 - a number of works at locations beyond the Western Leg route corridor, referred to as ‘off-route works’, which include:
 - works to enable HS2 trains to call at existing stations further north on the WCML;
 - construction of depots to provide overnight stabling for HS2 trains serving the north of England and Scotland.

⁸ National Infrastructure Commission (2020), *Rail Needs Assessment for Midlands and the North Final Report*. Available online at: [RNA-Final-Report-15122020.pdf \(nic.org.uk\)](https://www.nic.org.uk/infrastructure/consultation/15122020/rna-final-report-15122020.pdf).

⁹ High Speed Two Ltd (2021), *Phase 2b: Crewe to Manchester, West Midlands to Leeds*. Route wide update 2021. Available online at: <https://www.hs2.org.uk/what-is-hs2/phase-2b/>.

- 1.1.21 The environmental effects of the Proposed Scheme have been assessed. The findings of the assessment are reported in the ES. The ES has been deposited alongside the hybrid Bill, in accordance with the requirements of Parliamentary Standing Order 27A (SO27A)^{10,11}.

1.2 The scope and purpose of this report

- 1.2.1 As identified above, two parallel consultations were undertaken by HS2 Ltd in 2018; a consultation on the working draft ES and a consultation on the working draft EQIA. The working draft ES and working draft EQIA consultations are collectively referred to as the '2018 Consultations', and were undertaken between 11 October 2018 and 21 December 2018. Further details of the 2018 Consultations are provided in Section 2 of this report.
- 1.2.2 The scope of the 2018 Consultations included the Eastern and Western Legs of the full Phase 2b Scheme. Since then, the Government has decided to proceed with legislation for the Western Leg of Phase 2b as a priority.
- 1.2.3 The feedback received in response to the working draft ES consultation and a summary of how this feedback has been considered is the focus of this report. A separate report has been prepared in response to the feedback received on the working draft EQIA. In addition, consultations and decisions made by Government as well as stakeholder engagement undertaken by HS2 Ltd following the working draft ES consultation have helped to shape the content of this report.
- 1.2.4 The purpose and scope of this report is to provide a response to the key issues that were raised by stakeholders in response to the working draft ES consultation in relation to the Western Leg of Phase 2b ('the Western Leg Proposed Scheme'). This report is being published as part of the ES, accompanying the Proposed Western Leg hybrid Bill, referred to as the hybrid Bill.
- 1.2.5 The issues summarised in this report are not an exhaustive list. They reflect the key locations, issues and themes that were identified by consultees to the 2018 Consultations that related to the Western Leg Proposed Scheme and the working draft ES. This report explains how feedback has been considered through the EIA and scheme development and includes key issues relating to the approach in general of the EIA and design development for the Western Leg Proposed Scheme since the 2018 Consultations.

¹⁰ House of Commons (2019), *Standing Order 27A relating to private business (environmental assessment)*, House of Commons. Available online at: <https://publications.parliament.uk/pa/cm201719/cmstords/Nov2017/pb2017v12.pdf>.

¹¹ House of Lords (2018), *Standing orders - private business, House of Lords*. Available online at: <https://www.parliament.uk/documents/publications-records/House-of-Lords-Publications/Standing-Orders-Private/privord02.pdf>.

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- 1.2.6 A separate working draft EQIA Consultation Summary report, relating to the consultation on the working draft EQIA report for the Western Leg Proposed Scheme has been published at the same time as this report and can be found on the [gov.uk](https://www.gov.uk) website.
- 1.2.7 In preparing the key themes raised by stakeholders, this report does not include feedback or issues raised from ongoing engagement with stakeholders outside of the consultation on the working draft ES nor does it respond to feedback received specifically with regard to the Eastern Leg. The themes included in this report to which response is provided are those raised through the 2018 Consultations.
- 1.2.8 Information relevant to the EIA of the Western Leg Proposed Scheme received from consultation responses on the working draft EQIA report have also been considered in this report. Comments submitted in response to the working draft ES that were considered relevant to the working draft EQIA report have been considered in the Western Leg Proposed Scheme EQIA Consultation Summary report.
- 1.2.9 Feedback received to the 2018 Consultations related to a broad range of topics and has been used to inform the ES, alongside which this report is published. Throughout this report, references are made to other sections of the ES Reports where the reader can obtain more detailed information on specific issues identified during consultation. References are also made to other available reports and information papers that have been published in advance or alongside the hybrid Bill that can assist the reader to find further information in relation to a theme or issue raised. These reports are available on the [gov.uk](https://www.gov.uk) website and in non-electronic formats.

1.3 The working draft Environmental Statement

- 1.3.1 As described in Section 1.1, HS2 Ltd undertook the 2018 Consultations for both the Eastern Leg and Western Leg of the Phase 2b Scheme (referred to as the full Phase 2b route).
- 1.3.2 The working draft ES was an interim report presenting preliminary environmental information with the design and assessment being at early stages of development. The information presented was based on the scheme at the time, hereafter referred as the 2018 Consultations Scheme. The aim of the 2018 Consultations was to gain a better understanding of community stakeholder views about the emerging plans and to enable the public and stakeholders to provide comments as appropriate during the development of the scheme design and EIA.
- 1.3.3 Since the 2018 Consultations, the Government announced its decision to progress the Western Leg of Phase 2b in a separate Western Leg hybrid Bill.
- 1.3.4 The EIA and design of the Western Leg Proposed Scheme continued to be refined during and following the working draft ES consultation and is now reported in the ES accompanying the hybrid Bill. Nothing included at the working draft ES stage was intended to limit the form of the final scheme that is presented in the hybrid Bill and ES for the Proposed Scheme.

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- 1.3.5 The Western Leg Proposed Scheme was divided into eight community areas and the ES and EQIA sets out information on each of these¹².
- 1.3.6 The working draft ES comprised the following:
- Non-technical summary (NTS);
 - Glossary of terms and list of abbreviations;
 - Volume 1: Introduction and methodology;
 - Volume 2: Community Area reports and map books;
 - Volume 3: Route-wide effects;
 - Volume 4: Off-route effects;
 - Scope and Methodology Report;
 - Alternatives Report; and
 - Draft Code of Construction Practice (CoCP).

1.4 Structure and content of this report

- 1.4.1 This report is structured to provide the reader with an understanding of the 2018 working draft ES Consultation process, the key issues raised by consultees and the project's response to these issues. As set out in Section 1.3, these are in relation to the Western Leg Proposed Scheme only. This Consultation Summary Report also sets out HS2 Ltd's responses to the issues described.
- 1.4.2 The structure of this report is as follows:
- Section 2: The 2018 Consultations and response processing: an overview of the consultation undertaken to support the development of the full Phase 2b route and processing of consultation responses in relation to the Western Leg Proposed Scheme only. This section also addresses responses relating to the approach taken to the consultation;
 - Section 3: Consultation issues relating to the Alternatives Report that accompanied the working draft ES;
 - Section 4: Consultation issues relating to the route-wide impacts of the Western Leg Proposed Scheme as reported across different sections of the working draft ES, including,
 - Section 4.2: Consultation issues relating to the NTS: this section summarises the key consultation issues raised in regard to the NTS of the working draft ES;

¹² The working draft ES covered both the Western and Eastern Legs of Phase 2b which is divided into 28 community areas in total. This report is subject to the Western Leg only, covering eight community areas. Route-wide consultation issue responses are provided based on information available to date and will be updated if needed in future documents.

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- Section 4.3: Consultation issues relating to Volume 1: this section summarises the key consultation issues raised in regard to Volume 1 of the working draft ES, including the approach to Scheme Design;
- Section 4.4: Consultation issues relating to the approach to Scheme Design, including temporary features and permanent features presented in the working draft ES;
- Section 4.5: Consultation issues relating to key route-wide technical issues: this section summarises the key route-wide consultation issues, including those raised in regard to Volume 3 of the working draft ES;
- Section 5: Introduction to community area-specific issues: an introduction to the sections on the Western Leg Proposed Scheme community areas;
- Sections 6 to 10: Consultation issues relating to the Western Leg Proposed Scheme community areas, including those raised in regard to Volume 2 of the working draft ES;
- Section 14: Consultation issues relating to key off route technical issues, including those raised in regard to Volume 4 of the working draft ES;
- Section 15: Consultation issues relating to the draft CoCP and its implementation; and
- Section 16: Concluding comments: this section provides concluding commentary on the role of consultation responses in informing ongoing stakeholder engagement and communications.

2 The 2018 Consultations and response processing

2.1 Introduction

2.1.1 This section provides a summary of the 2018 Consultations, including the documents consulted upon, the time provided for responding to the consultation and the time and the ways that consultees were invited to comment.

2.2 The 2018 Consultations

2.2.1 As outlined in Section 1, two reports were formally consulted upon during the 2018 Consultations:

- High Speed Rail (Crewe to Manchester and West Midlands to Leeds) Working Draft ES; and
- High Speed Rail (Crewe to Manchester and West Midlands to Leeds) working draft Equality Impact Assessment (EQIA) report.

2.2.2 The reports were made available online at the gov.uk/hs2 website.

2.2.3 Hard copies were available upon request to the HS2 Helpdesk and documents were made available at community facilities along the full Phase 2b route as consulted in 2018.

2.3 Engagement to support the 2018 Consultations

2.3.1 To support the 2018 Consultations, engagement was undertaken before and during the formal consultation period. A summary of this activity is provided in the section below, and included information events held in communities along both the Eastern and Western Legs of the Phase 2b route.

2.3.2 Letters were sent by email to a range of stakeholders including: local authorities (including parish councils), business and representative bodies, non-governmental organisations, statutory agencies and other community organisations. Prior to the launch, the consultation documentation was sent to public libraries and parish councils with a request that they be made available/displayed at community locations. Posters advertising the events were displayed at information points, the event venues and distributed by HS2 Ltd to stakeholders, including parish councils.

2.3.3 A leaflet advertising the information events was sent to people living up to 1km either side of the proposed line of route, as well as to key local stakeholders.

2.3.4 Letters were also sent to affected parties along the full Phase 2b route. An affected party is a stakeholder whose land, property or business operations may be affected by the

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construction and/or operation of the railway and who will be included in the Book of Reference at hybrid Bill submission.

- 2.3.5 Notices informing the public of the information events were placed in local newspapers along the full Phase 2b route in the week following the launch of the 2018 Consultations. This was to ensure those living further away from the line of route who might have an interest, were aware that the consultation was taking place. A press release was issued to local media to promote the consultations and information events. Social media was also used to promote the information events. Advertisements with a reminder of the deadline to respond were placed two weeks before the close of the consultation.
- 2.3.6 Briefings were offered to local authority elected members along the full Phase 2b route. HS2 Ltd also engaged with parish councils during the consultation period.
- 2.3.7 The consultation materials provided details about the HS2 Ltd consultation website and where further information about the consultations could be found.

Information events

- 2.3.8 During the 2018 Consultations, 37 information events were held along the full Phase 2b route. Those held in areas along the Western Leg Proposed Scheme are listed in Table 1.

Table 1: 2018 Consultation information events associated with the Western Leg Proposed Scheme

Venue	Date
Canalside Conference Centre, Middlewich	Tuesday 13 November
Canalside Conference Centre, Middlewich	Tuesday 13 November
Rixton-with-Glazebrook Community Hall, Warrington	Wednesday 14 November
Britannia Country House Hotel, Manchester	Tuesday 20 November
Golborne Parkside Sports & Community Club, Warrington	Tuesday 27 November
Culcheth Sports Club, Culcheth	Wednesday 28 November
The Venue, Rudheath	Thursday 29 November
High Legh Village Hall, Knutsford	Friday 30 November
Holiday Inn – Manchester City Centre	Monday 3 December
Manchester Airport Marriott, Hale Barns	Tuesday 4 December
Crewe Alexandra FC, Gresty Road, Crewe	Thursday 6 December

- 2.3.9 In addition, two off-route location information events were held in November 2018. These events provided in the form of HS2 Ltd staff being present on Carlisle and Preston stations (one event at each station) to promote and explain the working draft ES and working draft EQIA. This was considered at the time to be a proportionate way of providing an information event for these off-route locations referenced in the working draft ES.
- 2.3.10 At each event, maps and relevant reports were available to inspect and take away. These included copies of the documents being consulted on, as described in Section 1.3 and

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supporting documentation. HS2 Ltd staff and consultants attended to discuss the 2018 Consultations Scheme and answer questions.

- 2.3.11 The information events along the Western Leg Proposed Scheme were attended by approximately 1,750 people.
- 2.3.12 Attendees at the information events were requested to provide written feedback via the official consultation response channels once they had had the opportunity to review the available materials.
- 2.3.13 Provision was made for affected parties to attend a 30-minute appointment with relevant technical experts. This presented an opportunity for them to ask questions and to provide HS2 Ltd with insight into the potential impact of design on their land, property or business operations. These discussions did not preclude stakeholders from consultation, and they were strongly encouraged to respond to formal consultation in addition to any feedback they had provided during the meeting.

2.4 Responding to the consultations

- 2.4.1 HS2 Ltd employed an independent specialist response analysis company, Ipsos MORI, to receive, collate and summarise responses to the 2018 Consultations.
- 2.4.2 Stakeholders were invited to submit their comments through the following mechanisms facilitated by Ipsos MORI:
 - online: accessible through the [gov.uk](https://www.gov.uk) website;
 - by email: environment2b@ipsos-mori.com; or
 - by post: FREEPOST HS2 PHASE 2B ENVIRONMENTAL CONSULTATION.
- 2.4.3 All responses submitted or postmarked before the end of consultation were eligible for consideration as part of the consultation response analysis.
- 2.4.4 A separate response form was available for each of the consultations, namely: the working draft ES and the working draft EQIA report. Stakeholders were invited to submit their comments against the questions asked within the respective response forms.
- 2.4.5 Ipsos MORI's summary of consultation responses to the working draft ES and the working draft EQIA report (with regard to both the Eastern and Western legs) are available on the [gov.uk/hs2](https://www.gov.uk/hs2) website.
- 2.4.6 The purpose of the reports prepared by Ipsos MORI was to provide a summary of the collated responses, the consultation process and the key themes raised by stakeholders. The purpose of this report is to provide detail around how the consultation feedback has been used in the EIA or Western Leg scheme development. This Consultation Summary Report also sets out HS2 Ltd's responses to the issues described.

2.5 Analysing consultation responses

Consultee response numbers

- 2.5.1 The 2018 Consultations generated 38,336 responses, comprising:
- 37,899 responses on the working draft ES;
 - 437 responses on the working draft EQIA report.
- 2.5.2 Consultees were able to submit responses to each of the two consultations. Duplications of responses did occur and were identified and managed during the collation and review process undertaken by Ipsos MORI.

Review of consultation responses

- 2.5.3 This report sets out a summary of the issues raised that were specific to the Western Leg Proposed Scheme or were relevant to the approach taken in general to the EIA and development of the scheme.
- 2.5.4 Responses were first reviewed for their thematic content and not on the location of the stakeholder providing the response. Consultation responses were analysed to identify the relevant consultation document that their response related to, their thematic content and the specific location being commented on (often responses included comments related to multiple documents, themes or geographical locations). Review of consultation responses was then undertaken to consider how the issues raised during the consultation could inform the Western Leg Proposed Scheme design and EIA in a timely and appropriate manner.
- 2.5.5 In order to prepare this Western Leg Proposed Scheme Consultation Summary Report, responses considered to be specific to the Eastern Leg scheme have been discounted. Responses from national consultees or organisations often related to route-wide themes, multiple community areas and or multiple topics. National consultees or organisations with national or regional coverage are included in this report where their response has provided feedback relating to general EIA or scheme development approaches, as this feedback was relevant and therefore considered in the development of the Western Leg Proposed Scheme design and EIA since the working draft ES consultation. Responses submitted as part of a campaign, whereby a template was used as a basis for response, were analysed and considered in this report in the same way as any other consultation response.
- 2.5.6 To facilitate this consultation response review, multi-disciplinary working groups were established. These groups included representation from project engineers, construction and logistics engineers, environmental specialists and stakeholder engagement personnel. Further reviews were conducted by technical topic teams to ensure that responses informed ongoing assessment and that the findings were taken account of within the ES, where relevant.

- 2.5.7 Reviews were undertaken through workshops, which commenced once consultation responses were available to review. The reviews analysed the responses and considered whether further changes to the design or the EIA might be required.
- 2.5.8 At the beginning of the relevant sections in the remainder of this report, an indicative list of consultee organisations who provided responses on a particular issue or topic is set out (excluding those that requested confidentiality). No names or contact details of individuals are provided within this report. Such consultees are referred to as 'individuals'.

2.6 Responses relating to general engagement and consultation processes

- 2.6.1 The analysis of consultation responses identified a number of issues which were not related to the content of the working draft ES report but focused on the process of engaging and consulting stakeholders undertaken by HS2 Ltd.

Consultation issues

- 2.6.2 Issues raised by consultees included the approach taken by HS2 Ltd to planning engagement and consultation activities for the 2018 Consultations, such as the use of online consultation, choice of venues for consultation events and duration of the consultation period.
- 2.6.3 Consultees questioned whether the duration of 10 weeks was adequate, in particular, given the proximity of the festive period. Some consultees felt there was inadequate advance notification of the consultation and that information about impacts on resident land and property should have been provided in advance of the public information events. Some stakeholders suggested that the 2018 Consultations should not have been facilitated online as it was not an appropriate platform for all users and that this would impact the number of responses provided to the consultation.
- 2.6.4 Specific issues were raised about the public information events and the adequacy of time provided to speak with those expected to be impacted by the 2018 Consultations Scheme. Concern was also raised that wider engagement was required with impacted stakeholders who may not be able to attend public information events.
- 2.6.5 Reassurance was sought that responses to consultation would be given proper consideration and support the design and assessment of the 2018 Consultations Scheme. Concern was raised that the next consultation would be at the hybrid Bill deposit stage and that would not provide sufficient opportunity for stakeholders to provide further considerations.
- 2.6.6 Stakeholders also raised concern that feedback they would provide through engagement outside of the consultation period would not be considered in the development of the scheme or EIA.

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- 2.6.7 Commentary received on these issues was passed to the HS2 Ltd Stakeholder Engagement and Consultation team to be considered for later engagement and consultation activities.
- 2.6.8 Consultees also sought information on future engagement and consultation including the hybrid Bill process and what will happen after the hybrid Bill has been deposited.

Response to consultation issues

- 2.6.9 The consultation period was 10 weeks, consistent with established practice and providing stakeholders with the opportunity to consider the published documents, attend public information events and formally respond to consultation. It was scheduled to avoid the festive period, with completion in advance of this and avoiding what is known to be a busy period for the public and wider stakeholders.
- 2.6.10 It is established practice to provide an online forum for consultations and this is actively sought by many stakeholders to enable their timely and effective participation. It is recognised, however, that not all stakeholders will seek to use the online forum and public information events are held in local communities to provide an alternative means of participation. Hard copies of the consultation documents were made available at information events for members of the public to take away. In addition, hard copies were also able to be requested from the HS2 Ltd Helpdesk. A freepost postal address was also established to enable stakeholders to provide consultation feedback, as an alternative to online and in-person.
- 2.6.11 Details of the consultation were published online and in local media, and a letter drop was also undertaken to residents along the route of the 2018 Consultations Scheme as the consultation launched. Key community stakeholders were also contacted ahead of the consultation launch. Information on the consultation was also provided to local authorities and technical stakeholders.
- 2.6.12 Potentially impacted residents were informed of the consultation and public information events within proximity to them. In addition, affected parties received letters offering a 30 minute appointment in a private space with the relevant technical experts. Where residents indicated they were unable to attend the event or appointment, alternative means of engagement were offered.
- 2.6.13 Public information events were organised across communities along the route of the 2018 Consultations Scheme and venues were selected to maximise their accessibility to the public and wider stakeholders. It is recognised that not all stakeholders are able or willing to attend such events, so all consultation documents were available to view online and copies were also provided in facilities within local communities throughout the consultation period. Members of the public and wider stakeholders were also able to contact the HS2 Helpdesk for further information or assistance.
- 2.6.14 A rigorous programme of processing and consideration of consultation feedback was implemented. All responses have been analysed and reviewed by relevant sections of the project team, to ensure they are effectively considered and inform the scheme design and

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assessment, or wider development of the project, as appropriate. In addition, all feedback gathered during the Affected Parties appointments was considered.

- 2.6.15 A process of engagement continued with stakeholders following working draft ES and prior to the hybrid Bill submission.
- 2.6.16 Engagement remains ongoing with stakeholders across the route of the Western Leg Proposed Scheme, including individual stakeholders, local authorities, parish councils, key expert, technical and specialist organisations and interest groups, among others.
- 2.6.17 Following submission of the hybrid Bill, Parliament will consult on the ES, as outlined in Section 16 of this report, providing all stakeholders with the further opportunity to comment on the Western Leg Proposed Scheme.
- 2.6.18 There will also be a Select Committee process during which people and organisations whose interests and property are specially and directly affected will have the opportunity to submit petitions to Parliament for consideration by the Select Committee. Further details on this process are set out in Volume 1 of the ES and in the Phase 2b Western Leg Information Paper B9: Introduction to hybrid Bill Powers¹³.

2.7 Requests for further information

- 2.7.1 The review process identified requests from consultees for further information in relation to issues such as individual household eligibility for compensation, and reassurances sought around local procurement for the construction phase.
- 2.7.2 These issues are noted to be of importance but do not generally fall within the remit of the EIA and this report. These issues have been communicated to the relevant teams within HS2 Ltd and the DfT with responsibility for such matters and are not, therefore, responded to within this report.

¹³ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper B9: Introduction to hybrid Bill Powers*. Available online at: www.gov.uk/hs2.

3 Consultation issues relating to Alternatives

3.1 Introduction

- 3.1.1 The consideration of reasonable alternatives forms a statutory requirement of EIA reporting¹⁴. An Alternatives report¹⁵ was prepared as part of the working draft ES to provide stakeholders with an overview of the reasonable alternatives studied during design development of the full Phase 2b route. It set out the strategic route-wide, route corridor and local alternatives to the full Phase 2b route, including the main reasons for the decisions taken in the evolution of the scheme at that time. This provided an opportunity for stakeholders to provide responses to reasonable alternatives as part of the 2018 Consultations.
- 3.1.2 As described in Section 1, since the 2018 Consultations, the decision was made to progress the Western Leg Proposed Scheme separately. A number of alternatives outlined in the consulted documents were specific to the Eastern Leg and are not, therefore, included in this consultation summary report.
- 3.1.3 As also described in Section 2, consultation on further refinements of the Western Leg Proposed Scheme has taken place since the publication of the working draft ES.
- 3.1.4 The community area sections of this report provide detail around the local issues raised during the 2018 consultations; and subsequent development of the Western Leg Proposed Scheme in these local community areas. These sections therefore assist to respond and provide further detail in support of the local alternative issues raised by stakeholders that are summarised in this section.
- 3.1.5 The Alternatives Report¹⁶ for the Western Leg Proposed Scheme is being published as part of the ES, deposited alongside the hybrid Bill.
- 3.1.6 Key comments raised by consultees included those relating to route-wide rail alternatives, alternatives to the route corridor, local alternatives considered before July 2017 and local alternatives considered since July 2017.
- 3.1.7 Consultees who raised these issues included: local authorities, parish councils, MPs, local councillors, resident associations, local community groups, local action groups, businesses and individuals.

¹⁴ The EIA must fulfil the requirements of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (SI 2017/571) (the English EIA Regulations) which apply to assessment of the effects of certain public and private projects on the environment.

¹⁵ High Speed Two Ltd (2018), *High Speed Rail (Crewe to Manchester and West Midlands to Leeds) Working Draft Environmental Statement: Alternatives Report*. Available online at: <https://www.gov.uk/government/publications/alternatives-report-for-the-hs2-phase-2b-working-draft-environmental-statement>.

¹⁶ Volume 5: Appendix CT-003-00000, Alternatives report.

3.2 Route-wide alternatives

Consultation issues

- 3.2.1 Comments raised by consultees included support for upgrading the existing rail network as an alternative to the full Phase 2b route, and in particular to the Western Leg Proposed Scheme, the upgrading of the WCML rather than the construction of the proposed Golborne Link.
- 3.2.2 Consultees raised concern that the Golborne Link had not been included in the Strategic Outline Business Case and suggested that works to the WCML would be needed in future if HS2 works did not upgrade them as part of the HS2 full 2b route. Consultees also suggested that upgrading the WCML would provide improved benefits on capacity and cited the report published by DfT in 2016 'Strategic Alternatives to HS2 Phase 2b'¹⁷ as providing information to support this.
- 3.2.3 Consultees also suggested that the information provided to compare these alternatives was limited and had been based on analysis of the full Phase 2b route without focussed analysis on the comparison of WCML upgrade to the Golborne Link.

Response to consultation issues

- 3.2.4 As set out in the working draft ES Alternatives Report and as part of the development of a strategic outline business case for the full Phase 2b route, DfT commissioned analysis to develop and appraise potential route-wide rail alternatives in the 2016 'Strategic Alternatives to HS2 Phase 2b'¹⁷. These included different combinations of infrastructure upgrades to the existing rail network such as the WCML, and sections of new track and analysed how these would perform compared to the full Phase 2b scheme infrastructure and train services.
- 3.2.5 The conclusion of the 2016 'Strategic Alternatives to HS2 Phase 2b' were that both full and partial upgrades to the WCML further south would have increased cost and increased environmental impacts when compared to the WCML connection at Golborne. Such options would also present a performance risk to HS2, and would leave little capacity to accommodate growth for conventional rail or HS2 services on these lines.
- 3.2.6 Since publication of the working draft ES and the decision to progress the Western Leg Proposed Scheme, further analysis and modelling (undertaken by Mott MacDonald in 2021) was commissioned by DfT on the business case for progression of this Western Leg only option. This built on and updated the 2016 'Strategic Alternatives to HS2 Phase 2b' and considered two groups of Western Leg route-wide rail alternatives comprising of various infrastructure upgrades and interventions to existing rail infrastructure. The study made an assessment of a number of factors including journey times, disruption and environmental

¹⁷ Atkins (2016), *Strategic Alternatives to HS2 Phase 2b. A report for the Department for Transport*. Available online at: <https://www.gov.uk/government/publications/strategic-alternatives-to-hs2-phase-2b>.

impacts and sought, to various degrees, to overcome capacity and journey time limitations on the WCML.

- 3.2.7 The study identified that there are no route-wide alternatives that could deliver the same level of benefit, provide the same level of capacity, connectivity and service that the full Phase 2b scheme would in pursuit of the Government's strategic objectives for HS2. Consequently, the full Phase 2b scheme has emerged as the best option to meet the Government's objectives and the progression of the Western Leg Proposed Scheme as part of this full Phase 2b route is being supported by DfT. A summary of the study undertaken is presented in the Alternatives Report¹⁸ accompanying the hybrid Bill.
- 3.2.8 The Government continue to invest in upgrading the conventional rail network, including the WCML, in addition to its proposals for the development and delivery of HS2. However, the assessed upgrades on the conventional rail network alone will be insufficient to meet the long-term growth in demand that is forecast in a number of areas of the network.

3.3 Route corridor alternatives

Consultation issues

- 3.3.1 Comments were received relating to the reasonable alternative route corridor options for the Western Leg Proposed Scheme as set out in the Alternatives Report and included:
- route alignment between Manchester Airport and Manchester Piccadilly with preference for re-consideration of the 2013 alignment through West Didsbury and Northenden considered by stakeholders to be less destructive; and
 - concern that the route through Mid-Cheshire requires further assessment and consideration of alternatives to avoid geological risks and suggestion for a review of estimated costs and risks.

Response to consultation issues

- 3.3.2 Since July 2017, HS2 Ltd has been continuing to evolve the design around local alternatives associated with the corridor alignment, taking into account stakeholder feedback and emerging assessment findings. These considerations and any changes made since the working draft ES are outlined below and in the community area sections of this report.

¹⁸ Volume 5: Appendix CT-003-00000, Alternatives report.

Manchester Airport to Manchester Piccadilly

- 3.3.3 The Summary of Route Refinements Report (2016)¹⁹ sets out the rationale for the change from the 2013 route to the 2016 route between Manchester Airport and Manchester Piccadilly. Following consultation in 2016/2017, further work was carried out to consider whether there were opportunities for alternative routes into the centre of Manchester. Having considered consultation responses and following further assessment work undertaken, the Secretary of State confirmed the 2016 alignment as part of the announcement in July 2017 and this alignment was assessed as part of the working draft ES.
- 3.3.4 The rationale underpinning the HS2 advice to Government to proceed with the 2016 alignment is set out in the Phase 2b route refinements report (2017)²⁰. Section 4 of the Alternatives Report²¹ published as part of the ES provides a summary of the key issues identified for each of the route corridor options on the Western Leg Proposed Scheme and the rationale for the agreed route into Manchester Piccadilly. The Alternatives report describes the development of the Phase 2b Western Leg route since autumn 2010 including the reasonable route corridor alternatives on the approach to south Manchester, the approaches to Manchester Piccadilly High Speed station and connections to Manchester Airport. These included consideration of environmental impacts as well as impact to residential property and businesses.
- 3.3.5 The Proposed Route has emerged from many combinations of route options and has emerged from the design development and Design Refinement Consultation processes to, on balance, best meet objectives for passenger demand, ease of construction, journey time, sustainability and cost.

Route alignment through Mid-Cheshire

- 3.3.6 In 2013, the Government's consultation on the Phase Two route prompted responses relating to risk to HS2 from underlying geology and associated industrial activities through Cheshire. This feedback was considered and further work was undertaken to consider routes through Cheshire with the aim of avoiding the greatest concentration of risk from the Cheshire salt mines. Further feedback from consultation in 2016/2017 informed a refined route through Cheshire.

¹⁹ High Speed Two Ltd (2016), *High Speed Two Phase 2b Crewe to Manchester West Midlands to Leeds Summary of route refinements 2016*. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/569186/D13_HS2_PHASE_2b_Summary_Report_web_FINAL.pdf.

²⁰ High Speed Two Ltd (2017), *High Speed Two Phase 2b Crewe to Manchester West Midlands to Leeds Route refinements*. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/628605/CS848_Phase_2b_201617_Route_Refinement_Advice_FINAL_WEB_170713.pdf.

²¹ Volume 5: Appendix CT-003-00000, Alternatives report.

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- 3.3.7 Refinement of the route included raising of the route north of the River Dane valley onto a series of embankments and viaducts to allow for management of drainage and geological risk, including a required raising of the Dane Valley viaduct. It also included some horizontal movement of the alignment westward between Middlewich and Pickmere to manage risk of crossing brine extraction cavities. Feedback received to the 2013 consultation on the Phase Two route and the 2016/2017 consultation assisted to inform the route presented in the working draft ES.
- 3.3.8 The alignment through Cheshire presented in the ES has been informed by feedback from consultation and engagement with stakeholders. The route through this area is complex and further refinement to the route through Mid-Cheshire has taken place since the working draft ES. Since then, the route has been refined over a 7.4km section from Burnt Covert near Minshull Vernon, north of Crewe through to just north of the Shropshire Union Canal. Through this section the route has been lowered, reducing the heights of embankments. Further information on the optioneering for this, including the reasons for the lowered option to be taken forward, is set out in Section 6 of the Alternative report in the ES.

3.4 Local alternatives

- 3.4.1 The Alternatives Report that was part of the working draft ES consultation provided explanation around the design sifting undertaken for local alternatives. A staged approach to sifting reasonable alternatives was undertaken and the key environmental and engineering considerations were included in the Alternatives Report to explain what led to the decisions that were made to the design that was assessed and consulted on at the working draft ES stage.
- 3.4.2 Since the working draft ES, further engagement with stakeholders and consultation on further design refinements has taken place including the areas where local alternatives were presented at the time of the working draft ES.
- 3.4.3 Where appropriate and in light of consultation responses around local community area issues, sections 6 and 13 of this report provide further detail at a local level. This includes description of changes that have been made to the design in the area around those local alternatives since the working draft ES consultation and where consultation responses have been taken into consideration in the environmental assessment now reported at a community area level in Volume 2 of the ES.
- 3.4.4 Where necessary in the relevant community area sections of this report (sections 6 to 13), a description of stakeholder engagement undertaken and feedback received concerning design refinement consultations since the working draft ES is included. This has been included in order to explain the progressive development of the Western Leg Proposed Scheme now presented and assessed in the ES.

4 Consultation issues relating to route-wide effects

4.1 Introduction

4.1.1 This section provides a summary of consultee comments relating to the route-wide assessment and reported route-wide effects relevant to the Western Leg Proposed Scheme. These comments were analysed and considered in their relation to the relevant sections of the working draft ES, including:

- Non-technical summary;
- Volume 1: Introduction and methodology; and
- Volume 3: Route-wide assessment.

4.2 Consultation issues relating to the Non-technical summary (NTS)

Introduction

4.2.1 This section provides a summary of consultee feedback relating to the NTS of the working draft ES report. This section provides a summary of consultee comments that were specific to the Western Leg Proposed Scheme or general issues raised by Western Leg or national consultees. The stakeholder feedback considered in this section had referenced the NTS section of the working draft ES.

4.2.2 The NTS of the working draft ES provided a summary of the full Phase 2b route and reasonable alternatives considered; the environmental impacts of the full Phase 2b route, including where possible, the likely significant environmental effects, both beneficial and adverse; and any proposed means of avoiding, preventing or reducing the likely significant adverse effects.

Consultation themes

4.2.3 Analysis of consultee feedback found two key themes in relation to the NTS of the working draft ES:

- issues in relation to the presentation of information in the working draft ES NTS; and
- issues relating to the technical assessment and environmental impacts reported compared to other ES volumes.

4.2.4 The remainder of this section describes how feedback has been considered and used to inform the NTS of the ES.

Presentation of Information

Consultation issues

- 4.2.5 Consultees raised issues relating to the presentation of information in the working draft ES NTS, including the style of language used, the structure of the document and the perceived appropriateness of its length.
- 4.2.6 For some consultees, the tone, language and presentation of information in the working draft ES NTS was of appropriate format, style and was well received. For others, the working draft ES NTS was perceived as challenging to understand with use of technical language detracting from what was being presented. Some felt that the technical language used in the NTS was similar to that within the rest of the working draft ES and suggested that less technical vocabulary is used for the NTS of the ES. Some consultees recommended that a more engaging layout is presented for the NTS for the ES.

Response to consultation issues

- 4.2.7 The purpose of the NTS is to provide the reader with a summary of the content of the ES, either as a prelude or alternative to reading the full ES documentation and is a requirement under the EIA Regulations²². As such, the NTS for the working draft ES set out a summary of the content of the entire working draft ES document, which was based on an early design stage. Given that the working draft ES was an interim report presenting preliminary environmental information for the purpose of consultation, the NTS within the working draft ES was necessarily reflecting a summary of the preliminary information available at the time.
- 4.2.8 The NTS document was presented in a style that aimed to be accessible to a broad range of stakeholders and technical language was avoided, wherever possible. The approach adopted in the production of the working draft NTS followed established practice and its content was informed by the scope and complexity of the working draft ES.
- 4.2.9 In preparation of the NTS for the ES, this consultation feedback was taken into consideration and the style and language of the NTS accompanying the ES has been carefully considered. Whilst the NTS will always seek to be concise, it must also provide sufficient information for the reader to be able to understand the scheme and its assessment.

²² *The Town and Country Planning (Environmental Impact Assessment) Regulations 2017*. (SI 2017 No. 571), Regulation 18 (3) (e), Her Majesty's Stationary Office, London. Available online at: [The Town and Country Planning \(Environmental Impact Assessment\) Regulations 2017 \(legislation.gov.uk\)](https://www.legislation.gov.uk/uksi/2017/571/regs/18-3-e).

Technical assessment and impacts presented in the NTS

Consultation issues

- 4.2.10 Consultees provided feedback relating to the EIA scope and methodology and the detailed technical assessment undertaken for environmental topics such as climate change and ecology and biodiversity and the summarised information of these impacts reported in the NTS.
- 4.2.11 Suggestions were made by some stakeholders for particular information from Volume 2 to be included in the community area summary section of the NTS. Other stakeholders suggested that they had expected the NTS to include specific mention of specifically important assets including the National Trust's Tatton Park and Dunham Massey estates.

Response to consultation issues

- 4.2.12 Commentary relating to the approach taken to the technical assessment has been considered in the respected EIA topic, reported in sections 4.6 to 4.22 of this report.
- 4.2.13 The purpose of the community area section within the NTS is to provide a summary of the likely residual effects of the Proposed Scheme on important assets that have been identified from the EIA. The NTS also provides a non-technical summary of the likely significant environmental effects by community area for the length of the HS2 scheme.

4.3 Consultation issues relating to Volume 1

Introduction

- 4.3.1 Volume 1, Introduction and methodology, of the working draft ES provided an overview of the full Phase 2b route, EIA process and the scope and methodology of the assessment including environmental mitigation and monitoring. This section provides a summary of consultee comments about the information presented in Volume 1 either specifically relating to the Western Leg Proposed Scheme or general issues relating to the EIA and scheme development.
- 4.3.2 This section also includes analysis of comments relating to the design of permanent and temporary features presented in the working draft ES that were relating to the Western Leg Proposed Scheme or relating to the route-wide approach taken to the design of such features.

Consultation themes

- 4.3.3 Consultation responses submitted relating to the working draft ES Volume 1 and the Environmental Impact Assessment Scope and Methodology Report were analysed to identify key themes raised by consultees. These themes included:
- scope and methodology for the EIA including the Phase 2b Environmental Impact Assessment Scope and Methodology Report (2018 EIA SMR); and
 - approach to environmental mitigation and monitoring.
- 4.3.4 This section addresses each of these key themes, summarising how these have been considered and used to inform the Western Leg Proposed Scheme and EIA now presented in the ES accompanying the hybrid Bill.

EIA scope and methodology

Consultation issues

- 4.3.5 Consultees raised issues around the scope and methodology of the EIA presented in the working draft ES as well as specifically relating to the 2018 EIA SMR. This report was presented alongside the working draft ES in the ‘supporting information and planning’.
- 4.3.6 Some consultees provided additional information to inform the baseline for the EIA and specific technical assessments and suggested that baseline information be reviewed to ensure it is comprehensive and accurate to inform the ES.
- 4.3.7 Consultees raised issues with regard to the assessment findings set out in the working draft ES, across disciplines. Comments challenged the determination of the significance of impacts set out in the working draft ES for key features including heritage assets, designated and non-designated sites of ecological importance, community impacts and impacts on individual farms.
- 4.3.8 Consultees also sought assurances that the appropriate engagement had been undertaken to inform the assessment.

Response to consultation issues

- 4.3.9 The EIA has been undertaken by independent qualified and competent experts from a number of consultancies with sufficient expertise to ensure the completeness and quality of the assessment. The leads for each environmental topic, from the appointed consultancies, have met regularly to discuss the methodology being applied, the issues, impacts and effects arising, and the solutions available. National representatives of environmental statutory authorities and government departments have also been involved in these discussions. This approach has enabled experienced EIA practitioners to apply expert professional judgement where appropriate on a consistent basis.

The Scope and Methodology Report

- 4.3.10 The 2017 EIA SMR was subject to consultation for a period of approximately 10 weeks from 17 July to 29 September 2017. An updated SMR, taking account of the consultation, was published alongside the Phase 2b working draft Environmental Statement (ES) in October 2018 (referred to as the '2018 EIA SMR')²³, with the feedback from the consultation summarised in the EIA SMR Consultation Summary Report (CSR)²⁴, which was also published in October 2018.
- 4.3.11 The technical assessments set out in the working draft ES were carried out in accordance with the scope and methodology set out in the 2018 EIA SMR, noting that the working draft ES was an interim report presenting preliminary environmental information for consultation.
- 4.3.12 The design and assessment of the full Phase 2b route presented in the working draft ES were at an early stage of development and were presented to enable the public and stakeholders to provide comments to be taken into account, as appropriate during the development of the scheme design and EIA. The EIA and design of the full Phase 2b route continued to be refined during and following the working draft consultation and impacts, effects and where appropriate, proposed mitigation are reported in the ES. Nothing included at the working draft ES stage was intended to limit the form of the final scheme presented in the hybrid Bill and ES.
- 4.3.13 Comments received on the scope and methodology of the working draft ES, including those specifically referring to the Scope and Methodology Report published alongside the working draft ES, have been further considered by environmental technical teams. Any relevant changes to scope and methodology are set out in a revised full version of the EIA SMR²⁵, accompanying the ES.

Engagement to inform the assessment

- 4.3.14 The EIA presented in the ES takes into consideration consultation responses where these identified further relevant baseline information or information relevant to the assessment. The ES reports the likely significant effects predicted by the assessment, reflecting the design for the Proposed Scheme for which powers are sought in the hybrid Bill and additional mitigation embedded within it.

²³ High Speed Two Ltd (2018), *HS2 Phase 2b: Crewe to Manchester and West Midlands to Leeds, Environmental Impact Assessment, Scope and Methodology Report*. Available online at:

<https://www.gov.uk/government/publications/hs2-phase-2b-environmental-impact-assessment-scope-and-methodology-report>.

²⁴ High Speed Two Ltd (2018), *HS2 Phase 2b: Crewe to Manchester and West Midlands to Leeds, Environmental Impact Assessment, Scope and Methodology Report: Consultation Summary Report*. Available online at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/745512/HS2_Phase_2b_EIA_Scope_and_Methodology_Report_Consultation_Summary_Report.pdf.

²⁵ High Speed Two Ltd (2022), *High Speed Rail (Crewe – Manchester), Environmental Impact Assessment Scope and Methodology Report*. Available online at: <https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement>.

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- 4.3.15 The EIA in the working draft ES determined likely impacts in accordance with the methodologies set out in the 2018 EIA SMR, which details the specific approaches adopted for the historic environment, ecology and agricultural assessments, amongst others. This approach is based on established practice and reflects feedback from technical stakeholders. However, as noted above, the working draft ES was an interim report presenting preliminary environmental information for consultation.
- 4.3.16 In addition to the 2018 Consultations, engagement has been ongoing with a broad range of stakeholders including landowners, local authorities, statutory consultees and non-statutory technical stakeholders, to inform the evolving scheme design and assessment.

Environmental mitigation and monitoring

Consultation issues

- 4.3.17 Consultees stressed the importance of seeking to avoid impacts wherever possible and the appropriateness and adequacy of mitigation measures adopted, where avoidance of impacts was not possible.
- 4.3.18 Consultees identified detailed mitigation to reduce impacts on specific receptors, at specific locations or more broadly for local communities.
- 4.3.19 Comments were received on specific environmental assets, in particular ancient woodland, with consultees reiterating the importance of avoiding loss of such woodland for both construction and operation of the full Phase 2b route and ensuring appropriate compensation is in place where not avoidable.
- 4.3.20 Consultees also made suggestions at a general route-wide level around changing the approach to mitigation. For example, stakeholders suggested that noise mitigation be included at all scheme interfaces with canals.
- 4.3.21 Consultees requested that mitigation measures be designed into the full Phase 2b route to reduce potential impacts on agricultural land, particularly with regard to land required for temporary purposes during construction and that such land should be restored to the same agricultural land classification.
- 4.3.22 Consultees sought clarification on what monitoring would be undertaken to ensure the implementation and effectiveness of the draft mitigation measures presented in the working draft ES and those that are now presented in the ES.

Response to consultation issues

- 4.3.23 The EIA Regulations²⁶ require an ES to include ‘a description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment’²⁷. Such measures are described generally as mitigation measures and avoidance measures. In designing the Western Leg Proposed Scheme, priority has been given to avoiding or preventing significant adverse effects. Where this is not practicable, measures to reduce significant adverse effects have been identified where reasonably practicable. The ES reports significant effects where either mitigation cannot be provided or where the mitigation provided does not remove a significant adverse effect (a residual effect).
- 4.3.24 Details on the approach in the Western Leg Proposed Scheme to the mitigation of specific community and environmental assets are considered in sections 6 to 13 of this report and are set out in Volume 1 and Volume 2 of the ES.
- 4.3.25 The working draft ES was an interim report presenting preliminary environmental information for consultation. The mitigation included in the design and reported in the working draft ES was limited and not yet fully developed. The EIA and design of the Western Leg Proposed Scheme continued to be refined during and following the working draft ES consultation with more detailed mitigation now included in the ES. For example, for ecology, the working draft ES contained extremely limited information on habitats and species, and as such was limited in the assessment of potential impacts on these as well as any mitigation or compensation measures.
- 4.3.26 The EIA Regulations require consideration to be given to monitoring of significant effects on the environment²⁸. Monitoring of the Western Leg Proposed Scheme, including mitigation measures which will be undertaken during and after construction, is reported in general within Volume 1 and in further detail within Volume 2 of the ES.

²⁶ The EIA must fulfil the requirements of The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (the English EIA Regulations) which apply to assessment of the effects of certain public and private projects on the environment. The objective of the legislation is to identify and assess the likely significant environmental effects of a project, in order to inform the decision maker as part of the development consent process.

²⁷ *The Town and Country Planning (Environmental Impact Assessment) Regulations 2017*. (SI 2017 No. 571), Regulation 18 (3) (e), Her Majesty’s Stationary Office, London. Available online at: [The Town and Country Planning \(Environmental Impact Assessment\) Regulations 2017 \(legislation.gov.uk\)](https://www.legislation.gov.uk/ukdsi/2017/571/1/1).

²⁸ *The Town and Country Planning (Environmental Impact Assessment) Regulations 2017*. (SI 2017 No. 571), Regulation 18 (3) (e) and Schedule 4, para 7, Her Majesty’s Stationary Office, London. Available online at: [The Town and Country Planning \(Environmental Impact Assessment\) Regulations 2017 \(legislation.gov.uk\)](https://www.legislation.gov.uk/ukdsi/2017/571/1/1).

4.4 Consultation issues relating to scheme design

Introduction

4.4.1 Stakeholders provided feedback relating to the approach to design of the full Phase 2b route including temporary features and permanent features presented in the working draft ES. This section provides a summary of key consultee comments relating to the permanent and temporary infrastructure associated with construction and operation of the Western Leg Proposed Scheme.

Temporary features

4.4.2 Consultees raised a number of issues relating to temporary features associated with the construction of the Western Leg Proposed Scheme, including:

- construction compounds; and
- temporary stockpiles.

4.4.3 Consultees who raised these issues included: The Woodland Trust, Canal & River Trust, National Trust, local community and action groups, local businesses, agri-businesses, local authorities, parish councils, and individuals.

Consultation issues

Construction compounds and temporary stockpiles

- 4.4.4 Consultees provided comments relating to construction compounds and temporary stockpiles. Stakeholders requested further information around the choice of compound and stockpile locations, how these would be accessed, their size and the materials that would be stored within them.
- 4.4.5 Comments were raised relating to the proximity of these sites to communities and the impact they would have on residents as a result of noise, dust and lighting, during the day and night. Particular concern was noted about the proximity of compounds and stockpiles to community facilities, including schools.
- 4.4.6 Issues were also raised relating to construction vehicle movements on local roads, and impacts to the setting of local communities due to landscape impacts in the local area during the construction phase.
- 4.4.7 The proximity of proposed compound and stockpile sites to agricultural land, sensitive ecological receptors and the loss of habitat, including woodland, was also highlighted by consultees. Consultees requested further clarification around whether stockpiles would cause contamination to land both during the construction phase as well during operation.

Response to consultation issues

- 4.4.8 Detailed consideration has been given to the location of construction compounds and stockpiles. This has involved identifying the optimum locations along the line of route and assessing these, taking into account local communities and environmental considerations. Volume 1 of the ES provides a general description of construction compounds, stockpiles and why they are required to support the Western Leg Proposed Scheme.
- 4.4.9 The relevant Volume 2 Community Area reports of the ES provide detail on the location of these sites within the respective community areas. The proposed sites for compounds and stockpiles are shown on the CT-05 map series published as part of the ES alongside the hybrid Bill.

Construction compounds

- 4.4.10 Construction compounds are required to act as strategic hubs for core project management activities. The land required for these sites will generally only be required during the construction phase of the Western Leg Proposed Scheme. Construction compounds will also be used for stockpiling of materials such as topsoil, for transfer nodes or railheads and to facilitate transfer of materials to and from the site.
- 4.4.11 Main construction compounds will include offices, storage for materials (such as aggregates, structural steel, and steel reinforcement) and laydown areas, and maintenance and parking facilities (for site plant, lorries and staff cars), together with the main welfare facilities for construction personnel.
- 4.4.12 The selection of construction compound locations has been influenced by a number of factors, including adequate space, proximity to major construction activities, local A roads and existing utilities. Consideration has also been given to avoiding proximity to sensitive receptors and the suitability of the topography amongst other factors. Further information is provided in the HS2 Phase 2b Western Leg Information Paper D2: Construction compounds²⁹.
- 4.4.13 The effects of changes to the noise levels, light, visual impact and air quality have been considered when choosing the construction site location. In addition, the presence of all known ecological protected sites, aquifers, surface water courses and floodplains have been accounted for when choosing the locations.
- 4.4.14 The measures set out in the draft CoCP (refer Section 15) will be used to manage impacts resulting from noise through a series of mitigation measures. These include the use of best practicable means (BPM), which will be applied during construction works to reduce noise (including vibration) at neighbouring residential properties and other sensitive receptors (including local businesses and quiet areas designated by the local authority) arising from

²⁹ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper D2: Construction compounds*.

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construction activities. Further detail is provided in Section 15 of this report, which covers the draft CoCP and HS2 Ltd Information Paper: D3 Code of Construction Practice³⁰.

- 4.4.15 Lighting will also be designed, positioned and directed so as not to unnecessarily intrude on adjacent buildings, ecological receptors, structures used by protected species and other land uses to prevent unnecessary disturbance, interference with local residents, railway operations, passing motorists, or the navigation lights for air or water traffic.
- 4.4.16 Details of how construction compounds and the construction traffic accessing these compounds will be managed is set out in Volume 1 of the ES and relevant Information Papers (D2, D3, E1 and E13). Further information on the operation and management of construction compounds is set out in Section 15 of this report and in the HS2 Phase 2b Western Leg Information Paper D2: Construction Compounds²⁹.

Temporary stockpiles

- 4.4.17 Temporary material stockpiles will be required at certain locations along the route of the Western Leg Proposed Scheme to limit the distances over which such materials need to be transported. Stockpiles will be kept away from sensitive receptors (including sensitive ecological receptors and heritage assets), watercourses and surface drains where reasonably practicable.
- 4.4.18 The nominated undertaker will require its contractors to control and limit dust, air pollution, odour and exhaust emission during the construction works as far as reasonably practicable and in accordance with the measures in the draft CoCP. Further information about proposed mitigation measures during construction, including handling materials and managing impacts on air quality and dust suppression can be found in Section 15.

Permanent features

- 4.4.19 Consultees raised a range of route-wide issues regarding key types of permanent features associated with the Western Leg Proposed Scheme. These issues were largely raised in relation to the route-wide approach taken to the design and assessment of these permanent features and included issues relating to:
- embankments;
 - viaducts;
 - tunnels, tunnel portals and vent shafts;
 - stations and depots; and
 - auto transformer stations.
- 4.4.20 The issues raised by consultees in relation to each of the key types of permanent features, are set out below, including examples of the locations of these features identified by

³⁰ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper D3: Code of construction practice*.

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consultees. Where location-specific examples were identified as key concerns raised by stakeholders, these have been identified within the appropriate Community Area section of this report (sections 6 to 13) to explain how feedback has informed design features where relevant.

- 4.4.21 Consultees who raised these issues included: Natural England, Historic England, National Trust, Canal & River Trust, Inland Waterways Association, schools, local authorities, parish councils, community groups, local access forums, local businesses and agri-businesses and individuals.

Consultation issues

Embankments

- 4.4.22 Consultees raised concern regarding the design of embankments described in the working draft ES, including Ashley embankment, Clive Green embankment, and the Pickmere embankment, among others. Concerns also included the approach taken to the assessment and feature type chosen, such as the consideration of embankment versus viaduct with regard to potential impacts on hydrological and ecological receptors at the Manchester Mosses Special Area of Conservation (SAC).
- 4.4.23 Key issues raised were related to the landscape and visual impacts associated with the height and length of embankments. Further concern was raised around the design of associated landscaping, noise bunding and the significance of land required to accommodate them, including impact on sensitive habitats including the Holcroft Moss SSSI.

Viaducts

- 4.4.24 Consultees raised issues regarding the design of viaducts described in the working draft ES, including the Manchester Ship Canal viaduct and the River Bollin East viaduct. Some consultees expressed concern about the potential impacts of certain viaducts on floodplains and drainage.
- 4.4.25 Key issues included the height and length of the viaducts and the associated noise and visual impacts of trains travelling through communities and in areas considered scenically attractive and tranquil. The River Dane was identified and its crossing of the Trent and Mersey Canal Conservation Area and the River Dane Floodplain.

Tunnels, tunnel portals and vent shafts

- 4.4.26 Consultees raised issues regarding the tunnels described within the working draft ES including Manchester tunnel. Concerns were raised around the impact of construction activities as well as the potential hydrological impact on aquifers and suitability of ground conditions.

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- 4.4.27 Consultees also raised concern regarding the tunnel portals described within the working draft ES including Manchester tunnel south portal. Concern was raised in particular relating to the impact of constructing the tunnel portal on local habitat, including woodland, grassland, scrub and ponds.
- 4.4.28 Consultees raised issues regarding the location and design of vent shafts, as described within the working draft ES. Consultees mentioned the Palatine Road vent shaft located within Withington Golf Course, where concerns have been raised regarding the vent shaft's impact on flood management. The Lytham Road vent shaft was also raised by consultees relating to the impact on the local community, including on Birchfields Primary School.

Stations and depots

- 4.4.29 Consultees raised issues regarding the location and design of stations along the Western Leg Proposed Scheme, comprising Manchester Airport High Speed station and Manchester Piccadilly High Speed station. Concerns were raised around construction traffic, the location and design of associated car parks, concerns over air quality and noise impacts, and the loss of green space and agricultural land.
- 4.4.30 Consultees also raised issues regarding the location and design of depots on the Western Leg Proposed Scheme such as the Crewe North rolling stock depot. Concerns were raised around construction impacts, the proximity to communities, impacts from noise and light pollution, as well as impacts on local roads and water resources.

Auto transformer feeder stations

- 4.4.31 Consultees raised concerns relating to the chosen locations of auto transformer feeder stations (ATFS) along the Western Leg Proposed Scheme, such as the express auto-transformer station at Crowders lane, the Bostock Road auto transformer station, Hoo Green auto transformer station and the ATFS at Palatine Road. Concerns were raised around proximity of ATFS to sensitive environmental receptors, community receptors such as schools, and residential areas. Stakeholders were particularly concerned about their visual impacts and many stakeholders provided suggested alternative locations. Some consultees also suggested that there was no height information about these features and how they would be connected to the power grid.

Response to consultation issues

- 4.4.32 The design and assessment of permanent structures along the Western Leg Proposed Scheme has progressed significantly since the scheme presented in the working draft ES. Volume 1 of the ES provides a general description of the types of permanent features included as part of the Scheme.
- 4.4.33 Volume 2 of the ES provides assessment of environmental impacts associated with all permanent features proposed as part of the Western Leg Proposed Scheme.

- 4.4.34 The majority of comments received in respect of permanent features presented in the working draft ES focused on components of the scheme design in specific locations. Summaries of these responses and how they have been used to inform the Western Leg Proposed Scheme are set out in the Community Area sections of this report (sections 6 to 13). The Western Leg Proposed Scheme is shown on the CT-05 and CT-06 maps published with the ES as part of the hybrid Bill.
- 4.4.35 Further information on the approach of scheme design including the detailed design development and engagement with key stakeholders including planning authorities can be found in HS2 Phase 2b Western Leg Information paper D1: Design³¹.
- 4.4.36 The remainder of this section responds to the route-wide approach taken and key considerations made in the development of permanent features associated with the Western Leg Proposed Scheme.
- 4.4.37 The Manchester tunnel will be a 12km twin tunnel passing under south Manchester. It has been designed to avoid adverse effects on residential property by being located between 22m and 43m below ground level.
- 4.4.38 Further information on the design principles relating to new tunnels and associated infrastructure such as portals and vent shafts can be found in the HS2 Phase 2b Western Leg Information Paper D13: Tunnels³².
- 4.4.39 The design of a number of the location-specific permanent infrastructure features, such as Crewe tunnel north portal and Palatine Road vent shaft, raised by stakeholders have been changed since the working draft ES. These changes reflect further design refinement and consultation and are described in the relevant community area sections 6 to 13 of this report.

4.5 Consultation issues relating to key route-wide technical issues

Introduction

- 4.5.1 This section provides a summary of the key route-wide issues raised by consultees relating to the Western Leg Proposed Scheme, including issues raised in relation to Volume 3 of the working draft ES. Volume 3 of the working draft ES presented the likely significant route-wide environmental effects of the construction and operation, based on the level of design presented in the working draft ES, of the full Phase 2b route.
- 4.5.2 Analysis of consultee comments identified a number of consistent themes relating to the route wide approach to the EIA. Whilst some of the themes were specific to an EIA topic,

³¹ High Speed Two Ltd (2022), *Phase 2b Western Leg Information paper D1: Design*.

³² High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper D13: Tunnels*.

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others cut across topics. As this report is Western Leg focussed, any impacts raised by stakeholders relating only to the Eastern Leg scheme have been discounted.

4.5.3 This section is structured in accordance with the key themes, noting where these cut across EIA topics, as appropriate. The key themes or groups of issues which consultees raised include:

- agriculture, forestry and soils;
- air quality;
- climate change;
- community;
- ecology and biodiversity;
- electromagnetic interference;
- health;
- historic environment;
- land quality;
- landscape and visual;
- major accidents and disasters;
- socio-economics;
- sound, noise and vibration;
- traffic and transport;
- waste and material resources; and
- water resources and flood risk.

4.5.4 Many consultee comments in response to Volume 3 of the working draft ES were location specific. These issues and how they have informed the Western Leg Proposed Scheme and EIA are summarised in the relevant community area sections of this report (sections 6 to 13).

4.6 Agriculture, forestry and soils

Consultation issues

4.6.1 A number of issues were raised in relation to the route wide impact on agricultural land, forestry and soils from the full Phase 2b route. Any comments raised by stakeholders relating to the Eastern Leg scheme have been discounted from this report. The key issues considered to be of route wide concern include:

- requests for further and ongoing engagement with farmers, growers and their representatives;
- loss of agricultural land to the construction and operation of the Western Leg Proposed Scheme, particularly that which is considered to be high grade, Best and Most Versatile (BMV) land;

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- potential for disruption and reduced accessibility to farm holdings impacted during construction by road diversions and construction traffic, with provision of access to severed land parcels;
- suitability of road diversions and access provisions for agricultural vehicles and machinery;
- concern that any impact or disturbance to farm drainage is minimised and managed appropriately; and
- concerns regarding location and scale of mitigation planting impacting agricultural land and agricultural operations.

4.6.2 Consultees who raised these issues included: National Farmers Union, Country Land and Business Association, Natural England, National Trust, Antoinette Sandbach former MP, farmers, tenants and their agents.

Responses to consultation issues

Further engagement

- 4.6.3 The working draft ES was published at a point in time based on limited design and assessment to allow stakeholders an early opportunity to provide comment on the developing scheme. Since the publication of the working draft ES, further engagement has been undertaken to inform the ES for hybrid Bill deposit through farm impact assessments which included, where possible, interviews with owners/operators of land holdings affected by the Western Leg Proposed Scheme. Farm impact assessments provide farmers and landowners with the opportunity to detail the scale and nature of their farm and forestry operations, raise issues and discuss mitigation in relation to the Western Leg Proposed Scheme.
- 4.6.4 All affected agricultural landowners/operators have been invited to meet HS2 Ltd's agricultural specialists to discuss the scheme design and associated impact. In some areas, uptake of this offer of engagement has been limited. In these instances, farm impact assessments are based on the independent professional judgement of agricultural consultants and publicly available information. HS2 Ltd continues to work with stakeholders to develop appropriate engagement approaches with landowners, based on the severity of the effect on their land or property and the nature of that effect.
- 4.6.5 A guide for farmers and growers affected by the Western Leg Proposed Scheme will be published following the deposit of the hybrid Bill and distributed to farmers and growers along the route of the Proposed Scheme. Engagement with farmers and growers, and their representatives, will continue to be undertaken by HS2 Ltd. Engagement undertaken with farmers and landowners will be documented in a farm pack for each farm holding, set out

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within the HS2 Phase 2b Farmers and Growers Guide³³. The approach to agricultural and rural land property matters is set out in the HS2 Phase 2b Western Leg Information Paper: C2 Rural landowners and occupiers guide³⁴.

- 4.6.6 Engagement with directly affected individuals and growers will continue as the project develops and opportunities for engagement with farmers and growers will continue to be offered throughout the parliamentary process.
- 4.6.7 Engagement also remains ongoing with key bodies representing farmers and landowners, including the National Farmers Union, Country Land and Business Association and Central Association of Agricultural Valuers, as well as statutory bodies such as Natural England.

Loss of agricultural land

- 4.6.8 The design of the Western Leg Proposed Scheme has sought to reduce impacts to agricultural land and to avoid BMV agricultural land, wherever possible. Wherever practicable, agricultural land that is required temporarily for construction will be restored to agricultural use. Where agricultural uses are to be resumed on land disturbed by construction, the objective is to avoid any reduction in long term capability.
- 4.6.9 Volume 2 of the ES reports the residual significant effects on agricultural land and holdings, noting where these effects are related to either construction or operation of the Western Leg Proposed Scheme, and whether these will be temporary or permanent in nature. Impacts such as disruption to agricultural holdings will vary according to the size of the holding and the nature of its use and business. Engagement is being undertaken with farmers and landowners to assist in identifying appropriate mitigation for the effects of the Western Leg Proposed Scheme on their businesses, where reasonably practicable. HS2 Ltd will continue to work with affected stakeholders to develop appropriate mitigation, however, this is only possible where the farmer or landowner agrees to meet with HS2 Ltd's agricultural specialists.
- 4.6.10 HS2 Ltd will work with landowners and farmers whose land and soils are temporarily affected by the construction of the Western Leg Proposed Scheme, with the intention of returning soils to their former use wherever possible. Details of soil resource plans will be contained in farm packs that apply to individual landholdings.

Impact on access

- 4.6.11 Feedback from consultees on the working draft ES relating to access concerns as a result of road diversions, construction traffic and severance of land parcels have been considered individually at a community area level within the design and environmental assessment. As a

³³ To be prepared for Phase 2b in due course, as per previous Phases found here: <https://www.gov.uk/government/publications/hs2-guide-for-farmers-and-growers>.

³⁴ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper C2: Rural landowners and occupiers guide*.

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result, a number of changes have been incorporated into the Western Leg Proposed Scheme to provide continuity of access to holdings. Potential disruption to access to farm holdings, both temporarily and permanently, is reported at a local level in Volume 2 of the ES.

- 4.6.12 With respect to accessibility, individual consultation comments relevant to the Western Leg Proposed Scheme were analysed to understand where and how individual farmers access their holdings. A number of changes have been incorporated into the Western Leg Proposed Scheme to provide continuity of access to holdings. Accommodation overbridges or underbridges are included in the Western Leg Proposed Scheme design as appropriate, with the dimensions for each designed to be suitable for expected usage, the details of which are included in Volume 2 of the ES deposited alongside the hybrid Bill.
- 4.6.13 The design of overbridges and underbridges follows established standards to provide access for farm vehicles and livestock. Further information on overbridges is provided in Volume 1 of the ES and in more detail at a local level in Volume 2 of the ES accompanying the hybrid Bill.

Road diversions

- 4.6.14 Road diversions for agricultural vehicles and machinery will be appropriately designed and constructed in accordance with the Design Manual for Roads and Bridges (DMRB).

Impact on drainage

- 4.6.15 Compliance with the measures that will be set out in the draft CoCP will avoid or reduce environmental impacts during construction. These will include the protection and maintenance, diversion or restoration of existing land drainage and livestock water supply systems, where reasonably practicable.

Agricultural mitigation

- 4.6.16 Consultation responses relating to the choice of location and scale of mitigation planting were reviewed in order to identify opportunities to rationalise and relocate mitigation planting as part of the ongoing development of mitigation through the scheme design development. The aim of this was to reduce the area of agricultural land required for mitigation planting and reduce impacts on agricultural operations and holdings.
- 4.6.17 General mitigation measures and the approach to management and mitigation of impacts on agricultural land during construction are included in the draft CoCP. HS2 Phase 2b Western Leg Information Paper E19: Soil handling for land restoration³⁵ sets out the approach for the restoration of agricultural land post construction and individual measures will be set out in the relevant farm soil resource plans and Farm Packs.

³⁵ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E19: Soil handling for land restoration*.

4.7 Air quality

Consultation issues

4.7.1 A number of general issues were raised in relation to the impact on air quality from the full Phase 2b route. This section summarises those issues of relevance to the general route wide approach or raised in general to the Western Leg Proposed Scheme. Any comments raised by stakeholders relating to the Eastern Leg scheme have been discounted from this report. The key issues considered to be of concern include:

- local air quality impacts through increased traffic emissions due to changes in traffic patterns, increased congestion, changes in road layouts and road diversions, and movement of construction traffic;
- air quality impacts from dust generated from construction activities impacting on the health of individuals, increasing the incidence of respiratory issues, concerns around dust nuisance and impacts on community and recreational facilities, such as schools;
- air quality impacts from dust generated from construction activities and increased traffic emissions impacting sensitive habitats and species, particularly ecological designated sites;
- further information sought regarding measures to mitigate and control air quality and dust impacts, including measures for monitoring air quality during construction; and
- anticipated impact to air quality management areas or local air quality objectives.

4.7.2 Consultees who raised these issues included: Natural England, National Trust, Highways England, local authorities and parish councils, local organisations and community facilities, and individuals.

Responses to consultation issues

Changes to traffic

4.7.3 A detailed assessment of local air quality impacts for increased traffic emissions during both construction and operation of the Western Leg Proposed Scheme has been undertaken and is reported in Volume 2 and Volume 5 of the ES.

Impacts from dust on health

4.7.4 An assessment of local air quality impacts from dust generated from construction activities has also been undertaken. Dust generating activities, such as demolition, earthworks, construction and trackout, have been assessed for their risk to cause human health impacts and dust nuisance, following guidance by the Institute of Air Quality Management. The HS2 Phase 2b Western Leg Information Paper E14: Air quality sets out HS2 Ltd's approach to avoiding emissions to air that cause adverse effects on communities and to prevent air pollution. It also includes proposed measures to avoid emissions which may have a harmful

impact on human health. The assessment on health is reported for each community area in Volume 2 and Volume 5 of the ES.

Impacts from dust on ecological receptors

- 4.7.5 An assessment of local air quality impacts from dust generated from construction activities and increased traffic emissions at sensitive ecological sites has been undertaken and is reported for each community area in Volume 2 and Volume 5 of the ES.

Control and mitigation for air quality

- 4.7.6 The draft CoCP sets out a series of measures detailing how air quality will be managed and reported upon during construction of the Western Leg Proposed Scheme. Mitigation measures include controlling construction site dust emissions in line with the Institute of Air Quality Management best practice guidance, construction site monitoring requirements depending on dust risk of each site, and reducing construction road vehicle and machinery emissions by requiring contractors to comply with the latest Euro emission standards.
- 4.7.7 HS2 Ltd has set industry leading emission standards for construction vehicles and machinery with its own policy on vehicle emissions set out in the HS2 Phase 2b Western Leg Information Paper E14: Air quality³⁵. All construction heavy goods vehicles (HGV) and construction machinery are required to meet the latest engine emission standards (Euro VI for HGV and EU Stage IV for construction machinery). HS2 Ltd has also set a range of targets for the use of Ultra Low Emission Vehicles during construction.
- 4.7.8 The nominated undertaker will provide the relevant local authority with monthly reports on dust and air quality. These reports will include a summary of the construction activities occurring, any complaints received, the data recorded over the monitoring period broken down into appropriate time periods, any periods in exceedance of the agreed trigger levels and the results of any investigations and identified source. It will also detail where the works have been found to be the source, any action taken to immediately resolve the issue and to prevent a recurrence.
- 4.7.9 HS2 Phase 2b Western Leg Information Paper E14: Air quality sets out HS2 Ltd's requirements for the use of low emission vehicles during construction, including HGV meeting the Euro VI emission standards.

Air quality management areas

- 4.7.10 The air quality assessment has considered the location of air quality management areas, clean air zones and other areas of concern for local air quality. Predicted pollutant concentrations at sensitive receptors are compared against the air quality standards (European limit values and UK objectives) to derive the local air quality impact at each receptor and the potential for causing a significant air quality effect.
- 4.7.11 Section 7 of the draft CoCP sets out the process for process to manage any significant effects adjacent to highways through measurement of air quality and regular assessments of the air

quality situation as affected by the construction of the scheme. Where significant effects are still predicted, action plans will be put in place with the objective of removing those significant effects. The monitoring, reviews, assessments and action plans will be developed in consultation with local authorities.

4.8 Climate change

Consultation issues

- 4.8.1 Consultees raised concerns regarding the climate change assessment presented in the working draft ES. The assessment of impacts from the Western Leg Proposed Scheme is reported in the ES at a route wide perspective therefore impacts reported here are reported as being of relevance to the Western Leg of the Proposed Scheme. These key issues include:
- the resilience of the Western Leg Proposed Scheme in responding to natural extreme climatic events;
 - limited information in the working draft ES on the assessment of carbon emissions caused during construction;
 - whether low carbon materials would be used and the need for low carbon operations during construction, including construction vehicles;
 - whether the assessment would consider impacts arising from the Western Leg Proposed Scheme passing through locations where peat soils are found; and
 - consideration for the use of renewable energy and energy storage into infrastructure including stations and depots.
- 4.8.2 Consultees who raised these issues include: Natural England, Environment Agency, local authorities, parish councils, action groups and individuals.

Responses to consultation issues

Resilience of the Western Leg Proposed Scheme

- 4.8.3 The climate change resilience assessment is reported in Volume 3 of the ES and includes an assessment of potential impacts arising from natural extreme climatic events. This assessment considers potential climate change impacts on the design, construction and operation of the Western Leg Proposed Scheme's infrastructure and assets over their lifetime.

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- 4.8.4 The climate change resilience assessment is based on consideration of climate change trends, which have been informed by UK Climate Projection (UKCP18 which are the latest set of climate projections for the UK)³⁶.
- 4.8.5 Further details of the approach and methodology for the climate change resilience assessment can be found in HS2 Phase 2b Western Leg Information Paper E26: Climate change adaptation and resilience³⁷.

Carbon emissions during construction

- 4.8.6 The working draft ES was published at an early stage with developing designs and information gaps, however it provided an indicative carbon assessment. Since then the assessment has progressed significantly. Volume 3 of the ES includes an assessment of the whole life carbon impact of the Western Leg Proposed Scheme, including the carbon emissions from the construction and installation process. The assessment quantifies the likely carbon emissions from construction materials and processes including from; transport, maintenance, repair, replacement, water and energy consumption in use, land use change and modal shift. The assessment provides a breakdown of the sources from which the carbon emissions are most contributing.

Low carbon materials in construction

- 4.8.7 HS2 Ltd is committed to minimising the carbon footprint of the Western Leg Proposed Scheme. A carbon reduction hierarchy will be implemented to, as far as reasonably practicable, avoid carbon in the design; reduce embedded carbon in construction materials and carbon emissions from construction works. The carbon footprint of the Western Leg Proposed Scheme will be calculated and used as a tool to assess the potential to reduce carbon across the project design, construction and operation.
- 4.8.8 HS2 Ltd is implementing a carbon management process, which has been independently accredited to the industry best practice standard: PAS2080; the global standard for carbon management in infrastructure. Accreditation demonstrates that effective controls are in place for reducing whole life carbon.
- 4.8.9 HS2 Ltd's Net Zero Carbon Plan³⁸ seeks to accelerate the ambition of the construction industry to realise net zero during the construction phase of the Western Leg Proposed Scheme and also to procure zero carbon electricity from day one of operation.

³⁶ Meteorological Office (2018), *UK Climate Projections (UKCP)*. Available online at: <https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/index>.

³⁷ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E26: Climate change adaptation and resilience*.

³⁸ High Speed Two Ltd (planned for publication imminently), *Net Zero Carbon Plan*. Available online at: www.hs2.org.uk/environment.

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- 4.8.10 For more information on how construction carbon emissions are being mitigated refer to the carbon chapter in Volume 3 of the ES.

Peat soils

- 4.8.11 Effects from the Western Leg Proposed Scheme on peat soils are considered within the in-combination climate change impact assessment outlined in Volume 5 of the ES. This assessment has not identified any significant effects.
- 4.8.12 The carbon assessment reports carbon impacts associated with land use, land use change and forestry.

Renewable energy

- 4.8.13 H2S Ltd is committed to minimising the carbon footprint of the Western Leg Proposed Scheme and delivering low carbon long distance journeys supported by low carbon energy. The carbon footprint of the Western Leg Proposed Scheme will be calculated and used as a tool to assess the potential to reduce carbon across the project design, construction and operation.
- 4.8.14 Where reasonably practicable, the energy requirements of the Proposed Scheme will be reduced, and energy efficiency of operations will be maximised. HS2 will be capable of operating carbon free services as a significant part of a zero carbon multi-modal transport network.
- 4.8.15 HS2 Ltd aims to reduce energy consumption across the HS2 network, and in doing so reduce carbon emissions. Applying energy efficiency measures across all parts of the HS2 network; traction infrastructure, rolling stock, stations and depots and non-traction railway systems, will reduce overall energy demand in operation, therefore minimising potential emissions.
- 4.8.16 The use of electricity for operating rolling stock, stations, and rail systems is a prominent carbon source within the lifetime impacts of the Proposed Scheme. The procurement of zero carbon electricity for the operation of the Proposed Scheme offers a considerable opportunity to reduce these impacts and will be part of the Net Zero Carbon Plan, to be published by HS2 Ltd, as a key mitigation action.
- 4.8.17 HS2 Ltd is also exploring several opportunities for onsite energy generation at stations and depots, presenting opportunities for renewable and low carbon energy generation sources for power and heat.

4.9 Community

Consultation issues

- 4.9.1 A number of general issues were raised in relation to the impact on communities and community facilities from the full Phase 2b route. This section summarises those issues of relevance to the general route wide approach or those raised in general to the Western Leg

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Proposed Scheme. Any comments raised by stakeholders relating to the Eastern Leg scheme have been discounted from this report. The key issues considered to be of concern include:

- impact to recreation and leisure areas due to temporary or permanent loss of publicly accessible open and green space including local wildlife sites;
- impact on amenity value of recreation spaces due to disturbance from construction activity or proximity to the Western Leg Proposed Scheme;
- the scale of disruption to the public rights of way (PRoW) network and concern over suitable alternative routes identified for PRoW that are impacted during construction, in particular for less mobile users;
- permanent impact to community use of promoted PRoW, including the Sustrans National Cycle Network;
- concerns regarding access to community facilities as a result of road realignments and diversions, particularly in relation to schools and medical facilities;
- community severance and isolation as a result of the Western Leg Proposed Scheme or impacts to local road networks; and
- the impacts on communities generally from the Western Leg Proposed Scheme, in particular as a result of acquisition of residential properties.

4.9.2 Consultees who raised these issues included: Natural England, National Trust, Sustrans, Canal & River Trust, local authorities, parish councils, local businesses and organisations and individuals.

Responses to consultation issues

Impacts on public open space

4.9.3 HS2 Ltd is committed to reducing impacts on communities along the route of the Western Leg Proposed Scheme. The development of the Western Leg Proposed Scheme has sought to avoid or reduce impacts such as the loss of amenity or recreational space to local communities along the route of the Western Leg Proposed Scheme, as far as reasonably practicable, through design, consideration of stakeholder feedback and identification of appropriate mitigation. Engagement will remain ongoing with local authorities and local communities to identify further opportunities for mitigation during the detailed design phase.

4.9.4 Impacts on recreation and leisure areas due to temporary and permanent loss of publicly accessible open and green space (including local wildlife sites) are reported in Volume 2 of the ES. Where significant effects on the amenity value of some recreation spaces are likely to occur temporarily from construction activity or from proximity to the Western Leg Proposed Scheme, Volume 2 of the ES reports on these effects on local communities.

- 4.9.5 HS2 Phase 2b Western Leg Information Paper E22: Mitigation of significant community effects on public open space and community facilities³⁹ sets out the options for mitigating the loss of public open space and community facilities, as far as reasonably practicable. Sections 6 to 13 of this report include consultation feedback at a local community area level in respect to concerns relating to impacts on certain specific public open spaces raised in consultant response received to the working draft ES.

Impact to PRow

- 4.9.6 The Western Leg Proposed Scheme has sought to avoid or reduce both permanent and temporary impacts to PRow, as far as reasonably practicable. Where impacts cannot be avoided, alternative provision has been identified to best serve the needs of local residents and the wider community, as far as reasonably practicable, taking into account a range of mobility levels and needs.
- 4.9.7 Temporary or permanent alternative route provision will be made in advance of the planned closure of any road or PRow, with prior engagement with local stakeholders, facilitated by the nominated undertaker. Where reasonably practicable, public footpaths and routes impacted temporarily by construction of the Western Leg Proposed Scheme, will be reinstated to reduce disruption to members of the public and the general community. As far as reasonably practicable, the realigned PRows will be constructed prior to closure of the existing route.
- 4.9.8 Further information can be found in the HS2 Phase 2b Western Leg Information Paper E5: Roads and public rights of way⁴⁰.

Community isolation and impacts accessing community facilities

- 4.9.9 Isolation of communities can arise where the Proposed Scheme severs or disrupts routes, which are used for access between residential properties and community facilities (schools, medical facilities, etc.) on a regular basis. This may occur as a result of road diversions impacting journeys by private vehicles and/or public transport. These types of impact have been assessed and effects on the community are reported in Volume 2 and Volume 5 of the ES.
- 4.9.10 Mitigation for these effects has been considered on a case-by-case basis in relation to the specific individual effects that will be experienced by the affected community and, where applicable, are reported in the ES.
- 4.9.11 The draft CoCP includes measures relating to construction activity near schools and other community facilities, including medical facilities. These measures include, where reasonably

³⁹ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E22: Mitigation of significant community effects on public open space and community facilities*.

⁴⁰ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E5: Roads and public rights of way*.

practicable, the avoidance of HGV operating adjacent to schools during drop off and pick up periods. The nominated undertaker will endeavour to work closely with local education authorities and individual schools and operators of other community facilities to apply reasonably practicable measures to mitigate predicted effects on a case-by-case basis.

Residential property acquisition

- 4.9.12 HS2 Ltd has developed the design of the Proposed Scheme with the aim of limiting acquisition of residential properties so far as reasonably practicable. The Government has developed a package of property compensation measures over and above statutory requirements.
- 4.9.13 The community impact as a result of residential property acquisition is assessed at an area level in Volume 2 and Volume 5 of the ES. The assessment reports the acquisition of five or more residential properties as a significant effect on a community (the number of acquisitions considered to be significant may be lower in very small communities).
- 4.9.14 Information for property owners and tenants of properties impacted by the Western Leg Proposed Scheme can be found on the [gov.uk/hs2](https://www.gov.uk/hs2) website. Further explanation on HS2 Ltd policies on property acquisition and compensation for the Western Leg Proposed Scheme is set out in the HS2 Phase 2b Western Leg Information Papers (series C), including:
- C1: Information for property owners;
 - C2: Rural landowner and occupiers guide;
 - C3: Land acquisition policy;
 - C4: Safeguarding and statutory blight;
 - C5: Generalised blight; and
 - C9: Recovery of costs by property owners.

4.10 Ecology and biodiversity

Consultation issues

- 4.10.1 A number of general issues were raised in relation to the impact on ecology and biodiversity from the full Phase 2b route. This section summarises those issues of relevance to the general route-wide approach or that were raised in general to the Western Leg Proposed Scheme. Any comments raised by stakeholders relating to the Eastern Leg scheme have been discounted from this report. The key issues considered to be of concern include:
- loss of ancient woodland and consideration of measures proposed in response to this loss;
 - clarification on how the Western Leg Proposed Scheme would seek to deliver no net loss in biodiversity;

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- impact on designated sites of nature conservation importance, including national and international sites as well as sites with local designations such as local wildlife sites;
- management of ecological mitigation following construction including woodland planting;
- consideration of impacts on key protected species including great crested newt and bats; and
- management of the construction impacts on river habitats.

4.10.2 Consultees who raised these issues included: National Trust, Natural England, The Wildlife Trust, local wildlife trusts, The Woodland Trust, Forestry Commission, local authorities, MP's and individuals.

Responses to consultation issues

4.10.3 The scope and methodology for the assessment of ecological and biodiversity impacts is set out in the EIA SMR and is included as part of the ES accompanying the hybrid Bill. An assessment of ecological impacts at the community area level is reported in Volume 2, Volume 5 and a route-wide assessment reported in Volume 3 of the ES.

Ancient woodlands

- 4.10.4 HS2 Ltd supports the Government's commitment to maintaining existing ancient woodland (in line with the National Planning Policy Framework (NPPF⁴¹) and to increase native woodland (as set out in A Green Future: Our 25 Year Plan to Improve the Environment⁴²). HS2 Ltd acknowledges that it is not possible to replace ancient woodland, and the design of the Western Leg Proposed Scheme has sought to reduce loss of or harm to ancient woodland, so far as is reasonably practicable.
- 4.10.5 Ancient woodland has been a key environmental consideration throughout the evolution of the design and as far as possible the route has been selected to avoid substantial impacts. Unfortunately, due to conflicting constraints, including engineering and land use, it has not been possible in all instances for the Western Leg Proposed Scheme to avoid ancient woodland.
- 4.10.6 HS2 Ltd will continue to consider opportunities for further reducing loss of ancient woodland as the design progresses. Where avoidance measures are not considered sufficient to address the effects of the Western Leg Proposed Scheme (as is the case for ancient

⁴¹ Department for Communities and Local Government (2019), *National Planning Policy Framework*. DCLGC. Bressenden Place, London. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf.

⁴² Department for Environment, Food and Rural Affairs (2018), *A Green Future: Our 25 Year Plan to Improve the Environment*. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf.

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woodlands) then compensation is proposed. These proposals will be outlined in a separately produced Phase 2b Western Leg Ancient Woodland Strategy which will set out specific measures being taken to compensate for unavoidable losses at each ancient woodland site.

- 4.10.7 Where losses of ancient woodland are expected to occur, a range of compensatory measures will be proposed by HS2 Ltd, which may include:
- translocation of ancient woodland soils;
 - translocation of coppice stools and deadwood; and
 - new woodland creation.
- 4.10.8 Since the working draft ES was published, further desk-based studies of habitats and historical land use, and ground based ecological surveys have been completed along the route of the Western Leg Proposed Scheme. These identified a number of potential ancient woodlands. These were submitted to Natural England for consideration for addition to the Ancient Woodland Inventory (AWI). Since then Natural England have confirmed a number of these will be added to the AWI.
- 4.10.9 HS2 Ltd acknowledges that ancient and veteran trees are irreplaceable and their loss would result in a permanent effect. It has been agreed with Natural England and the Forestry Commission that effects on each ancient and veteran tree is significant at a national level. Such effects are reported in Volume 2 of the ES and route-wide in Volume 3 of the ES.
- 4.10.10 Where reasonably practicable, measures that are contained within the draft CoCP will be applied to protect and retain ancient and veteran trees within and adjacent to proposed construction works to reduce the number that will be affected.

Biodiversity accounting

- 4.10.11 Previous phases of HS2 have had the objective of seeking to achieve No Net Loss (NNL) in Biodiversity at a route-wide level through habitat creation and enhancement. Since the consultation on the working draft ES was undertaken, the Government has overseen the introduction of the Environment Act 2021 which will require new developments under the Planning Act 2008 to achieve a gain in biodiversity.
- 4.10.12 The Government has announced that the Proposed Scheme will aim to achieve a net gain in biodiversity exclusive of irreplaceable habitats and plans are being developed to support this key policy area. To measure losses and gains in biodiversity due to the Proposed Scheme, HS2 Ltd has developed a metric based on the Defra metric. The metric to be used for the Western Leg Proposed Scheme will take account of new guidance from Natural England. To help ensure that new habitats will achieve the required biodiversity outputs, newly created habitats will be managed and monitored in accordance with the HS2 Phase 2b Western Leg Information Paper E2: Ecology⁴³.

⁴³ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E2: Ecology*.

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- 4.10.13 It is important to note that HS2 Ltd does not use the metric to determine mitigation and compensation measures. The approach used for mitigation and compensation is set out in the ES and associated technical appendices. There are no set ratios between the area of habitat lost and the area of habitat created through mitigation measures. Instead, the approach relies on professional ecological judgement for each case, with compensation being developed as part of an iterative design process appropriate to the specific area.
- 4.10.14 Ancient woodland is considered irreplaceable and is not included in HS2's biodiversity accounting calculation and neither are the habitats that are created or enhanced in response to this loss. While every effort has been made to avoid losses of ancient woodland, there are some instances where, due to other design constraints, losses are unavoidable.

Impacts on sites of conservation importance

- 4.10.15 The effects of the Western Leg Proposed Scheme on all sites that are internationally, nationally and locally designated for their nature conservation importance, are included in the assessment presented in the ES. The assessment has taken into consideration the representations made in response to the working draft ES as well views expressed by consultees including Natural England and the local wildlife trusts during consultation and engagement meetings during the assessment and scheme development. Where there may be effects on sites of international importance, Habitats Regulations Assessments have been undertaken and form part of Volume 5 of the ES.

Management of new habitats following construction

- 4.10.16 Where new habitats are to be created as part of the Western Leg Proposed Scheme, there will be a commitment to ensure appropriate monitoring and management, as set out in the Environmental Memorandum⁴⁴. The Environmental Memorandum includes a commitment to provide long-term management of habitat creation areas to ensure that the target value of these habitats is achieved. This may be achieved through a variety of potential mechanisms, including the following:
- retention and management of the land by the nominated undertaker;
 - returning the land to the original landowner, with agreement to manage it within the required parameters;
 - transferring the land for management by a third party, such as a Wildlife Trust; or
 - developing a bespoke management arrangement on a case-by-case basis.

⁴⁴ The Secretary of State for Transport will establish a set of controls known as Environmental Minimum Requirements (EMR). The EMR will include an Environmental Memorandum, which provides a framework for the nominated undertaker, its contractors and stakeholders, such as the Environment Agency and Natural England, to work together to ensure that the design and construction of the Proposed Scheme is carried out with due regard for environmental considerations.

- 4.10.17 In order to satisfy protected species licencing requirements and demonstrate that compensation and mitigation measures are achieving their desired ecological objectives, a scheme of monitoring and management of created / restored habitats will be put in place. This will seek to achieve the desired target condition (i.e. Habitat of Principal Importance criteria) as outlined in the HS2 Phase 2b Western Leg Information Paper E2: Ecology⁴⁵.

Protected species

- 4.10.18 In all locations where significant effects on protected species are identified, details will be discussed with Natural England or NatureScot as appropriate and licences will be obtained in compliance with all relevant legal requirements (fully supported by the required survey work).
- 4.10.19 Mitigation and compensation to address effects on legally protected species, where appropriate, will include translocation of species, the provision of replacement habitat and provision of special measures such as underpasses to facilitate the movement of species across the route.

River habitats

- 4.10.20 The draft CoCP includes a range of measures that will be taken to reduce the effects on river habitats. Where significant effects on river habitats will occur, measures will be taken to mitigate the effects, for example by providing an appropriate channel profile or reinstating vegetation after construction. Further information on the measures to be taken for river habitats and compliance with the Water Framework Directive are outlined in the HS2 Phase 2b Western Leg Information Paper E15: Water resources flood risk and authorisation of related works⁴⁶.
- 4.10.21 Further information on how the Western Leg Proposed Scheme will seek to manage ecological impacts is set out in the HS2 Phase 2b Western Leg Information Paper E2: Ecology⁴⁵.

4.11 Electromagnetic Interference

Consultation issues

- 4.11.1 Consultees raised concerns regarding the electromagnetic interference assessment presented in the working draft ES. The key issues include:

⁴⁵ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E2: Ecology*.

⁴⁶ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E15: Water resources flood risk and authorisation of related works*.

- impact on aviation systems as a result of any electromagnetic interference from the operation of the railway or its power and communication systems. This includes airport communication and navigation systems, and radio telescopes; and
- general impacts on telecommunications such as radio signals, Wi-Fi and mobile phones in the vicinity of the route of the Western Leg Proposed Scheme.

4.11.2 Consultees who raised these issues included: Manchester Airport, parish councils, resident associations, action groups, businesses and individuals.

Responses to consultation issues

Impacts on airports and radio telescopes

- 4.11.3 The EIA SMR sets out the scope and methodology of the EMI assessment. The assessment considered the primary sources of electromagnetic fields (EMF) and considered the risk of electromagnetic interference (EMI) and risk to human health during both the construction and operational phases of the Western Proposed Scheme. The assessment of impacts on specific receptors is detailed in Volume 3 and Volume 5 of the ES.
- 4.11.4 The assessment has identified a potential significant EMI risk at Pickmere Radio telescope and Manchester Airport due to their sensitive equipment or systems. HS2 Ltd is undertaking on-going engagement with the owners and operators of these facilities to establish the electromagnetic sensitivity levels and risk of EMI. Any appropriate mitigation measures will be identified during on-going engagement.

Impacts of the Western Leg Proposed Scheme on telecommunications

- 4.11.5 The Electromagnetic Compatibility Regulations 2016 requires that equipment shall be so designed and manufactured to ensure that the electromagnetic disturbance generated does not exceed the level above which radio and telecommunications equipment or other equipment can operate as intended. The Proposed Scheme will comply with the Electromagnetic Compatibility Regulations and BS EN 50121 series⁴⁷, which places limits on the maximum emissions at the railway boundary.

4.12 Health

Issues raised by consultees

- 4.12.1 A number of general issues were raised in relation to health effects on local residents from the full Phase 2b route. This section summarises those issues that apply to the general,

⁴⁷ British Standards Institution (2016, 2017), BS EN 50121:2017 series. (Railway applications - Electromagnetic Compatibility) Parts 1 to 5.

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route-wide approach or were raised in relation to the Western Leg Proposed Scheme. Any comments raised by stakeholders relating to the Eastern Leg scheme have been discounted from this report. The key issues include:

- stress and anxiety issues caused by the predicted effects of the scheme, or uncertainty about those effects, particularly relating to compensation payments;
- concern that older and vulnerable people will suffer health impacts disproportionately;
- health concerns relating to construction effects including dust, air emissions, noise and traffic congestion;
- access to, and impacts on, local healthcare services including hospitals and general practitioner (GP) services, particularly during construction; and
- concern that reduced access to, or quality of, green and open spaces will have an impact on mental health and well-being of local users.

4.12.2 Consultees who raised these issues included: Natural England, Public Health England, Canal & River Trust, National Trust, local authorities and individuals.

Responses to consultation issues

Impacts on mental health and wellbeing of individuals

4.12.3 The scope, assumptions and limitations for the health assessment are set out in the EIA SMR and note that the health assessment is based on a broad understanding of health, including physical, mental and social wellbeing, which is consistent with the World Health Organization (WHO) definition.

4.12.4 It is recognised that some individuals within local communities along the route of the Western Leg Proposed Scheme may experience adverse effects on their mental health and wellbeing and/or quality of life associated with issues such as impact on property values, compensation payments and the environmental and social impacts of the Western Leg Proposed Scheme.

4.12.5 The assessment of the effects of stress and uncertainty on mental health and wellbeing is reported in Volume 3 of the ES. HS2 Ltd has introduced an advocacy and support service, which will provide support to vulnerable people along the route, including assistance with compensation claims. Information can be found in the HS2 Ltd Residents' Charter and the HS2 Ltd Residents' Commissioner reports^{48, 49}.

⁴⁸ High Speed Two Ltd (2015), *HS2 Ltd Residents' Charter*. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/704895/CS959_Community_Engagement_Residents_Charter_26_4.pdf.

⁴⁹ High Speed Two Ltd (2015), *HS2 Ltd Residents' Commissioner*. Available online at: <https://www.gov.uk/government/collections/hs2-ltd-residents-commissioner>.

Impacts on older and vulnerable groups within the community

- 4.12.6 The EIA SMR identifies how vulnerable groups, including older people, are considered in the health assessment. The health assessment matrices included in Volume 5 of the ES identify specific groups who may be particularly affected by impacts on the health determinants included in the assessment. The EQIA accompanying the hybrid Bill provides a more detailed commentary of the potential differential and disproportionate effects on groups with protected characteristics, such as older people.

Health impacts arising from construction

- 4.12.7 The health assessment identifies the likely impacts during the construction stage on determinants of health such as the quality of the physical environment, including;
- impacts on noise, traffic and visual effects (termed 'neighbourhood quality');
 - impacts on social capital from the presence of the construction workforce;
 - impacts on community facilities and from residential property acquisitions; and
 - impacts on access to green space, recreation and physical activity, employment and economic impacts.
- 4.12.8 The air quality assessment set out in Volume 2, Section 5 of the ES identifies any potential impacts of the Western Leg Proposed Scheme on individual receptors. Whilst there may be impacts identified on air quality at certain receptor locations, the overall change in exposure to air pollutants in the population is anticipated to be extremely small. Effects on respiratory health associated with air emissions would not, therefore, be likely to occur and have been scoped out of the health assessment.
- 4.12.9 Section 15 of this report sets out further information on how the draft CoCP seeks to limit adverse health effects on local communities through reducing noise, dust and implementing traffic management measures.

Access to, and impacts on, healthcare and community facilities

- 4.12.10 Direct and indirect impacts on community facilities, including healthcare facilities, are reported in the community topic assessment in Volume 2 of the ES. Where these impacts are considered to lead to adverse health effects, these are assessed in the health topic assessment in Volume 2 of the ES.
- 4.12.11 HS2 Ltd will provide an occupational health service for its construction workforce. It is not expected that there will be any impact on local health services as a result of increased demand.

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- 4.12.12 Temporary or permanent alternative route provision will be made in advance of the planned closure of any road or PRoW with prior engagement with local stakeholders including healthcare and other community facilities.

Access to green space and open spaces

- 4.12.13 The route-wide commentary on health evidence base is reported in Volume 5 of the ES and presents evidence linking access to green space with mental and physical health outcomes.
- 4.12.14 An assessment of the effects of health and wellbeing associated with impacts on PRoW and greenspace access has been undertaken at a community area level for the Western Leg Proposed Scheme and is reported in Volume 2 of the ES.
- 4.12.15 As far as reasonably practicable, mitigation measures have been incorporated into the design of the Western Leg Proposed Scheme with the aim of avoiding or reducing adverse health effects. These proposed mitigation measures are outlined further in Volume 2 of the ES.

4.13 Historic environment

Consultation issues

- 4.13.1 A number of general issues were raised in relation to historic environment impacts from the full Phase 2b route. This section summarises those issues of relevance to the general route-wide approach or were raised in general to the Western Leg Proposed Scheme. Any comments raised by stakeholders relating to the Eastern Leg scheme have been discounted from this report. The key issues considered to be of concern include:
- incompleteness of baseline information regarding heritage assets and non-inclusion of information made available from stakeholders;
 - direct impacts on designated and non-designated heritage assets;
 - concern for effects on heritage assets due to change within their setting and suggested need for cross topic working with the landscape and visual assessment due to impacts on parkland such as Dunham Massey and Tatton Park;
 - importance of heritage assets to the community or region in which they are located;
 - concerns regarding disturbance of archaeological remains, including burial grounds, during construction, and the appropriate investigation of heritage assets; and
 - further information regarding the protection and investigation of any discovered heritage assets.
- 4.13.2 Consultees who raised these issues included: Historic England, National Trust, local authorities and their archaeological advisory services, heritage and local interest groups and individuals.

Responses to consultation issues

Baseline information regarding heritage assets

- 4.13.3 The baseline data used for the historic environment assessment has been collated and developed from data drawn from a variety of sources as set out in the EIA SMR. Data in respect of heritage assets has been collected from local historic environment records, Historic England data sets, historic mapping, archive data and site assessment.
- 4.13.4 The ES is accompanied by background information and data reports for the historic environment topic including a baseline report and detailed gazetteer of known heritage assets, a report on remote sensing (aerial photograph and LiDAR aerial survey), and a report on the results of any geophysical survey undertaken within the community area.
- 4.13.5 A summary of all heritage assets assessed within the historic environment assessment on a community area basis is included in Volume 5 (summary gazetteer) and a summary overview of those impacts for each community area is outlined in Volume 2 of the ES.

Impacts to designated and non-designated heritage assets

- 4.13.6 The design of the Western Leg Proposed Scheme has sought to avoid direct physical impacts on heritage assets as well as significant effects arising from development within the setting of heritage assets, as far as reasonably practicable.
- 4.13.7 Both direct physical impacts and impacts to heritage assets due to change within the setting of the asset has been considered in the assessment of historic environment effects. The impacts on individual heritage assets and effects resulting from change within an asset's setting are most appropriately assessed on a case-by-case basis and is reported in the relevant Community Area reports in Volume 2 of the ES. This includes mitigation embedded into the Western Leg Proposed Scheme and identification of additional mitigation, as appropriate.
- 4.13.8 The HS2 Phase 2b Western Leg draft Heritage Memorandum provides the Secretary of State's over-arching commitment to the historic environment and will set out how the historic environment (including heritage assets and their settings) will be given proper regard during the design and construction of Phase 2b of HS2. The Heritage Memorandum is one of the documents forming the HS2 Phase 2b Environmental Minimum Requirements and includes requirements for the nominated undertaker to implement the measures set out by it. The Heritage Memorandum provides a framework for the nominated undertaker and the relevant stakeholders to work together to ensure that the design and construction of the Western Leg Proposed Scheme is carried out with proper regard to the historic environment. It sets out objectives for the nominated undertaker in relation to consultation and engagement with the relevant stakeholders, investigation, recording and mitigation of direct impact on the historic environment and individual heritage assets, and arrangements

for obtaining agreement to work on designated heritage assets where heritage legislation has been disapplied by the hybrid Bill.

Community importance of heritage assets

- 4.13.9 The historic environment assessment recognises the importance of heritage assets (archaeological remains, built heritage and historic landscapes) to local communities. The assessment has been undertaken in accordance with the EIA SMR and takes account of the relevant best practice and guidance documents.

Impacts on archaeological remains

- 4.13.10 The HS2 Phase 2b Western Leg Information Paper E24: Archaeology⁵⁰, outlines the approach to assess and reduce as far as reasonably practicable the impact on archaeological remains that could result from construction works for the Western Leg Proposed Scheme.

Impacts on burial grounds

- 4.13.11 HS2 Ltd will reduce as far as reasonably practicable, the impact on burial grounds, human remains and associated monuments that could result from construction works for the Proposed Scheme.
- 4.13.12 All human remains affected will be treated with due dignity, care and respect. A 'Burial Grounds, Human Remains and Monuments Procedure' will be followed to implement the legal requirements of the hybrid Bill. The HS2 Phase 2b Western Leg Information Paper E25: Burial grounds⁵¹, outlines HS2 Ltd's approach to burial grounds and human remains.

Protection and investigation of the historic environment

- 4.13.13 The Heritage Memorandum sets out how the historic environment will be considered during the design and construction of the Western Leg Proposed Scheme. It will provide a framework for the continued engagement with Historic England, Historic Environment Scotland, local authority archaeology advisors and conservation officers and other relevant stakeholders, objectives and a framework for investigation, recording and mitigation of effects on heritage assets, including unexpected discoveries of national importance. It will also provide a framework for the disapplication of heritage legislation in relation to works affecting listed buildings, scheduled monuments, and human remains and burial monuments legislation.
- 4.13.14 The Heritage Memorandum includes requirements on the nominated undertaker to adopt and implement the Code of Construction Practice (CoCP). The draft CoCP (notably the section entitled 'Historic Environment') requires the nominated undertaker to ensure that the works are carried out in such a way as to ensure that disturbance to all heritage assets is

⁵⁰ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E24: Archaeology*.

⁵¹ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E25: Burial grounds*.

managed in accordance with accepted industry practice, and where disturbance cannot reasonably be avoided, is controlled and limited as far as reasonably practicable.

4.14 Land quality

Consultation issues

- 4.14.1 A number of general issues were raised in relation to the impacts on land quality with respect to the full Phase 2b route. This section summarises those issues of relevance to the general route-wide approach or were raised in general to the Western Leg Proposed Scheme. Any comments raised by stakeholders relating to the Eastern Leg scheme have been discounted from this report. The key issues considered to be of concern include:
- reassurance that local knowledge and engagement would inform the assessment;
 - the need to ensure a comprehensive listing of geoconservation sites, including SSSI and Local Geological Sites (LGS);
 - the need for a complete understanding of what contamination is in the ground;
 - the potential for disturbance of contaminated materials, including in old landfill sites, during construction, causing impacts to people's health; and
 - proposed methods of handling contaminated soils and other excavated materials.
- 4.14.2 Consultees who raised these issues included: local authorities, parish councils, residents' associations, commercial stakeholders and individuals.

Responses to consultation issues

Local knowledge and engagement

- 4.14.3 The land quality assessment has been informed by available historical, geological and environmental data and engagement with stakeholders including the Environment Agency, Natural England, Coal Authority, local authorities, geological trusts and other national and local organisations, as described the EIA SMR.
- 4.14.4 Based upon their local knowledge, consultees have identified in their responses a number of sites and receptors further to those identified within the working draft ES. These comprise a combination of:
- sites that have been assessed in full and were not described in detail within the working draft ES. Information on these sites is included in Volume 5 and the maps presented in the Volume 5: Land quality Map Book that accompany the ES;
 - sites that have been considered but have been screened out of further assessment due to their low likelihood of contamination, sensitivity, environmental setting, distance from the Proposed Scheme and/or the nature of works proposed in the area;
 - sites that are outside of the land quality study area; and

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- new sites that had not been identified as requiring assessment from the data inspected at the time of the working draft ES.

- 4.14.5 Following the working draft ES, sites raised by stakeholders that were not already scoped or screened out of the assessment were reviewed and considered as part of the ongoing assessment and scheme design.
- 4.14.6 Ground engineering and assessment of stability risks, such as suggested around salt mine areas on the Western Leg Proposed Scheme, are outside the scope of the ES and are considered within the engineering and design of the Western Leg Proposed Scheme, which will identify appropriate design and construction measures, as necessary.

Geoconservation sites

- 4.14.7 The land quality assessment considers the potential impacts of the Western Leg Proposed Scheme on designated geoconservation sites, including SSSI that are designated on the grounds of geology or geomorphology and LGS formerly designated as Regionally Important Geological Sites (RIGS). Assessment of the impacts on these sites as a result of the Western Leg Proposed Scheme and associated works has been carried out through consultation with Natural England, local authorities and local geological trusts.
- 4.14.8 Since the completion of the working draft ES, engagement with stakeholders has continued to ensure that all relevant sites have been identified for assessment.
- 4.14.9 The assessment study area has considered sites on or within 250m of the land required for the construction of the Western Leg Proposed Scheme, as defined as “the study area” in the EIA SMR report (Section 14).
- 4.14.10 The assessment of impacts on specific designated sites including any SSSIs or LGS is reported within Volume 2 of the ES.

Knowledge of contamination present

- 4.14.11 The land quality assessment has been carried out using available existing data on ground conditions and potentially contaminated sites, including landfill licence details and previous ground investigation information. Where site-specific information is not available, the assessment has been based upon reasonable worst-case assumptions, which are likely to be conservative. This precautionary basis has been used to identify the potential impacts and any mitigation measures that may be required.
- 4.14.12 Potential types of contamination that could be present have been identified based upon the indicated site histories of former and current potentially contaminative land uses. This has been informed by guidance documents such as CLR8⁵².

⁵² Department for Environment, Food and Rural Affairs and Environment Agency (2002), *Potential Contaminants for the Assessment of Land*. R&D Publication CLR8.

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- 4.14.13 Intrusive investigation of the ground to assess the potential for contamination and ground gas will be carried out prior to construction, with the results being used to inform more detailed studies, including risk assessments and remedial options appraisals. These will be used to ensure that the Western Leg Proposed Scheme and any necessary mitigation measures can be appropriately designed in accordance with the requirements of the CoCP.

Contaminated materials

- 4.14.14 The HS2 Phase 2b Western Leg Information Paper E18: Land quality (contamination)⁵³ outlines HS2 Ltd's approach to the assessment and treatment of contaminated land affected by the Western Leg Proposed Scheme.
- 4.14.15 Contaminated soils may be subject to mitigation and monitoring measures in order to protect the health of members of the public, the construction workforce and the wider environment, as outlined within the draft CoCP. Such mitigation will include measures to prevent members of the public and workers from being exposed to contamination or ground gas that may be disturbed by the works, for example through inhalation of dust, gas or vapours, or direct contact or ingestion of dust, soils or groundwater.
- 4.14.16 Following the submission of the ES, mitigation measures will be further developed on a site-specific basis. This will be through the completion of ground investigations, risk assessments and the preparation of remediation options appraisals and remediation strategies where appropriate. This is to ensure that mitigation measures are appropriate to the risks posed by the particular types and levels of contaminants present. The completion of these will be undertaken in accordance with the Environment Agency Land Contamination Risk Management (LCRM) framework⁵⁴, which replaces CLR11 Model Procedures for the Management of Land Contamination⁵⁵. The Sustainable Remediation Forum (SURF-UK) guidance⁵⁶ on the selection of sustainability indicators for mitigation and remediation measures will also be used.
- 4.14.17 The requirements for specific mitigation and/or remediation measures at each site will be included within and communicated through the HS2 Local Environmental Management Plans (LEMP), being developed for each local authority area along the Western Leg Proposed Scheme. The nominated undertaker and/or its contractors will engage with the local communities, local authorities and other stakeholders in order to develop the LEMP.

⁵³ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E18: Land quality (contamination)*.

⁵⁴ Environment Agency (2020), *Land Contamination Risk Management (LCRM)*.

⁵⁵ Environment Agency (2004), *CLR11 Model Procedures for the Management of Land Contamination*. Available online at: <http://webarchive.nationalarchives.gov.uk/20140328084622/http://cdn.environment-agency.gov.uk/scho0804bibr-e-e.pdf>.

⁵⁶ Sustainable Remediation Forum – UK (2017). Available online at: <https://www.claire.co.uk/projects-and-initiatives/surf-uk>.

4.14.18 The continued appropriateness of mitigation measures will be reviewed through validation and verification of the remedial mitigation approach.

Handling materials, including contaminated materials

4.14.19 The HS2 Phase 2b Western Leg Information Paper E17: Excavated material and waste management⁵⁷ outlines HS2 Ltd's approach to the management of material (including contaminated materials) excavated as part of the construction of the Western Leg Proposed Scheme.

4.14.20 Contaminated materials will be handled and controlled in line with the principles outlined within the draft CoCP. The draft CoCP sets out a series of objectives and measures in relation to contamination to be applied by the nominated undertaker and its contractors throughout the construction period:

- to provide effective management and control through construction to mitigate potential impacts upon people and the natural environment;
- to provide the mechanisms to engage with local communities and their representatives throughout the construction period; and
- to ensure that reasonably practicable measures are applied to the construction to ensure it is undertaken economically and meets the requirements of the hybrid Bill and its associated commitments.

4.14.21 Prior to proposed re-use of materials, testing and assessment will be carried out to demonstrate that they are both chemically and geotechnically suitable for their proposed use. As described in the draft CoCP, the re-use of materials would be subject to the requirements of either the CL:AIRE Definition of Waste code of practice⁵⁸, relevant environmental permit or exemption as appropriate.

4.14.22 The HS2 Phase 2b Western Leg Information Paper E19: Soil handling for land restoration⁵⁹ provides further information outlining how HS2 Ltd intends to conserve natural soils displaced by the construction of the Western Leg Proposed Scheme and subsequently use them for the restoration of land for agriculture, forestry, landscape planting and ecological habitat creation and translocation.

⁵⁷ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E17: Excavated material and waste management*.

⁵⁸ Department for Environment, Food and Rural Affairs and Environment Agency (2002), *Potential Contaminants for the Assessment of Land*. R&D Publication CLR8.

⁵⁹ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E19: Soil handling for land restoration*.

4.15 Landscape and visual

Consultation issues

- 4.15.1 A number of general issues were raised in relation to landscape and visual impacts from the full Phase 2b route. This section summarises those issues of relevance to the general route-wide approach or raised in reference to the Western Leg Proposed Scheme. Any comments raised by stakeholders relating to the Eastern Leg scheme have been discounted from this report. The key issues considered to be of concern include:
- queries regarding methodology used for assessing landscape and visual impacts, including the scope of assessment and baseline information;
 - the impact of the Western Leg Proposed Scheme on valued landscape and landscape character areas;
 - visual intrusion from the Western Leg Proposed Scheme on sensitive receptors, including heritage assets or community open spaces;
 - the importance of local landscape to communities;
 - the approach to design integration of the full Phase 2b route (including the Western Leg Proposed Scheme) with local landscape and reduce visual impact; and
 - requests for further landscape mitigation that takes into account local landscapes.
- 4.15.2 Consultees who raised these issues included: Natural England, National Trust, local authorities, parish councils, community and action groups and individuals.

Response to consultation issues

Methodology and scope of assessment

- 4.15.3 The methodology used for assessing landscape and visual effects is consistent with the Guidelines for Landscape and Visual Impact Assessment (GLVIA3)⁶⁰, which is the recognised industry standard for landscape and visual assessment in the UK.
- 4.15.4 As set out in the EIA SMR, the method for assessing landscape and visual effects includes baseline data collation, field surveys, assessment of key representative viewpoints, production of Zones of Theoretical Visibility (ZTV), production of verifiable photomontages from selected viewpoints and engagement with key stakeholders. In order for seasonal changes to be considered in the assessment, surveying activities have been carried out in both winter and summer. The assessment has considered the value, susceptibility and sensitivity of visual receptors and the surrounding landscape, the magnitude of the change and the significance of the effects.

⁶⁰ GVLIA (2013), *Guidelines for Landscape and Visual Impact Assessment (GLVIA3)*. Landscape Institute and the Institute of Environmental Management and Assessment, Routledge. ISBN: 978-0-415-68004-2.

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- 4.15.5 The baseline data and information collated has been gathered from a wide range of sources including published documents, such as local plans, character assessments and mapping, but also through site visits and consultation with stakeholders. The assessment also takes into account guidance within LA107 Landscape and Visual Effects⁶¹.
- 4.15.6 As set out in the EIA SMR, the landscape and visual assessment study areas have been divided into Landscape Character Areas (LCAs), each with broadly standardised characteristics. The approach used for this is consistent with that set out in Natural England as referenced in the EIA SMR; An Approach to Landscape Character Assessment⁶² and An Approach to Landscape Sensitivity Assessment – to inform spatial planning and lands management⁶³. The value of each of these LCAs has been considered individually with regard to designations and other locally valued landscape as indicated by local plans.

Landscape and visual impacts on sensitive receptors

- 4.15.7 As set out in the EIA SMR, a key principle is for the landscape baseline and the visual baseline to be first identified and understood before assessment takes place. The assessment of significant effects is a judgment based on a combination of receptor sensitivity and magnitude of change. Landscape sensitivity is the result of a combination of value and susceptibility. Statutory and non-statutory landscape designations as well as other landscape value indicators such as historic assets, ecological designations and recreational facilities, are taken into account in deciding the value of the landscape character area.
- 4.15.8 In order to assess the visual effects on sensitive visual receptors, representative viewpoints have been selected from a range of receptors groups and in consultation with stakeholders. Representative views from residential premises, historic environment assets and recreational resources, including community spaces and PRoW, have been included where appropriate and in accordance with the viewpoint selection criteria.
- 4.15.9 Volume 2 and Volume 5 of the ES detail the landscape and visual assessment undertaken at a community area level as well as providing a summary of engagement undertaken with local authorities around viewpoint locations and how this informed the assessment and the survey activities undertaken.

⁶¹ Highways England (2019), *Design Manual for Roads and Bridges (DMRB)*, Sustainability & Environmental Appraisal, LA107, Landscape and visual effects. Highways Agency, London. Available online at: <https://www.standardsforhighways.co.uk/dmrb/>.

⁶² Christine Tudor, Natural England (2014), *An Approach to Landscape Character Assessment*. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/691184/landscape-character-assessment.pdf.

⁶³ Christine Tudor, Natural England (2019), *An Approach to Landscape sensitivity assessment – to inform spatial planning and land management*. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/817928/landscape-sensitivity-assessment-2019.pdf.

Importance of local landscape to communities

- 4.15.10 As well as considering the physical characteristics of the landscape along the Western Leg Proposed Scheme, the landscape assessments also considered perceptual aspects including sense of place, local distinctiveness and cultural associations. These qualities contribute to the value and susceptibility, and therefore, sensitivity of a landscape including those which are important to local communities, but are absent of formal designations. The results from the landscape assessment have informed the community topic assessment as detailed in Volume 2 of the ES.

Landscape design of Western Leg Proposed Scheme to integrate with local landscape and reduce visual impact

- 4.15.11 As set out in the EIA SMR, the HS2 Landscape Design Approach⁶⁴ (LDA) is in accordance with the commitments that are embedded in the HS2 Sustainability Policy and the HS2 Environmental Policy. The design approach, therefore, takes into account the condition and value of the landscape as well as considering the local context.
- 4.15.12 The LDA is also based on the concept of a 'green corridor', which refers to HS2 Ltd's aim to deliver a network of 'green infrastructure' (i.e. high quality, multifunctional green space, both urban and rural), which is capable of providing a wide range of environmental and quality of life benefits for local communities. The concepts of green infrastructure and green corridors are described in the HS2 Phase 2b Western Leg Information Paper E28: The green corridor⁶⁵. This 'green corridor' approach accommodates sustainability benefits for landscape, ecology and people. It considers not only the land directly around the Western Leg Proposed Scheme but also any wider opportunities for mitigation beyond the route - a landscape scale response.
- 4.15.13 Where adverse effects to the landscape or on visual receptors have been assessed, the design of the Western Leg Proposed Scheme has looked to reduce these effects by integration of the Western Leg Proposed Scheme into the surrounding landscape.
- 4.15.14 The design approach has considered engineering requirements, environmental considerations and best practice. Landscape proposals incorporate mitigation measures for landscape, visual, community, noise, ecology, agriculture, cultural heritage and open space effects.

⁶⁴ High Speed Two Ltd (2016), *Landscape Design Approach*. Available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/550791/HS2_Landscape_Design_Approach_July_2016.pdf.

⁶⁵ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E28: The green corridor*.

Landscape and visual mitigation

- 4.15.15 Mitigation is identified in Volume 2 of the ES and visually depicted in the associated Volume 2 map books. The currently proposed landscape and visual mitigation is illustrated on the Map Series CT-06.
- 4.15.16 Detailed requests for mitigation from stakeholders and landowners have been considered and have informed the design of the Western Leg Proposed Scheme. Further consideration of mitigation requests will be given during the detailed design stage as to where mitigation planting can be established early in the construction programme to help achieve landscape integration or visual screening at an earlier time.
- 4.15.17 Where areas of planting are proposed as part of the Western Leg Proposed Scheme, these will be maintained in line with the HS2 Phase 2b Western Leg Information Paper E20: Maintenance of landscaped areas⁶⁶, which sets out expectations and maintenance periods for different types of landscaped areas.

4.16 Major accidents and disasters

Consultation issues

- 4.16.1 Consultees raised a number of issues relating to major accidents and disasters. The key issues include:
- inclusion within assessment of incidents caused by construction as well as impacts from existing hazards;
 - clarification on status of the Environmental Management System (EMS);
 - determination of the Bird Hazard Area surrounding the Manchester Airport site;
 - canal network and associated infrastructure to be considered as potential source of hazard;
 - nature and status of detailed disaster plans regarding derailments, air crashes and viaduct blockages and engagement with stakeholders to agree incident management contingency plans; and
 - uncertainties around evacuation procedures following a major incident due to traffic congestion associated with Western Leg Proposed Scheme.
- 4.16.2 Consultees who raised these issues include: Network Rail Infrastructure, Canal & River Trust, Manchester Airport, local authorities and individuals.

⁶⁶ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E20: Maintenance of landscaped areas*.

Responses to consultation issues

Impacts from existing hazards in the assessment

- 4.16.3 The methodology for the major accidents and disasters assessment has been undertaken as outlined in the EIA SMR, which will be published alongside the ES.
- 4.16.4 Baseline information, obtained through desk study, on features external to the Proposed Scheme which could contribute a potential source of hazard to the Proposed Scheme is captured within the assessment. Such features may include, but are not limited to, presence of Control of Major Accident Hazards (COMAH) sites, potentially hazardous ground conditions, and proximity to other infrastructure (road, rail, aviation, energy).

Environmental Management System (EMS)

- 4.16.5 The draft CoCP describes the control measures and standards to be implemented to protect communities and the environment during construction works. As part of this, the draft CoCP sets out the principles that form the basis of the EMS, including the roles and responsibilities, together with appropriate control measures and monitoring systems to be employed during planning and construction of the works for all relevant topic areas. The preparation and implementation of the EMS will be the responsibility of the nominated undertaker and lead contractors to implement.

Bird Hazard Areas

- 4.16.6 Determination of the Bird Hazard Area surrounding the site; A Wildlife Hazard Management Assessment, following the Civil Aviation Authority CAP 772 guidance, has been undertaken for Manchester Airport. The findings have been shared with Manchester Airport Group. Appropriate actions will be agreed to ensure any identified risks are managed to be as low as reasonably practicable.

Canal network and associated infrastructure to be considered as potential source of hazard

- 4.16.7 So far as is reasonably practicable, the route of the Western Leg Proposed Scheme avoids existing features that have the potential to present a hazard to the construction or operation of the Western Leg Proposed Scheme. However, where present, features, such as the canal network and other associated infrastructure, have been considered and addressed as appropriate throughout the design development.
- 4.16.8 The Construction Design Management (CDM) risk register forms the basis of risk event information feeding into the major accidents and disasters assessment. Any risks events associated with canals and associated infrastructure will be considered as part of this, and mitigated as low as reasonably practical (ALARP) as appropriate. In relation to the major

accidents and disasters assessment no risks specific to or from the canal network have arisen.

Nature and status of detailed disaster plans regarding derailments, air crashes and viaduct blockages and engagement with stakeholders to agree incident management plans

- 4.16.9 The major accidents and disasters assessment is reported in Volume 3 of the ES and considers, amongst others, risk events associated with derailment, proximity to airports, natural disasters and acts of terrorism and proposes appropriate mitigation/procedures to mitigate risk events to ALARP.
- 4.16.10 Incident management plans are to be developed and communicated early enough with relevant stakeholders to influence construction phase plans regarding locations of evacuation/emergency refuge areas which avoid designated environmental receptors, and early enough to influence detailed design.

Uncertainties around evacuation procedures following a major incident due to traffic congestion associated with Western Leg Proposed Scheme

- 4.16.11 Volume 2 and Volume 5 of the ES detail the findings of the traffic and transport assessment, including any significant effects associated with congestion caused by the Western Leg Proposed Scheme in community areas and identified appropriate mitigation.
- 4.16.12 During construction, there will be a comprehensive community emergency plan, where relevant, in place. This will ensure that in the case of a major emergency, when working in partnership with the relevant emergency services, the community will be kept fully informed and that adequate arrangements will be in place for the evacuation of an affected area if necessary.
- 4.16.13 Impacts upon emergency response/evacuation procedures associated with neighbouring hazardous sites has been considered as part of the major accidents and disasters assessment. The outputs of the traffic and transport assessment in respect to congestion is utilised as part of this. Risks will be managed through:
- consultation with the Health and Safety Executive, local authorities and utility providers to manage interfaces and define appropriate control measures;
 - early engagement with the emergency services and affected sites; and
 - appropriate diversions/alternative routes to be identified and agreed.
- 4.16.14 The draft CoCP outlines the route-wide, local area and site-specific traffic management measures to be implemented during the construction of the Western Leg Proposed Scheme

on or adjacent to public roads, bridleways, footpaths and other PRow affected by the Western Leg Proposed Scheme as necessary.

4.17 Planned development

Consultation issues

- 4.17.1 A number of issues were raised in relation to the impact of the full Phase 2b route on planned development. This section summarises those issues of relevance to the general route wide approach or that were raised in relation to the Western Leg Proposed Scheme. Any comments raised by stakeholders relating to the Eastern Leg scheme have been discounted from this report. The key issues considered to be of concern include:
- impacts on locations where there are consented plans for development;
 - impacts on land with development potential; and
 - blight impact on opportunities for business development and job opportunities.
- 4.17.2 Specific locations where issues have been raised around planned development, are addressed within sections 6 to 13 of this report.
- 4.17.3 Consultees who raised these issues included: local authorities, businesses, parish councils, developers and agents and individuals.

Impacts on land where there are consented plans for development

- 4.17.4 Committed development information (grants of planning permission and adopted land use allocations) was collated between 1 December 2015 and 30 November 2020 in accordance with defined scale and size parameters up to 2km from the Western Leg Proposed Scheme to inform the assessment. Where there are significant effects and cumulative effects related to these committed developments, these are reported in the Volume 2 of the ES.

Impacts on land with development potential

- 4.17.5 Only land which benefits from a grant of planning permission or has the benefit of a land use allocation in an adopted development plan is considered in the assessment. Pending applications and emerging land use allocations were collated up to 30 November 2020 but do not form part of the assessment. Land that does not have an associated consent or a land use allocation is assessed as per its current or last active use.

Blight impact on opportunities for business development and job opportunities

- 4.17.6 Issues relating to compensation and property blight are beyond the scope of the ES. Information on blight can be found at the [gov.uk/hs2](https://www.gov.uk/hs2) website.

4.18 Socio-economics

Consultation issues

- 4.18.1 A number of issues were raised in relation to the socio-economic impacts from the full Phase 2b route. This section summarises those issues of relevance to the general route wide approach or were raised in general to the Western Leg Proposed Scheme. Any comments raised by stakeholders relating to the Eastern Leg scheme have been discounted from this report. The key issues considered to be of concern include:
- loss of jobs within the local communities as a result of construction and operation impacts, including impacts to commercial premises;
 - limited clarity for businesses around the timeline of impacts and their opportunity to manage impacts to business operations or to relocate businesses;
 - opportunities for HS2 Ltd to provide job opportunities and boost local economies; and
 - impact on commercial operations such as commercial freight and recreational based businesses associated with navigable canals and waterways.
- 4.18.2 Consultees who raised these issues included: National Trust, Canal & River Trust, local authorities, parish councils, action groups, businesses and individuals.

Responses to consultation issues

Loss of jobs

- 4.18.3 The Government is working to ensure HS2 Ltd supports the ambitions for Northern Powerhouse and is working with local authorities across the UK to develop growth strategies to ensure the benefits of high speed rail are fully realised in local areas, including through the development of new job opportunities.
- 4.18.4 Engagement is ongoing with potentially impacted businesses and owners of commercial properties along the route of the Western Leg Proposed Scheme, to mitigate potential impacts and allow for continuity of business operations, where possible.

Limited clarity for businesses around the timeline of impacts or opportunities for relocation

- 4.18.5 HS2 Ltd recognises that the construction of the Western Leg Proposed Scheme will be disruptive to many communities and businesses. It has endeavoured to reduce these impacts through the design and construction approach adopted for the Western Leg Proposed Scheme.
- 4.18.6 An indicative construction programme for each community area was published in the working draft ES and has now been updated and included in the Volume 2 Community Area

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report of the ES. A programme of engagement with those that are impacted by the Western Leg Proposed Scheme will continue.

- 4.18.7 The nominated undertaker and its contractors will ensure that businesses affected by the proposed construction works, as outlined in the ES, will be informed in advance of works taking place by methods identified in the Community Engagement Framework⁶⁷. This Framework sets out how HS2 Ltd and its contractors, as well as their sub-contractors, will undertake engagement during the construction of the HS2 project, including to provide accurate and timely information about construction works and offering opportunities to influence them, where appropriate. The notifications will detail the estimated duration of the works, the working hours and the nature of the works. In the case of works required in response to an emergency, the local authority, parish council, local residents, businesses and community resources will be advised as soon as reasonably practicable. Information on the works will also be available on the HS2 Ltd website and at appropriate locations along the route.
- 4.18.8 Where businesses are displaced by the Western Leg Proposed Scheme they will be eligible for compensation in accordance with the existing statutory compensation arrangements. More information can be found in the HS2 Phase 2b Western Leg Information Paper C8: Compensation code for compulsory purchase⁶⁸.
- 4.18.9 HS2 Ltd recognises the importance of displaced businesses being able to relocate to suitable alternative premises and will offer additional support to facilitate this.
- 4.18.10 Further information on how HS2 Ltd seeks to assist businesses which are impacted by the Western Leg Proposed Scheme is set out in HS2 Phase 2b Western Leg Information Paper C7: Business relocation⁶⁹.

Recognition of the growth opportunities that the Proposed Scheme can provide to communities

- 4.18.11 Across all phases of the project, HS2 will support over 34,000 jobs to build the railway and 6,000 to operate it once finished. More than 70% of the jobs will be outside London and at least 2,000 new apprenticeships will be created.
- 4.18.12 At its peak, the construction of the Western Leg Proposed Scheme is expected to support over 17,500 jobs in 2029/30 and at least 1,000 apprenticeships will be created on the full

⁶⁷ High Speed Two Ltd (2017), *Community Engagement Framework*. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/625971/hs2_community_engagement_framework.pdf.

⁶⁸ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper C8: Compensation code for compulsory purchase*.

⁶⁹ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper C7: Business relocation*.

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Phase 2b scheme⁷⁰. Overall, it is estimated that the construction phase will generate 87,000 person years of construction employment opportunities⁷¹ (equivalent to 8,800 full time construction jobs⁷²).

- 4.18.13 HS2 Ltd has also established a Business and Local Economy fund, described further within the HS2 Ltd Phase 2b Western Leg Information Paper C11: The Community and Environment Fund and Business and Local Economy Fund⁷³. The fund can support schemes to improve the local public realm, increase footfall and boost tourism including:
- improved the local public realm, especially in retail and tourist areas;
 - improved local cycling and pedestrian access to local economic centres;
 - general promotional activity for local economic benefit;
 - creating and running events that increase footfall or promote business activity during seasonal periods (for example, farmers markets);
 - employment and job creation schemes;
 - town/village discount cards to retain spend in local areas; and
 - projects that aim to increase tourist visits to an area.
- 4.18.14 To help spread the benefits of the project, HS2 Ltd has a target for 60% of its supply chain, (by number), to be with Small and Medium-sized Enterprises (SMEs). HS2 Ltd's Meet The Contractor events link its main contractors with potential subcontractors as well as mandates the use of CompeteFor⁷⁴, a subcontractor opportunities portal which highlight opportunities on the programme. As at Spring 2021 over 70% of HS2 Ltd contracts are with SMEs. For further information please visit <https://www.hs2.org.uk/building-hs2/supply-chain/>.

Impact on commercial operations associated with navigable canals and waterways

- 4.18.15 The evolving scheme design has sought to reduce impacts to the canals and waterways, including for commercial operations. Volume 2 and Volume 5 of the ES detail the assessment of impacts and identified mitigation. Engagement is ongoing with the Canal &

⁷⁰ High Speed Two Ltd (2021), *HS2 labour and skills demand and supply forecasting and analysis July 2021*. Available online at: https://assets.hs2.org.uk/wp-content/uploads/2021/08/HS2_LSF-report_clean_V2-0508.pdf.

⁷¹ Construction labour is reported in construction person years, where one construction person year represents the work done by one person in a year composed of a standard number of working days.

⁷² Based on the total construction person years generated by the Proposed Scheme and a ratio of 10 construction person years to one full time permanent job.

⁷³ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper C11: The Community and Environment Fund and Business and Local Economy Fund*.

⁷⁴ HS2 official Partner to CompeteFor. Available online at: <https://www.competefor.com/hs2/>.

River Trust, business associations and individual businesses who use the canal and waterways.

4.19 Sound, noise and vibration

Consultation issues

- 4.19.1 A number of general issues were raised in relation to sound, noise and vibration impacts on residents, community facilities, places of worship and businesses from the full Phase 2b route. This section summarises those issues of relevance to the general route wide approach or that were raised in general to the Western Leg Proposed Scheme. Any comments raised by stakeholders relating to the Eastern Leg scheme have been discounted from this report. The key issues considered to be of concern include:
- noise disturbance associated with the Western Leg Proposed Scheme, in particular arising from construction activity;
 - health effects attributable to exposure to railway operational noise including mental health issues;
 - appropriate and adequate provision for noise mitigation, such as noise barriers and noise insulation (including accurate description of noise barriers);
 - approach to identifying mitigation for residents, including vulnerable residents and community facilities; and
 - noise impacts on livestock and equine facilities.
- 4.19.2 Consultees who raised these issues included: Natural England, National Farmers Union, National Trust, Inland Waterways Association, local authorities and individuals.

Responses to consultation issues

Noise disturbance during construction

- 4.19.3 A detailed assessment of sound, noise and vibration during both construction and operation of the Western Leg Proposed Scheme has been undertaken at assessment locations representative of all residential and non-residential sensitive receptors, where sound or vibration levels from the Western Leg Proposed Scheme are forecast to give rise to potential impact.
- 4.19.4 The outcomes of the assessment are reported for each community area in Volume 2 of the ES. The specific assessment locations have been identified using technical judgement, in response to issues raised by stakeholders and the spatial and temporal scope identified in the EIA SMR.

Controlling noise during construction

- 4.19.5 Noise and vibration effects from construction activities will be confined to local areas in the vicinity of construction sites. Construction noise and vibration effects have been assessed on a local basis and are described for each community area within Volume 2 of the ES.
- 4.19.6 The measures that will be put in place to control construction noise and vibration are set out in the draft CoCP with additional measures identified in HS2 Phase 2b Western Leg Information Paper E13: Control of construction noise and vibration⁷⁵. Site specific details of how potential construction related impacts will be managed (such as noise and dust) will be a matter for the LEMP, which will be developed during the Parliamentary process and detailed design stage, in consultation with the relevant stakeholders.

Operational noise impacts and Health impacts

- 4.19.7 For operational noise, as required by statute, noise insulation measures will be offered for qualifying buildings as defined in the Noise Insulation (Railways and Other Guided Transport Systems) Regulations 1996 and the Noise Insulation Regulations 1975 ('the NI Regulations'). Additionally, HS2 Ltd will apply criteria, to provide the same mitigation as defined in 'the NI Regulations' at residential buildings where noise from the use of the Western Leg Proposed Scheme measured outside a dwelling exceeds the Interim Target defined by the WHO Night Noise Guidelines for Europe⁷⁶.
- 4.19.8 The assessment considers the impact of noise on health and wellbeing, specifically, the effect of excessive noise as a contributory factor to sleep disturbance, annoyance and cardiovascular effects. Volume 2 of the ES details the assessment of noise effects on a range of receptors and will identify mitigation to reduce noise levels and thereby reduce effects on these health and wellbeing determinants. The overall health impact burden of the operation of the Western Leg Proposed Scheme is presented in Volume 3 of the ES.

Acoustic screening and mitigation, including noise barriers

- 4.19.9 The development of the Western Leg Proposed Scheme has sought to reduce noise impact as far as reasonably practicable. The Western Leg Proposed Scheme incorporates noise barriers, in the form of either landscape earthworks and/or noise fence barriers to avoid or

⁷⁵ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E13: Control of construction noise and vibration*.

⁷⁶ World Health Organization (2010), *Night-time Noise guidelines for Europe*. Available online at: http://www.euro.who.int/_data/assets/pdf_file/0017/43316/E92845.pdf. The maximum noise level criteria is defined in the Scope and Methodology Report. Noise insulation is designed to avoid residents experiencing any residual significant effect on health and quality of life from resulting noise inside their dwelling.

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reduce significant adverse airborne noise effects, as required by the EIA SMR and HS2 Phase 2b Western Leg Information Papers⁷⁷.

- 4.19.10 Mitigation has also been embedded in the scheme design through the use of noise bunds or noise fencing, to reduce residual noise effects in specific locations. Additionally, noise effects will be reduced at many locations along the route by engineering structures, such as cuttings, and by landscape earthworks.
- 4.19.11 The extents and heights of noise barriers (bund and fences) are designed to reduce noise effects taking into account considerations such as the benefit of the barrier, its cost; engineering practicability; and other potential impacts such as visual intrusion. The acoustic screening and mitigation to be included in the Western Leg Proposed Scheme is identified in Volume 2 of the ES.
- 4.19.12 The working draft ES was published at an early stage of design and since this time, further information around the construction of the Western Leg Proposed Scheme has allowed mitigation to be refined and a more detailed description of noise barriers to be included in the ES. Volume 2 of the ES sets out indicative locations and heights of noise barriers to mitigate noise effects on communities and other sensitive receptors.
- 4.19.13 To perform its mitigation function, a noise barrier needs to have sufficient mass to prevent any noticeable noise going 'through' the barrier, and appropriate acoustic absorption on the inner face of the barrier to reduce reflections between the train and the barrier. The exact form and design of noise barriers may vary in different locations along the route of the Western Leg Proposed Scheme, however, they will all provide these two essential design features.
- 4.19.14 The noise barriers included in the Western Leg Proposed Scheme are shown on the CT-06 maps published as part of the ES, accompanying the hybrid Bill.

Noise mitigation for residential and community receptors

- 4.19.15 The sound, noise and vibration assessment outlined in Volume 2 of the ES identifies the likely significant effects of the Western Leg Proposed Scheme on residential properties and non-residential properties. Non-residential properties include community facilities such as schools and hospitals as well as commercial properties such as hotels. Mitigation of likely significant adverse noise or vibration effects has, where practicable, been incorporated into the Western Leg Proposed Scheme in the following order since they will reduce effects on the environment as a whole as well as inside residential and non-residential properties:

⁷⁷ Specifically, High Speed Two Ltd (2021), *Phase 2b Western Leg Information Papers: E9: Control of airborne noise from altered roads and the operational railway, E10: Control of ground-borne noise and vibration from the operation of temporary and permanent railways and E11: Control of noise from the operation of stationary systems.*

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- through alignment design: that is, keeping the railway as far from as many sensitive receptors as possible (whilst taking into account other environmental impacts and engineering considerations);
- at source: the project has the opportunity to design and specify a complete railway system including quieter trains, track and their maintenance to reduce noise emission, or the selection of quieter construction methods or processes, or avoiding more sensitive times of the day;
- by noise barriers: delivered, for example, as fence barriers or constructed cuttings using landscape earthworks, or the use of stockpiles or site accommodation during construction; and
- then by reducing noise entering property.

4.19.16 Where mitigation is required to reduce noise entering a property, this will take the form of a noise insulation package, or additionally during construction this may include temporary rehousing.

4.19.17 Buildings qualifying for noise insulation or residents qualifying for temporary re-housing during the construction phase will be identified in advance, to enable the installation of noise insulation or to facilitate the provision of temporary re-housing, before the start of the construction works predicted to exceed noise insulation or temporary re-housing criteria.

4.19.18 Where noise insulation is predicted to be required to avoid a significant adverse effect on a dwelling caused by operational noise, this will be confirmed and installed after the Western Leg Proposed Scheme comes into operation.

Noise impacts on livestock and equine facilities

4.19.19 Noise impacts on livestock has been assessed and is included in Volume 2 and Volume 5 of the ES. The report on which these criteria are based can be found at: High Speed Two Ltd (2017), Noise effects on Livestock (Issue 2)⁷⁸.

4.20 Traffic and transport

Consultation issues

4.20.1 A number of general issues were raised in relation to the impact on traffic and transport from the full Phase 2b route. This section summarises those issues of relevance to the general route-wide approach or were raised in general to the Western Leg Proposed Scheme. Any comments raised by stakeholders relating to the Eastern Leg scheme have been discounted from this report. The key issues considered to be of concern include:

⁷⁸ High Speed Two Ltd (2017), *Phase One: Noise effects on Livestock (Issue 2)*. Available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/590162/Noise_Effects_on_Livestock.pdf.

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- road diversions and road closures during construction and/or operation causing severance and delays to journeys on local roads;
- road diversions and road closures during construction and/or operation impacting access to key community facilities, e.g. schools, workplaces, medical facilities and leisure and recreation areas;
- concerns about the volume of construction traffic using local roads and travelling through local communities and the duration of this impact;
- concerns regarding construction traffic, diversions and road closures causing congestion and delays to journeys;
- long traffic diversions being put in place for long periods of time causing community severance;
- safety concerns during construction for motorised and non-motorised road users sharing roads with construction vehicles;
- road closures impacting key emergency service routes;
- impacts during construction to navigation on rivers and canals;
- request for key stakeholder engagement activities to further identify appropriate mitigation and share evolving construction traffic volumes in the preparation of the ES; and
- ability for HS2 to support local and regional transport strategies including cycling and walking infrastructure and improved community connectivity.

4.20.2 Consultees who raised these issues included: Highways England, Public Health England, Ramblers Association, local walking and cycling clubs, residents' associations, community and action groups, local highway authorities, parish councils and individuals.

Responses to consultation issues

4.20.3 The Western Leg Proposed Scheme will seek to avoid adverse traffic and transport effects, as far as reasonably practicable. The traffic and transport significant effects are detailed in Volume 2 of the ES. A Transport Assessment (TA) has been undertaken to assess the traffic and transport impacts on all highways, PRoW and public transport routes, services and interchanges, including increases in traffic and potential highway diversions. The TA is reported in the Volume 5 appendix of the ES.

Engagement to support traffic and transport assessment

4.20.4 The scope of the TA was set out originally in the TA Scoping Report, which was issued to stakeholders and presented at Transport-focused stakeholder workshops in September 2017.

4.20.5 As described in Section 4.3 of this report, the EIA SMR was published for consultation for a period of approximately 10 weeks from 17 July to 29 September 2017, with the feedback

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from this consultation summarised in the EIA SMR Consultation Report Summary (CSR), which was published in October 2018. Key traffic and transport themes presented in the EIA SMR CSR include: baseline information; assessment methodology; the assessment of impacts on PRow, navigable waterways and highway safety; the assessment and mitigation of construction traffic impacts on the road network and general connectivity of the Proposed Scheme to other modes of transport. Responses to this consultation have been considered in preparing the EIA SMR (published as part of the ES), the ES and the TA.

- 4.20.6 No further specific consultation has been held with stakeholders on the Transport Assessment section of the EIA SMR and, following the publication of the EIA SMR CSR, there have been no notable alterations to the traffic and transport sections of it. However, the construction phasing has become more defined, which has enabled the implications of constructing HS2 and associated temporary and permanent mitigation measures to be given more detailed consideration. Ongoing engagement with stakeholders on a range of topics related to traffic and transport has continued to inform the design and assessment of the Western Leg Proposed Scheme.

Road diversions and closures causing congestion and delays

- 4.20.7 The design of the Western Leg Proposed Scheme seeks to maintain existing pedestrian, cycle and vehicular access on roads and PRow as far as reasonably practicable during construction and operation.
- 4.20.8 The design of the Western Leg Proposed Scheme has sought to reduce the need for diversions and closures, with offline construction, time-restricted closures and realignments of roads and PRow sympathetic to local users and residents. Where such diversions and closures cannot be avoided, it is recognised that these may affect local communities.
- 4.20.9 HS2 Ltd has sought to ensure that new highways (roads and PRow) will be constructed and will be operational prior to the permanent closure of any existing highways, insofar as reasonably practicable. The majority of roads crossing the route of the Western Leg Proposed Scheme will be maintained or locally diverted during construction to limit the need for diversion of traffic onto alternative routes. Traffic management measures will be implemented to limit any disruption.
- 4.20.10 Road closures will be restricted to overnight and weekends, insofar as reasonably practicable. Where reasonably practicable, existing pedestrian, cycle and public transport links between communities and their local facilities, amenities and countryside will be maintained.
- 4.20.11 HS2 Ltd will seek to avoid congestion and delays during construction insofar as reasonably practicable through traffic management measures and controls and potentially temporary physical changes to the road network. Any temporary changes to the road and PRow networks during construction of the Western Leg Proposed Scheme will be discussed with

the relevant highway authority and permanent alterations have been designed to blend into their surroundings as far as reasonably practicable.

Vulnerable road users

- 4.20.12 HS2 Ltd has sought to maintain access to community facilities as far as reasonably practicable. HS2 Ltd will seek to provide a temporary or permanent alternative route in advance of a closure of a road or PRoW or disruption to an access. If a temporary or permanent alternative route cannot be provided in advance of any disruption, then this will be discussed with the relevant local authority and local groups.
- 4.20.13 HS2 Ltd has sought to avoid traffic and transport effects on all vulnerable users which include pedestrians, cyclists and equestrians. The assessment has included the effects of the Western Leg Proposed Scheme on vulnerable road users and users of PRoW due to increased traffic, severance caused by extending travel distances or broken links and changes to amenity and ambience. It has also assessed impacts and effects on the public transport network. Effects on sensitive receptors have been captured by other topic areas including air quality, sound, noise and vibration and community.

Community severance

- 4.20.14 The Western Leg Proposed Scheme has been designed with the aim of minimising the effect of severance on local communities, particularly with regard to the re-design or replacement of roads and PRoW. Where reasonably practicable, existing pedestrian, cycle and public transport links between communities and their local facilities, amenities and countryside have been maintained.

Construction traffic impact

- 4.20.15 Where reasonably practicable, site haul routes will be created adjacent to the route of the Western Leg Proposed Scheme to transport construction materials and equipment to reduce HGV movements on public roads with access taken via the main road network. Public roads are only proposed for use where the nominated undertaker is unable to use internal site haul routes due to the presence of blockers (i.e. rivers, canals or man-made infrastructure) or the nature of the movements (i.e. import of material or transfer of plant and equipment).
- 4.20.16 HGV will be routed, insofar as reasonably practicable, along the strategic and/or primary road network.
- 4.20.17 The use of the local road network has been, insofar as reasonably practicable, limited to use for site set-up, access for surveys and on-going servicing (including refuse collection and general deliveries to compounds) during construction.
- 4.20.18 Highway measures including junction improvements, passing places and carriageway widening have been provided, as required, to manage the safe and efficient movement of vehicles on construction HGV routes.

- 4.20.19 On-site welfare facilities will be provided, which will reduce off-site travel by site workers.

Supporting local and regional transport strategies including cycling and walking infrastructure and improved community connectivity

- 4.20.20 The design of cycling infrastructure has been informed by relevant advice and guidance published by the Department for Transport, Highways England and Transport Scotland, as appropriate. Due regard has also been given to the applicable aspects of other advice and guidance, in relation to urban roads, and other relevant standards or guidance as appropriate.
- 4.20.21 HS2 Ltd has sought to ensure that alternative PRoW routes will be constructed and will be operational prior to the permanent closure of any existing PRoW routes, insofar as reasonably practicable.
- 4.20.22 Temporary alternative routes for PRoW will be provided during construction, insofar as reasonably practicable, where either the existing or final proposed route is not available.

Impacts to navigation on rivers and canals

- 4.20.23 As described in the EIA SMR, HS2 has taken into consideration the Canal & River Trust document Code for Practice Works Affecting the Canal & River Trust⁷⁹. This document identifies the requirements that need to be followed in relation to any works affecting the navigation of canals including the provision that generally no stoppages are allowable, except for technical reasons. In the ES, a significant stoppage is defined as six weeks of unbroken navigation stoppage.
- 4.20.24 The Volume 2 Community Area reports include an assessment of effects at a local level on the navigable waterways in each community area for construction and operation of the Western Leg Proposed Scheme.
- 4.20.25 No significant effects have been found to river and canal navigation associated with impacts from the Western Leg Proposed Scheme and no significant stoppages have been identified. Engagement will continue with stakeholders including the Canal & River Trust relating to canals and waterways along the route of the Western Leg Proposed Scheme.

Safety concerns for motorised and non-motorised road users during construction

- 4.20.26 The development of the Western Leg Proposed Scheme has involved a detailed assessment of the construction routes required to support its construction. Where reasonably practicable, HS2 Ltd has sought to utilise the strategic road network and local 'A' roads for

⁷⁹ Canal & River Trust (2017), *Code for Practice Works Affecting the Canal & River Trust*.

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construction traffic. The use of borrow pits will also reduce HGV movements on the highway network. Reducing the number of HGV also reduces the need to widen roads and improve junctions, further reducing environmental impacts.

- 4.20.27 Prior to the commencement of the works, the nominated undertaker will ensure that a route-wide traffic management plan (RTMP) is produced in consultation with the highway and transport authorities and the emergency services and other relevant key stakeholders.
- 4.20.28 The draft CoCP requires contractors to produce local traffic management plans including measures to address road safety and reduce the risks to non-motorised users from construction vehicles on the roads. Contractors will be required to gain accreditation from the Fleet Operator Recognition Scheme (FORS), or equivalent, in order to demonstrate that all drivers have appropriate training in pedestrian, equestrian and cycle awareness and specific issues relating to driving on rural roads.
- 4.20.29 Further details on management of construction routes, the RTMP and local traffic management plans is provided in Section 15 of this report and is included in the draft CoCP.
- 4.20.30 Issues raised by consultees in relation to specific roads and impacts on PRoW's have been addressed in the community area sections of this report, sections 6 to 13.

Impacts on key emergency service routes

- 4.20.31 In development of the Western Leg Proposed Scheme, engagement has been offered to blue light emergency service stakeholders including fire and rescue, police force and ambulance service providers, with meetings undertaken to share information on the design. This has included design review meetings to present design detail on fire engineering and safety design aspects.
- 4.20.32 Engagement will continue with these stakeholders as the project progresses, including consultation to support the development of local traffic management plans prior to construction starting.
- 4.20.33 Engagement is ongoing with emergency services to discuss the Western Leg Proposed Scheme, including construction routes and any measures that need to be undertaken to ensure the continuity of such services to local communities.

4.21 Waste and material resources

Consultation issues

- 4.21.1 A number of general issues were raised in relation to the waste and material resource assessment of the full Phase 2b route. This section summarises those issues of relevance to the general route wide approach to this assessment or those that were raised in general to the Western Leg Proposed Scheme. Any impacts raised by stakeholders that were found to be relating only to the Eastern Leg scheme have been discounted from this report.

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4.21.2 The key issues considered to be of concern include:

- concern for significance in total volume of material to be taken to landfill from the full Phase 2b scheme and request for further information around where surplus waste material will be taken;
- uncertainty around the balance of cut and fill as well as the transport implications of exporting and importing materials;
- lack of information around quantities and type of waste to be generated at a sub-regional level to allow waste management authorities to consider capacity for accommodating waste that requires disposal to landfill;
- request for further information around the proposal for disposal of waste products generated by activities during operation, including toilet disposal and washing and maintenance of rolling stock;
- query around screening of waste management contractors as well as ongoing monitoring of contractor performance and compliance with environment permits; and
- request for further liaison with local authorities to support baseline information collation and to inform the EIA.

4.21.3 Consultees who raised these issues included: Environment Agency, Canal & River Trust, Stop HS2, local authorities and individuals.

Responses to consultation issues

Significance in total volume of material to be taken to landfill, and where waste would be taken

4.21.4 Volume 3 of the ES provides a detailed route-wide assessment of the likely significant environmental effects associated with the off-site disposal to landfill of solid waste that will be generated by the construction and operation of the Western Leg Proposed Scheme. This assessment has been undertaken in accordance with the inert, non-hazardous, and hazardous landfill significance criteria reported in Volume 1, Section 8, and the EIA SMR. These criteria are predicated on the difficulty and complexity of replacing lost landfill capacity rather than focusing on the percentage of available capacity forecast to be occupied.

4.21.5 The primary study area for the route-wide waste and material resources assessment has been defined as the North West England region. This comprises the waste planning authorities of Cheshire East, Cheshire West and Chester and Greater Manchester Combined Authority (and its constituent authorities) through which the route of the Western Leg Proposed Scheme will pass, but also Cumbria County Council, Lancashire County Council

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and Merseyside (as there is often a need to manage waste outside of the immediate administrative area in which it is generated)⁸⁰.

- 4.21.6 Whilst the North West region represents the administrative area within which the majority of waste streams are likely to be managed, access to the conventional rail network may enable material to be transported off-site for disposal by rail. This would significantly extend the distance that the material can be practicably transported for disposal, and increase the ease with which the material can be sent for disposal in neighbouring regions, thereby mitigating the reduction in available landfill capacity in the North West region.

Balance of cut and fill quantities, and transport implications of materials import and export

- 4.21.7 Volume 3 of the ES presents a route-wide summary of the forecast excavated material quantities for the Western Leg Proposed Scheme. This is based on the calculated figures for the integrated earthworks design and reflects the balance of excavated material arising from the Western Leg Proposed Scheme design.
- 4.21.8 Excavated material will be used to satisfy the fill material requirements of the Western Leg Proposed Scheme wherever reasonably practicable, thereby reducing the need for imported materials and reducing the amount of excavated material requiring off-site disposal.
- 4.21.9 The nominated undertaker has an ambition to seek beneficial opportunities for the off-site reuse of surplus excavated material. However, it is difficult to make firm commitments for the reuse of surplus excavated material in third party schemes, due both to the uncertainties of those schemes and in the scope and programme of the earthwork activities of the Western Leg Proposed Scheme. It has therefore been assumed as a worst-case scenario that all surplus excavated material will be disposed off-site to landfill.
- 4.21.10 The waste and material resources assessment does not consider the direct and indirect effects of materials-related transport. The transport implications of exporting and importing materials is considered as part of the traffic and transport assessment in Volume 2, Community Area reports, Section 14.

Sub-regional breakdown of waste types and quantities

- 4.21.11 The waste and material resources assessment, presented in Volume 3 of the ES, has been undertaken on a route-wide and not a community area basis. Waste is often transferred across waste planning authority boundaries for treatment and disposal according to the type of waste and the nature of the waste management facility required. Therefore, to

⁸⁰ In addition to the primary study area for the route-wide assessment, the study area for the off-route works also considers the North West England region (Preston City Council, Cumbria County Council) and Scotland (Dumfries and Galloway Council). The remoteness of some of the off-route locations from the route-wide works, also means that in some cases they are located in regional areas through which the route of the Proposed Scheme does not pass. It is considered as a reasonable assumption, that the waste would generally be managed within the region in which it is generated.

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reflect this broader county and regional based approach to waste planning and management the assessment has been undertaken on a route-wide basis.

- 4.21.12 Notwithstanding, Volume 5: Appendix WM-001-00000 provides more detailed information at the sub-regional level. Section 2 of the aforementioned report provides detailed information concerning the environmental baseline, namely: the types, quantities and management routes of waste generated locally along the route of the Western Leg Proposed Scheme; and local waste infrastructure capacity baseline data. Sections 3 to 18 of this report provide supporting information on specific community areas and off-route works locations, and comprise: forecast waste and material quantities from the construction and operation of Western Leg Proposed Scheme.
- 4.21.13 Volume 5: Appendix WM-001-00000 also includes three annexes which set out summary reporting tables for excavated material, demolition materials and waste, construction waste, worker accommodation site waste and operational waste. The information provided in this report should be sufficient to allow the waste planning authorities to consider capacity for accommodating waste that requires disposal to landfill in their respective areas.

Further information around the proposal for disposal of liquid operational wastes

- 4.21.14 Volume 3 of the ES considers the effects associated with the off-site disposal to landfill of solid waste during the operation of the Western Leg Proposed Scheme. Liquid wastes, from flushing toilets and washing and maintenance of rolling stock, are not considered as part of the waste and material resources assessment and have, therefore, been scoped out of the assessment. Effects related to pollution risk and water quality are assessed in the Volume 2 of the ES, Community Area reports, Section 15, Water resources and flood risk.
- 4.21.15 During operation, waste from passenger trains, rolling stock depots and infrastructure maintenance base will be managed in accordance with the waste hierarchy by the train operating company (or its fleet maintenance contractor in the case of rolling stock maintenance waste). Waste generated by track maintenance and other ancillary infrastructure will also be managed in accordance with the waste hierarchy by Network Rail and/or the train operating company.
- 4.21.16 Discharge water from passenger train toilets and sanitary systems will be made to the foul sewer, at terminus stations or rolling stock maintenance depots. Washing and maintenance of rolling stock will be undertaken, by the train operating company, at the rolling stock maintenance depots and infrastructure maintenance base. The management of liquid wastes will be undertaken in accordance with the prevailing regimes governing the discharge of domestic sewage, trade effluent and clean, uncontaminated surface water.
- 4.21.17 These regimes would require or obligate particular environmental standards and conditions relating to the discharge of any poisonous, noxious or polluting matter, waste matter, trade effluent or sewage effluent to the public sewer, controlled waters or groundwater. These are measures that would be required irrespective of the EIA process, and where regulatory

intervention would be expected if they were not followed. These are activities that would need to be undertaken to meet prevailing legislative requirements, and are considered standard practices to manage commonly occurring environmental effects at regulated facilities.

Screening of waste management contractors and monitoring of performance and compliance with environment permits

4.21.18 The HS2 Phase 2b draft Code of Construction Practice⁸¹, specifies that following measures will be taken with regards to duty of care requirements and authorisations during the construction of the Western Leg Proposed Scheme⁸²:

- the nominated undertaker will require its contractors to maintain a duty of care at all times to ensure that waste generated during the construction period is handled in accordance with the relevant legislation governing its storage, transfer, treatment and disposal;
- the nominated undertaker will require its contractors to put in place all relevant authorisations prior to the removal of any waste from the site and maintain a register of this information. This will be in relation to the transfer of waste (waste carriers), any off-site waste management facilities (permitted or exempt sites) to which waste is taken. The contractors will also ensure that an environmental permit or registered exemption is in place prior to any on-site transfer, treatment or disposal of waste being undertaken;
- any waste leaving the site will be accompanied by appropriate duty of care documentation in line with the relevant statutory requirements for waste transfer and hazardous wastes (as appropriate). Duty of care documentation will be retained by the contractors in line with statutory requirements;
- the nominated undertaker will require its contractors to maintain a register of all waste loads leaving the site and/or a tracking system (defined in the materials management plans) for excavated material destined for re-use to provide a suitable audit trail and to facilitate monitoring and reporting of waste and material types, quantities and management methods;
- the nominated undertaker will require its lead contractors to undertake regular audit and inspection of waste management activities to ensure compliance with the requirements of this draft CoCP, statutory controls and other nominated undertaker

⁸¹ High Speed Two Ltd (2018), *HS2 Phase 2b working draft Environmental Statement: draft Code of Construction Practice*. Available online at: <https://www.gov.uk/government/publications/draft-code-of-construction-practice-for-hs2-phase-2b-working-draft-environmental-statement>.

⁸² It is expected that a similar approach, to discharging duty of care requirements, will be taken by Network Rail, the train operating company and fleet maintenance contractor during the operation of the Proposed Scheme.

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policies and procedures relevant to the management of surplus excavated material and waste;

- the types, quantities and fate of waste generated during the construction process shall be identified, measured and recorded by way of a site waste management plan. This information shall be reported on a periodic basis to facilitate monitoring of any key performance indicators and to measure progress against any waste management performance targets that may apply; and
- a register of all waste loads leaving each construction site will be maintained to provide a suitable audit trail for compliance purposes and to facilitate monitoring and reporting of waste types, quantities and management methods.

- 4.21.19 If the construction or operation of the Proposed Scheme specifies the development of waste infrastructure that falls under a relevant permitting regime⁸³, a permit will be obtained from the waste regulator. As the nominated undertaker does not intend to directly undertake any waste management activities permit applications will, in general, be made by its lead contractors or the train operating company (or its fleet maintenance contractor in the case of rolling stock maintenance waste).
- 4.21.20 The construction contractors and train operating company will be responsible for developing a monitoring regime for each permitted facility, and for preparing a written management plan that identifies and minimises risks of environmental pollution. The management plan should also identify what records will be kept on-site to demonstrate compliance and the procedure for notifications to the waste regulator.
- 4.21.21 Ongoing compliance with environmental permit conditions will be the responsibility of the lead construction contractors, train operating company (or its fleet maintenance contractor), and would be monitored and enforced by the waste regulator as for any other regulated facility.

Further liaison with Local Authorities to support baseline information collation

- 4.21.22 Focused additional engagement has been undertaken with local authorities, since the completion of the working draft ES, to support baseline information collation and the waste and material resources assessment. The information required to support the assessment is publicly available on the local authority websites, by way of the adopted and emerging Waste Local Plans. Any updates to baseline information have been captured throughout the ES publication process.

⁸³ These permitting regimes include, depending on where the works are located, The Environmental Permitting (England and Wales) Regulations 2016 (as amended), The Waste Management Licensing (Scotland) Regulations 2011 (as amended) and The Pollution Prevention and Control (Scotland) Regulations 2012 (as amended).

- 4.21.23 Each of the waste planning authorities through which the route of the Proposed Scheme passes, has been consulted regarding the forecast reduction in inert waste landfill capacity in the North West region and Scotland, according to the amount of capacity projected to be available at the end of earthworks activities in 2030. This consultation was undertaken to assist the respective waste planning authorities in meeting their statutory duty to facilitate delivery of sufficient waste infrastructure capacity according to projected waste arisings.

4.22 Water resources and flood risk

Consultation issues

- 4.22.1 A number of general issues were raised in relation to the impacts on water resources and flood risk from Western Leg Proposed Scheme. This section summarises those issues of relevance to the general route wide approach to assessment of these impacts or those that were raised in general to the Western Leg Proposed Scheme. Any comments raised by stakeholders relating to the Eastern Leg scheme have been discounted from this report.
- 4.22.2 The key issues considered to be of concern include:
- exacerbation of flood risk in floodplain areas;
 - limited areas identified for flood mitigation;
 - limited information around watercourse realignments and diversions;
 - impacts to canal and reservoir operator activities including requirement to discharge water during construction;
 - limited information around requirements of the Western Leg Proposed Scheme to introduce new culverts;
 - limited assessment around potential impacts to water quality including Water Framework Directive (WFD) status; and
 - impacts on water dependant habitats including SSSIs.
- 4.22.3 Consultees who raised these issues included: Environment Agency, Canal & River Trust, Natural England, local authorities, parish councils, resident associations and individuals.

Responses to consultation issues

Flood risk and flood plains

- 4.22.4 The design aim of the Western Leg Proposed Scheme is for no increase in the risk of flooding, including an additional allowance for climate change, over the lifetime of the Western Leg Proposed Scheme. The issue of potential impacts on flood risk has been assessed and used to inform scheme design and assessment work through, where appropriate, hydraulic analysis and hydraulic modelling.

- 4.22.5 Volume 2 and Volume 5 of the ES set out the flood risk assessment, including how flood risk effects are proposed to be mitigated and any residual impacts on flood risk. The approach to balancing ponds and replacement flood storage areas used to mitigate the impact on water resources and flood risk of the Proposed Scheme are outlined in the HS2 Phase 2b Western Leg Information Paper E21: Balancing ponds and replacement flood storage areas⁸⁴.

Flood mitigation

- 4.22.6 HS2 Ltd is committed to mitigating any significant flood effect associated with the Western Leg Proposed Scheme. Flood mitigation is identified in a flood risk assessment where it is required to mitigate a significant effect as a result of the Western Leg Proposed Scheme, typically in the form of replacement flood storage provided on a level-for-level and volume-for-volume basis.
- 4.22.7 Potential significant effects on flood risk typically arise from the loss of floodplain storage, where this occurs, replacement floodplain storage areas are provided on a level-for-level, volume-for-volume basis where practicable. As a minimum, where floodplain volume has been displaced, suitable land take for provision of replacement floodplain storage areas has been identified and included within the land required for construction of the Western Leg Proposed Scheme.
- 4.22.8 Hydraulic modelling at detailed design stage will be required to confirm whether replacement floodplain storage is required and to confirm that the areas proposed are capable of mitigating significant flood risk effects. In some instances, at more complex floodplain crossings, wider flood mitigation measures, supported by hydraulic modelling may be required in place of or to supplement replacement floodplain storage area to mitigate significant effects on flood risk. Hydraulic modelling and flood risk assessment of such crossings are undertaken in consultation with the Environment Agency to agree appropriate mitigation measures where practicable.

Realignments and diversions

- 4.22.9 Volume 2 of the ES identifies any proposed watercourse realignments and diversions required as part of the Western Leg Proposed Scheme. There are 31 realignments and 11 diversions required as a result of the Western Leg Proposed Scheme (including off route works). Where these realignments and diversions are associated with structures, they are also identified and assessed in a flood risk assessment that is reported in Volume 5, and which considers the predicted peak flow and capacity of the watercourse.
- 4.22.10 The watercourse realignments and diversions are a key aspect of maintaining compliance with the Water Framework Directive. Watercourse realignments and diversions will seek to

⁸⁴ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E21: Balancing ponds and replacement flood storage areas*.

integrate into the habitat around them, including where new or enhanced habitat is provided as part of the Western Leg Proposed Scheme.

Canal and reservoir operator activities

- 4.22.11 Flooding from artificial water bodies may occur due to failure of an impounding structure, such as a dam or canal embankment. Larger reservoirs are subject to the requirements of the Reservoirs Act 1975, as such they are inspected annually, which increases the likelihood that any degradation in operational performance will be identified and addressed before there is an increased risk of failure. Whilst the consequences of failure are potentially very high, this inspection and maintenance regime means that the overall risk of flooding from this source is considered low and very unlikely to change as a result of the Western Leg Proposed Scheme.
- 4.22.12 Since the working draft ES, HS2 Ltd has continued to engage with stakeholders including canal and reservoir operators to discuss concerns around potential impacts of the Western Leg Proposed Scheme.

New culverts

- 4.22.13 Volume 2 of the ES identifies proposed new structures, including culverts and similar structures for the purpose of maintaining the flow of water. These new structures are also identified and assessed in the flood risk assessment, which considers the predicted peak flow and capacity of the watercourse and any subsequent impacts on flood risk. Where an effect on flood risk is identified, then consistent with the overall design aim of the Western Leg Proposed Scheme, the flood risk assessment has considered how the flood risk effects will be mitigated and reports any residual effects on flood risk.

Compliance with Water Framework Directive

- 4.22.14 Assessments of water quality is included in Volume 2 and Volume 3 of the ES. Measures to mitigate water quality effects during the construction phase are set out in the draft CoCP. A route-wide WFD compliance assessment is detailed in Volume 5: Appendix WR-01-00000 of the ES, and considers whether the Western Leg Proposed Scheme has the potential to cause a deterioration of a water body from its current status or potential; and/or prevent future attainment of good status or potential where not already achieved. A separate WFD compliance assessment for off-route works at the Annandale depot is provided in Volume 5: Appendix WR-001-OR003.
- 4.22.15 The Western Leg Proposed Scheme, including off route works, interacts with 27 surface water bodies and five groundwater bodies. At the time of the consultation, there were five water bodies at risk of non-compliance with the WFD. Since that time, design changes and developments have been made and further assessment of potential impacts to water quality from construction of the Proposed Scheme. As a result, there are now seven water bodies (six surface water bodies and one groundwater body) that are at risk of non-compliance with the WFD. Work is ongoing to reduce this number further and to appropriately capture and

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report any outstanding non-compliances for the Environment Agency. If the residual risk of deterioration in current status cannot be mitigated, a Regulation 19 exemption assessment will be prepared on a route-wide and/or specific water body basis, as appropriate, in consultation with the Environment Agency and reported to Parliament during passage of the hybrid Bill.

- 4.22.16 The mitigation strategy for these scheme components will continue to be refined as the design progresses in consultation with the Environment Agency. This will be informed by further surveys, ground investigation, and assessment.

Water dependant habitats

- 4.22.17 Potential impacts to water dependant habitats, both surface water and groundwater dependant, are identified in Volume 2 of the ES. Potential impacts have been assessed for all water dependant habitats within the designated study area impacted by the Western Leg Proposed Scheme, with attention to those habitats with statutory designation.
- 4.22.18 Where significant impacts have been identified, close collaboration with the ecology and biodiversity assessment and engagement with Natural England and the Environment Agency have identified appropriate mitigation measures. For sensitive sites such as the Sites of Special Scientific Interest at Holcroft Moss and Rostherne Mere, groundwater studies have led to the development of recharge trenches to mitigate predicted groundwater level impacts. These measures will ensure that the ecological commitments of the project are met. Since the working draft ES, changes have been incorporated into the scheme design at Holcroft Moss where the design has changed from embankment to viaduct in response to groundwater concerns. Further information around stakeholder feedback in this area and subsequently changes made is included in Section 10.7 of this report.

5 Community Area reports

5.1 Introduction

- 5.1.1 As outlined in Section 1.2, the purpose of this report is to provide a response to the key issues that were raised by stakeholders to the working draft ES consultation on the Western Leg Proposed Scheme.
- 5.1.2 The route of the Western Leg Proposed Scheme has been divided into eight community areas for EIA and community engagement purposes. These comprise:
- Hough to Walley's Green (MA01);
 - Wimboldsey to Lostock Gralam (MA02);
 - Pickmere to Agden and Hulseheath (MA03);
 - Broomedge to Glazebrook (MA04);
 - Risley to Bamfurlong (MA05);
 - Hulseheath to Manchester Airport (MA06);
 - Davenport Green to Ardwick (MA07); and
 - Manchester Piccadilly Station (MA08).
- 5.1.3 As set out in Section 2.5 of this report, the analysis of consultation responses revealed feedback was related to route-wide topics as well as community area specific feedback relating to key locations along the Western Leg Proposed Scheme. A review of these consultation responses was undertaken to consider how the issues raised during the 2018 consultation could inform the Western Leg Proposed Scheme design and EIA in a timely and appropriate manner.
- 5.1.4 Assessment of impacts for each community areas is reported in Volume 2 of the ES.

5.2 Structure of sections

- 5.2.1 The following sections provide a summary of the key issues raised by consultees in respect to each of the eight community areas, and how these have been considered to inform the Western Leg Proposed Scheme and its assessment. The issues summarised in these sections are not an exhaustive list of the issues raised.
- 5.2.2 The reader is signposted to additional information such as HS2 Phase 2b Western Leg Information Papers and other sections of this report, where appropriate.

6 Hough to Walley's Green (MA01)

6.1 Introduction

6.1.1 The following section sets out the key locations within the Hough to Walley's (MA01) area identified during the review of consultation responses and issues raised in respect of these. These locations comprise:

- Crewe (Crewe tunnel north portal);
- Middlewich Street vent shaft and Middlewich Street vent shaft satellite compound; and
- Parkers Road overbridge and temporary closure.

6.2 Crewe (Crewe Tunnel north portal)

Consultation issues

6.2.1 Consultees raised a number of issues about the likely impacts associated with Crewe Tunnel north portal. Key issues included:

- noise and vibration arising from tunnelling activities and associated construction works having an impact on the quality of life of nearby residents;
- increased congestion on roads around Crewe Tunnel north portal (e.g. Broughton Road);
- management and transportation of excavated materials from construction of the tunnel.

6.2.2 Consultees who raised these issues included: Cheshire East Council, Antoinette Sandbach former MP and individuals.

Response to consultation issues

6.2.3 Since publication of the working draft ES, elements of the design have progressed, and the location of the Crewe Tunnel north portal has been moved by 100m so that it will now be situated 200m north of the junction of North Street and Broughton Road. This will reduce the adverse effects from noise for residential receptors towards the southern end of Broughton Road. The nearest residences to the working draft ES location of Crewe Tunnel north portal were previously located 57m to the south at the southern end of Broughton Road. The revised portal location is now 137m north of these residential properties.

6.2.4 North of Crewe, the Western Leg Proposed Scheme now incorporates a new junction between the West Coast Main Line (WCML) and HS2. This junction is known as Crewe Northern Connection (CNC) and will enable future NPR services to connect with HS2 at Crewe. The inclusion of the CNC creates a four-track HS2 corridor from Larch Wood near Warmingham Moss up to the southern end of the River Dane viaduct. At the River Dane viaduct, HS2 would return to a two-track corridor. There are expected to be some adverse effects on agriculture, ecology, landscape and sound, noise and vibration as a result of this

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increase in size and areas of mitigation have been identified. Further details on the assessment of significant effects are provided in the Volume 2, Community Area report: Hough to Walley's Green (MA01) published as part of the ES accompanying the hybrid Bill.

- 6.2.5 The Crewe Tunnel north main compound will operate during both the daytime and night-time and the ES reports noise and vibration effects arising from the general site works, earthworks and bored tunnel works. With taller than standardised construction screening around the construction compound and noise insulation, individual residential properties around the Crewe Tunnel north portal will not be significantly affected. There will be a temporary significant effect on the acoustic character in Crewe and temporary significant vibration effects from construction, which could be perceived as a change in the quality of life for that community. Significant residual temporary noise effects are reported at nine non-residential receptors and a significant residual temporary vibration effect has been identified at Bentley Manor Care Home.
- 6.2.6 HS2 Ltd will continue to seek reasonably practicable measures to further reduce or avoid these significant effects. In doing so, HS2 Ltd will continue to engage with stakeholders to fully understand the receptors, their use and the benefit of any identified mitigation measures.
- 6.2.7 Broughton Road, Warmingham Road, the B5076 Bradfield Road and other local roads will be used for access to and from the Crewe Tunnel north main compound, Moss Lane satellite compound, Warmingham Moss satellite compound and the strategic road network. These roads have been selected based on their suitability to provide access between the construction compounds for the Western Leg Proposed Scheme and the strategic road network. A number of these construction HGV routes will have limited use (i.e. a low level of HGV use over a short length of time, for example for site set up or minor works). The draft CoCP will require the number of private car trips to and from the construction compounds to be reduced by encouraging alternative sustainable modes of transport or vehicle sharing. This will be supported by a workforce travel plan. However, there are changes in traffic flow which will result in a temporary significant adverse effect due to additional congestion and/or delays for road users. See Volume 2, Community Area report: Hough to Walley's Green (MA01), Section 14 for further information.
- 6.2.8 To limit the volume of construction traffic near the Crewe Tunnel north portal including HGV on local roads, a temporary covered conveyor will run parallel to the WCML. This will carry material from tunnelling works to be either disposed of, reused at the Crewe North rolling stock depot (RSD) site or used elsewhere in the Western Leg Proposed Scheme construction works in this area.

6.3 Middlewich Street vent shaft and Middlewich Street vent shaft satellite compound

Consultation issues

- 6.3.1 Consultees raised issues about the likely impacts associated with the construction of Middlewich Street vent shaft. Key issues included:
- ability to continue using public space as a result of the construction and operation of Middlewich Street vent shaft;
 - proximity of the Proposed Scheme including the Middlewich Street vent shaft to sensitive community facilities including: Sherbourne Neurological Centre and Bentley Manor Care Home along with the properties within the Guinness Partnership's development;
 - dust from construction activities as well as emissions related to construction traffic impacting nearby residents; and
 - noise impacts from operation of the scheme on residential properties and community facilities.
- 6.3.2 Consultees who raised these issues included: Cheshire East Council, Crewe Town Council and individuals.

Response to consultation issues

- 6.3.3 Since publication of the working draft ES, the vent shaft will now be surrounded by a mixture of hard and soft landscaping to mitigate landscape effects on nearby receptors. The proposed site of the Middlewich Street vent shaft is in an area of open space known as Yellow Park. Alternative locations were considered for the second vent shaft within Crewe tunnel, however the Middlewich Street site was considered to have fewer socio-economic, ecological and water resource related impacts than alternative locations. The Alternatives report, which has been produced to describe these options is included in Volume 5 of the ES (see Volume 5: Appendix CT-003-00000).
- 6.3.4 An area comprising 55% (0.66ha) of the open space will be required for the Middlewich Street vent shaft satellite compound to support construction of the Middlewich Street vent shaft. The vent shaft will be constructed over a period of four years and six months and of the 0.66ha required for its construction, 18% (0.22ha) of land will be permanently required from Yellow Park at the western end of Ridgway Street, Audley Street West and Mellor Street. The construction works will have a significant effect on users of the open space, however the children's play area will not be affected and can be used throughout the construction and operational phases (see Volume 2, Community Area report: Hough to Walley's Green (MA02), Section 6).
- 6.3.5 Once operational, appropriate security fencing will be installed and the open space around the vent shaft will be made accessible to the public again. This means that users will not

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experience permanent significant effects. During operation, the vent shaft will be routinely accessed for tunnel maintenance. The vent shaft is shown in Volume 2, MA01 Map Book: map CT-06-304, I5 to J6.

- 6.3.6 Construction of the Middlewich Street vent shaft will result in a significant adverse effect on views south-west from residents on Middlewich Street and Bentley Manor Care Home. Construction activities and associated plant will be prominent and visible from the upper floors of the care home. Following construction, in Year 1 and Year 15 the operational vent shaft will remain uncharacteristic of its urban setting and there will be a noticeable loss of open space in the area around Middlewich Street. Once the landscape mitigation planting has matured by Year 30 the vent shaft will become integrated into the landscape setting and the Western Leg Proposed Scheme will not result in a permanent significant effect.
- 6.3.7 Similarly, it is anticipated that construction of the Crewe north portal cutting retaining wall will result in an adverse effect on views south-west from the recently built housing at Maplins Moss Place (Guinness Partnership Development). The Crewe Tunnel north main compound will appear close due to the loss of existing vegetation and will be visible across the majority of the residential development, which will result in significant effects for these residents. At Year 1, immature landscape mitigation planting will not provide any screening and residents will have views of the Crewe north portal cutting (retained cutting and noise barrier). Once mature at Year 15, landscape mitigation planting will screen the Crewe north portal cutting retaining wall and the operational Western Leg Proposed Scheme will not result in a permanent significant effect.
- 6.3.8 The draft CoCP methods outlined within Section 4.7 of this report are considered effective at reducing dust emissions, and therefore, no significant residual effects are anticipated from dust near to Middlewich Vent shaft and/or Middlewich vent shaft satellite compound.
- 6.3.9 At the majority of individual residences, the proposed mitigation measures will reduce operational airborne noise such that it does not reach a level where it will significantly affect residents. Therefore, no likely residual significant effects from airborne noise are identified to residential properties and/or community facilities near to Middlewich Vent shaft and/or Middlewich vent shaft satellite compound.
- 6.3.10 At the current stage of the Western Leg Proposed Scheme design, and taking a precautionary approach to the assessment, a residual likely significant adverse ground-borne noise effect is identified at 35 individual residential properties above the Crewe tunnel. The precautionary assessment also identifies significant effects as a result of ground-borne noise from operation at six non-residential receptors, including Bentley Manor Care Home and Sherborne Court Neurological Centre.
- 6.3.11 At the Crewe community level, a likely residual significant adverse ground-borne noise effect due to increased noise levels has also been identified. HS2 Ltd will continue to engage with stakeholders to fully understand the receptors, their use and the benefit of any identified mitigation measures.

6.4 Parkers Road overbridge and temporary closure

Consultation issues

- 6.4.1 Consultees raised issues about the likely impacts associated with the construction of Parkers Road overbridge and the temporary closure of Parkers Road. Key issues included:
- temporary closure of Parkers Road causing congestion and increased journey times for road users, including knock-on effects to the wider local road network, particularly Bradfield Road; and
 - impact on emergency response times as a result of the closure of Parkers Road given its use as a key emergency service route to Leighton Hospital.
- 6.4.2 Consultees who raised these issues included: Cheshire East Council, businesses and individuals.

Response to consultation issues

- 6.4.3 Since publication of the working draft ES, a temporary footbridge will now be provided for one year and three months between the eastern and western side of the WCML directly to the south of Parkers Road in order to maintain access for pedestrian and cycle movements during the construction period.
- 6.4.4 An offline realignment of Parkers Road was not pursued as this would require demolition of properties to the west of the Western Leg Proposed Scheme. Therefore, Parkers Road will be closed temporarily for a period of one year and three months, whilst works are undertaken to lengthen the overbridge across the Western Leg Proposed Scheme. As a result of the temporary closure, traffic will be diverted via Groby Road, Remer Street and the B5076 North Street/Bradfield Road. Improvements are proposed at the junction of Remer Street/Groby Road/Maw Green Road to mitigate the predicted increases in traffic during the temporary diversion. Road users will experience an increased journey length of up to 2.7km and it is recognised that construction traffic will increase disruption to the nearby road network, particularly due to the temporary closure of Parkers Road. This will cause temporary significant adverse delay effects for these road users. See Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02), Section 14 for further information.
- 6.4.5 Engagement has been offered to blue light emergency service stakeholders in the area, with information shared about the Proposed Scheme. As set out in Section 15 of this report, the draft CoCP includes the requirements for the nominated undertaker to develop management plans in consultation with key stakeholders including the highway and traffic authorities and emergency services. In this way, any diversions proposed as part of construction works will take account of local transport routes and important facilities such as Leighton Hospital.

7 Wimboldsey to Lostock Gralam (MA02)

7.1 Introduction

7.1.1 The following section sets out the key locations within the Wimboldsey to Lostock Gralam (MA02) area identified during the review of consultation responses and issues raised in respect of these. These locations comprise:

- the A530 Nantwich Road overbridge;
- Crewe North rolling stock depot (RSD);
- Shropshire Union Canal (Middlewich Branch);
- the Trent and Mersey Canal;
- the A556 Chester Road realignment;
- Birches Lane;
- Ascol Drive and Winnington Wood; and
- Holford Brine Field.

7.2 A530 Nantwich Road overbridge

Consultation issues

7.2.1 Consultees raised issues about the likely impacts associated with construction work from the A530 Nantwich Road diversion and overbridge. Issues raised included:

- potential impact of the construction of the A530 Nantwich Road overbridge on traffic and businesses along the A530 Nantwich Road especially;
- potential impact of noise on nearby residents as a result of the A530 Nantwich Road overbridge traffic;
- the potential visual impact of the elevated scheme, in particular for residents of Wimboldsey Hall, Park Hall Farm, Weaverbank Cottage and Rose Cottage; and
- the A530 Nantwich Road is a key emergency service route to Leighton Hospital and the closure of this road could have an impact on emergency response times.

7.2.2 Consultees who raised these issues included: Cheshire East Council, local businesses, Wimboldsey Community Primary School and individuals.

Response to consultation issues

7.2.3 Since publication of the working draft ES, changes have been made to the design of the A530 Nantwich Road. A 1km section of the A530 Nantwich Road will now be realigned up to 50m to the south of its current alignment. This realignment is required to provide a new overbridge across the WCML and the Western Leg Proposed Scheme. The realignment will

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be constructed mostly offline over a three-year period and traffic will continue to use the existing road during this time, with temporary traffic signals during part of the construction period. However there are changes in traffic flow which will result in a temporary significant adverse effect due to additional congestion and/or delays to road users as a result of the A530 Nantwich Overbridge construction works and other construction activities. See Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02), Section 14 for further information.

- 7.2.4 An assessment of socio-economic impacts on businesses is included in the Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02), Section 12 and has identified that The Verdin Arms public house will cease to be on a major road following completion of the A530 Nantwich Road realignment. The ability of The Verdin Arms public house to generate income may be impaired by a loss of passing trade, especially due to the availability of alternative public houses including on the A530 Nantwich Road, in Crewe and Middlewich. The significant effect on The Verdin Arms public house begins part way through the construction phase and continues permanently. There will be no other significant socio-economic effects to other businesses on the A530 Nantwich Road during construction or operation.
- 7.2.5 The noise assessment has found that three residential properties on A530 Nantwich Road will experience noise associated with the construction of the A530 Nantwich Road realignment. The mitigation measures, including noise insulation for these properties, will reduce construction noise inside all dwellings such that it does not reach a level where it will significantly affect residents. Proposed mitigation measures in the Wimboldsley area, such as landscape earthworks, will also reduce any adverse effects due to operational airborne noise.
- 7.2.6 It is anticipated that construction of the A530 Nantwich Road overbridge and Crewe North RSD will result in an adverse effect on views west for residents on the A530 Nantwich Road. Construction activities and associated plant will be prominent and highly visible across much of the view. Removal of vegetation during construction combined with the construction of the RSD, and height of the A530 Nantwich Road overbridge will have an adverse effect on views from properties on the A530 Nantwich Road. Views east including those representative of views from Wimboldsley Hall and from Park Hall Farm will both be subject to significant effects during construction due to the change in composition of the views.
- 7.2.7 Once operational at Year 1 the Crewe north RSD and overbridge will be visible as a new skyline features and will be out of character within the open agricultural setting. Once mature by Year 30, landscape mitigation planting will provide some screening of the depot in summer months and integrate the overbridge into the landscape setting. Residents with views east of the Western Leg Proposed Scheme are anticipated to experience significant visual effects in Year 1. Once mature, landscape mitigation planting will screen views west from Park Hall Farm and the operational Western Leg Proposed Scheme will not result in a permanent significant effect by Year 15.

- 7.2.8 Engagement has been offered to blue light emergency service stakeholders in the area, with information shared about the Proposed Scheme. As set out in Section 15 of this report, the draft CoCP will require the nominated undertaker to produce local traffic management plans in consultation with local stakeholders such as the local highways authorities, emergency services and transport operators, to mean that any diversions take account of local transport routes. Based upon the offline construction of this overbridge, it is expected that any effect on safety and accidents will not be significant.

7.3 Crewe North rolling stock depot

Consultation issues

- 7.3.1 Consultees raised issues regarding construction and operation of the Crewe North RSD. Issues raised included:
- impacts of light associated with the Crewe North RSD during operation;
 - impacts of the RSD on landscape character;
 - impacts of the construction and operation of the RSD on local roads; and
 - air quality, dust, noise and landscape impacts of the construction and operation of the Crewe North RSD on community facilities in Wimboldsley, specifically Wimboldsley Community Primary School.
- 7.3.2 Consultees who raised these issues included: Cheshire West and Chester Council, Wimboldsley Community Primary School, Antoinette Sandbach former MP, Moston Parish Council and individuals.

Response to consultation issues

- 7.3.3 Since publication of the working draft ES, there have been several changes to the design in the vicinity of the Crewe North RSD. The construction and logistics design for the Western Leg Proposed Scheme has been further refined and the area of land potentially required during construction has increased to take into account a new satellite construction compound, utility diversions, temporary construction sidings and the incorporation of borrow pits.
- 7.3.4 A borrow pit is an area where additional acceptable engineering material is extracted for use in construction. Borrow Pits A and B are shown in Volume 2, MA02 Map Book: map CT-05-308b, H9 to J8 and map CT-05-309, E7 to H6. There is expected to be some temporary adverse effects on agriculture, ecology and landscape during extraction of Borrow Pits A and B over a two year and nine-month period. However, the use of borrow pits is required to reduce the need for longer distance transport and import of materials, thereby reducing the volume and potential adverse effects from road traffic on local roads and communities. Following extraction, the borrow pits will be restored using material excavated during construction of the Western Leg Proposed Scheme that is not acceptable for use as

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engineering material. Further details on the assessment of significant effects are provided in the Volume 2, Community Area report: Wimboldsey to Lostock Gralam (MA02) published as part of the ES accompanying the Bill.

- 7.3.5 The design of the operational Crewe North RSD has also been further developed and the size of the RSD has increased from approximately 60ha to 65ha to support the revised stabling and maintenance strategy of trains for the Western Leg Proposed Scheme. The Crewe North Infrastructure Maintenance Base – Rail (IMB-R) has been added to the RSD footprint as a permanent base and satellite site to the Phase 2a Stone IMB-R to support the maintenance of railway infrastructure, partly located in the Hough to Walley's Green area (MA01) (see Volume 2, MA02 Map Book: map CT-06-308b, B7 to E6). Locations for the accommodation building, car parking, stabling sidings and maintenance sheds have also now been identified. There is expected to be some adverse effects on agriculture, ecology and landscape as a result of this increase in size and mitigation measures have been identified. Further details on the assessment of significant effects are provided in the Volume 2, Community Area report: Wimboldsey to Lostock Gralam (MA02) published as part of the ES accompanying the Bill.
- 7.3.6 Construction activities and associated plant will have an adverse effect on the tranquillity of the rural landscape in the vicinity of the RSD site. It is anticipated that construction of the Crewe North RSD will result in a significant effect on the landscape character area and also views west from Wimboldsley, including those from Wimboldsley Community Primary School.
- 7.3.7 Once operational, the RSD will result in the loss of a large area of established farmland and several structures will remain and be uncharacteristic of the existing landscape. Once mature, landscape mitigation planting will provide some screening of the depot and integrate the structures into the landscape setting. Nonetheless residential receptors on A530 Nantwich Road with views west are anticipated to experience significant visual effects.
- 7.3.8 During operation of the Western Leg Proposed Scheme, the Crewe North RSD will be in use 24 hours a day, seven days a week, 365 days per year and will be required to be lit throughout the night. This will significantly affect the outlook at night for nearby residential receptors. In order to reduce adverse effects as a result of this light, landscape earthworks and mitigation planting is proposed to be located on the eastern side of the RSD site. Controls on light spill will limit the change these new light sources introduce to the wider view. However, there will still be a noticeable increase in the prominence of artificial lighting during construction.
- 7.3.9 The Crewe North RSD construction sidings will connect with the existing railway network for the movement of excavated materials by rail. This will reduce the volume of construction vehicles using the public road network. However, the A530 Nantwich Road, Clive Green Lane and other local roads will still be used by construction vehicles accessing to and from A530 Nantwich Road satellite compound, Crewe North RSD satellite compound 1, 2, 3 and Clive Green Lane satellite compound. These roads have been selected based on their suitability to

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provide access between the construction compounds for the Western Leg Proposed Scheme and the strategic road network.

- 7.3.10 Measures are proposed to avoid or reduce effects on transport users, including traffic management measures. In addition, the draft CoCP requires that the number of private car trips to and from the construction compounds is to be reduced by encouraging alternative sustainable modes of transport or vehicle sharing. This will be supported by a workforce travel plan. Nevertheless, there are changes in traffic flow which will result in a temporary significant adverse effect due to additional congestion and/or delays to road users. Following operation, the majority of trips generated by Crewe North RSD are expected to occur during off-peak periods, however, the Western Leg Proposed Scheme may result in traffic and transport impacts on the local road network. A depot travel plan for Crewe North RSD will be developed and will include measures that aim to reduce the impacts and effects of traffic and transport movements. See Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02), Section 14 for further information.
- 7.3.11 The assessments outlined in the Volume 2, Community Area report: Wimboldsey to Lostock Gralam (MA02) have not identified any likely significant sound, noise and vibration or air quality effects for Wimboldsley Community Primary School as a result of the construction or operation of the Western Leg Proposed Scheme. A significant visual effect is identified for the users of the school associated with the construction of the Crewe North RSD as described above.
- 7.3.12 The draft CoCP methods outlined within Section 4.7 of this report are considered effective at reducing construction air quality emissions, for example the use of enclosures to contain dust emitted from construction activities, and therefore no significant construction effects are anticipated. There are no significant adverse effects anticipated for air quality in this area during operation of the Western Leg Proposed Scheme.
- 7.3.13 The proposed mitigation measures, such as noise insulation and construction screening around the Crewe North rolling stock depot construction works, will reduce construction noise inside all individual dwellings and community facilities in the Wimboldsley area to a level where they are not considered significant. Proposed mitigation measures in the Wimboldsley area, such as landscape earthworks, will avoid or reduce adverse effects from operational airborne noise.
- 7.3.14 Engagement with Cheshire West and Chester Council and community stakeholders is ongoing with regard to mitigating effects on communities and specific receptors such as Wimboldsley Community Primary School. This will be maintained throughout the construction period to reduce disruption.

7.4 Shropshire Union Canal (Middlewich Branch)

Consultation issues

- 7.4.1 Consultees raised issues regarding the potential impact of the construction and operation of Clive Green embankment and the Shropshire Union Canal (Middlewich Branch) viaducts. Issues raised included:
- visual impact of the embankment and viaduct on the distinctive landscape feature as the canal will be shaded;
 - potential disruption to users of the Shropshire Union Canal during construction;
 - disruption to PRoW and canal walks along Canal Path (including National Cycle Route 5 and footpath 3); and
 - impact on ecology either side of the canal during construction (Shropshire Union Canal Middlewich Branch Local Wildlife Site (LWS), and Rookery/Small Rookery Woods LWS).
- 7.4.2 Consultees who raised these issues included: Cheshire West and Chester Councils, Canal & River Trust, The Cheshire Wildlife Trust, Mid Cheshire Against HS2, Antoinette Sandbach former MP and individuals.

Response to consultation issues

- 7.4.3 Since publication of the working draft ES, the configuration of the viaducts over the Shropshire Union Canal has changed. The length of Shropshire Union Canal viaduct No.1 has increased by 50m, Shropshire Union Canal viaduct No.3 has increased in length by 53m and Shropshire Union Canal viaduct No.2 is an additional structure now required. These changes were considered and adopted in order to better address consultee concerns relating to the visual impact of shading on the canal corridor and to better serve the Crewe North RSD operations and enable Crewe Northern Connection: a new junction that will connect the route of the Western Leg Proposed Scheme to the WCML, enabling high speed services to call at Crewe Station (see Volume 2, MA02 Map Book, Map series CT-06).
- 7.4.4 Since publication of the working draft ES, the realignment of Clive Green Lane has been moved south to avoid an area likely to have poor ground conditions. The realignment will connect to a new roundabout with the A530 Nantwich Road and Coalpit Lane. A new crossing will be provided, Shropshire Union Canal offline overbridge, adjacent to the existing Clive Green Lane canal overbridge. There have also been changes to the A54 Middlewich Road and A533 Northwich Road junction and realignment to reduce the amount of land required for the Western Leg Proposed Scheme and adverse visual effects on Stanthorne Hall Farm (see Volume 2, MA02 Map Book, Map series CT-06).
- 7.4.5 The previously proposed woodland mitigation planting bordering the canal has now been replaced with grassland mitigation planting to reduce the effect of shading. There will now also be greater space between the viaduct structures, allowing more light to reach users of the canal and the towpath.

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- 7.4.6 There have also been several changes to the construction and logistics design since publication of the working draft ES design in the vicinity of the Shropshire Union Canal. The area of land potentially required during construction has increased to take into account a new satellite construction compound, and the incorporation of Borrow Pit C. A borrow pit is an area where additional acceptable engineering material is extracted for use in construction. There is expected to be some temporary adverse effects on agriculture, ecology, landscape and water resources during extraction of Borrow Pit C over a two year and nine-month period. However, the use of borrow pits is required to reduce the need for longer distance transport and import of materials, thereby reducing the volume and potential adverse effects of road traffic on local roads and communities. Following extraction, the borrow pits will be restored using material excavated for the Western Leg Proposed Scheme that is not acceptable for use as engineering material. Further details on the assessment of significant effects are provided in the Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) published as part of the ES accompanying the Bill.
- 7.4.7 During construction, there will be a temporary realignment of Footpath Stanthorne 3/1 for a period of two years and seven months, with users diverted along Clive Green Lane and Coalpit Lane. It is recognised that there will be a significant effect on severance for non-motorised users of the canal towpath due to the increased travel distance of 511m. Once construction of the Shropshire Union Canal viaducts has completed, the footpath will revert to its existing route along the canal. The construction of the Western Leg Proposed Scheme will require temporary closures of the canals. However, the closures will be short in duration, generally less than three days, and consequently will not have a significant effect upon navigable waterways or canals in the Wimboldsley to Lostock Gralam area.
- 7.4.8 The construction of the Clive Green south embankment will also result in a temporary impact on the recreational moorings located on the Shropshire Union Canal (Middlewich Branch) at Park Farm in Stanthorne for a period of two years and nine months. The temporary loss of these residential moorings is not expected to result in a significant socio-economic effect due to the small number of employees affected.
- 7.4.9 It is still anticipated that the construction of Shropshire Union Canal viaducts will be evident in the foreground for users of the canal with views east, it will form a substantial new feature and will alter the skyline in the canal corridor. This will result in a significant effect on the views of users of canal moorings and canal users. Once mature, landscape mitigation planting will provide some screening of train movements, although the viaducts will remain highly visible with canal users anticipated to experience significant effects in Year 30.
- 7.4.10 HS2 Ltd will continue to engage with the Canal & River Trust, Cheshire West and Chester Council and other consultees so that the detailed designs for crossings are sympathetically designed with the local landscape.
- 7.4.11 There is not anticipated to be any habitat loss from the Rookery/Small Rookery Woods LWS. However, construction of Shropshire Union Canal viaducts No.1, 2 and 3, and associated temporary works, will result in the permanent loss of 0.3ha (100%) of unimproved neutral grassland adjacent to the Shropshire Union Canal (Middlewich Branch) LWS, north-east of

Clive Green. Further works will result in the permanent loss of 550m² (4%) of deciduous woodland habitat from both the southern and northern edges of an unnamed woodland east of Coal Pit Lane, which is located either side of the Shropshire Union Canal (Middlewich Branch).

- 7.4.12 Woodland replacement habitat (7.3ha) will be planted at five locations east of Clive Green alongside 2.8ha of grassland replacement habitat, which will be created along the canal. This will enhance ecological connectivity along the Shropshire Union Canal and help maintain the integrity of existing habitats. Once established it is anticipated that effects on these habitats will be reduced to a level that is not significant.

7.5 Trent and Mersey Canal

Consultation issues

- 7.5.1 Consultees raised issues regarding the crossings of the Trent and Mersey Canal, particularly the Trent and Mersey canal underbridge and associated compound. Issues raised include:
- potential loss of ecological habitat, particularly wetland habitat, near the canal during construction of canal underbridge and associated disturbance of habitat;
 - concern that proposed woodland habitat creation will disturb existing biodiversity in area;
 - visual impact to the canal area from Whatcroft embankment; and
 - potential impact of construction on canal walking.
- 7.5.2 Consultees who raised these issues included: Cheshire West and Chester Council, Davenham Parish Council, The Cheshire Wildlife Trust, Mid Cheshire Against HS2 and individuals.

Response to consultation issues

- 7.5.3 Since publication of the working draft ES, the extents of viaducts and embankments from Whatcroft through to Lostock Gralam have been refined. This refinement has resulted in reduced landscape impacts due to the removal of several consecutive embankments and an overall increase in the length of the Trent and Mersey Canal and Gad Brook viaducts. The construction and logistics design for the Western Leg Proposed Scheme has also been further refined and the area of land potentially required during construction has been reduced to take into account the removal of one satellite construction compound as well as new utility diversions. Further details on the assessment of significant effects are provided in the Volume 2, Community Area report: Wimboldsey to Lostock Gralam (MA02) published as part of the ES accompanying the Bill.
- 7.5.4 Construction works along the Trent and Mersey canal corridor will result in the permanent loss of various habitats within designated ecological sites, including the loss of 0.3ha of reedbed habitat at Whatcroft Lane Wetlands LWS. This extent of habitat loss from this LWS will result in an adverse effect on the structure and ecological function of the site. However,

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replacement reedbed habitat will be created within 1.4ha of wetland habitat creation areas immediately to the east of the LWS along the Trent and Mersey Canal and to the south and south-west of the LWS on the opposite bank of the Trent and Mersey Canal between the canal and the Northwich to Knutsford Railway (part of the Mid-Cheshire Line). Once established, it is anticipated that any adverse effect on reedbed habitat will be reduced to a level that is not significant. Impacts on biodiversity will be managed throughout the construction phase through the measures set out in the draft CoCP. Once implemented, these procedures will control and limit disturbance to areas of nature conservation interest and protected species.

- 7.5.5 During construction, there will be a localised diversion of Footpath Rudheath 10/1 for a period of one year and five months. On completion of construction of the Trent and Mersey Canal viaduct, the footpath will revert to its existing route along the canal. Increases in journey length will be negligible, and significant effects on non-motorised users are not anticipated. The construction of the Western Leg Proposed Scheme will require temporary closures of the canals. The closures will be short in duration, generally less than three days, and consequently will not have a significant effect upon navigable waterways or canals in the Wimboldsley to Lostock Gralam area.
- 7.5.6 It is anticipated that canal users along Footpath Rudheath 10/1 will experience a change in views due to the construction of the Trent and Mersey Canal viaduct and Whatcroft north embankment. Construction activities including plant noise and crane movements will be evident and visible across the majority of the view. This will result in a significant effect on views north-west from users of Footpath Rudheath 10/1 and south-east from users of mooring facilities at Oakwood Marina. During operation, the Whatcroft north embankment and Trent and Mersey Canal viaduct will represent visually imposing new features in the canal corridor. Once mature, landscape mitigation planting will provide some screening of the embankment and partially integrate the structures into the landscape setting, nonetheless the viaducts will remain highly visible with canal users anticipated to experience significant effects in Year 30.
- 7.5.7 HS2 Ltd will continue to engage with the Canal & River Trust, Cheshire West and Chester Council and other consultees so that the detailed designs for crossings are sympathetically designed with the local landscape.

7.6 A556 Chester Road realignment

Consultation issue

- 7.6.1 Consultees raised a number of issues regarding the realignment of the A556 Chester Road, including:
- increase in road traffic accidents as a result of the realignment;
 - potential impact on roads particularly at Rudheath during construction and operation;

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- potential impacts to footpaths alongside the diverted Birches Lane due to realignment (e.g. Rudheath Footpath 3 Closure);
- significant numbers of site compounds; and
- potential impact of ground conditions on the Western Leg Proposed Scheme.

7.6.2 Consultees who raised these issues included: Lostock Gralam Parish Council, Davenham Parish Council, Plumley with Toft and Bexton Parish Council, Rudheath Parish Council, The Cheshire Wildlife Trust, Mid Cheshire Against HS2, businesses and individuals.

Response to consultation issues

7.6.3 Since publication of the working draft ES, there have been several changes to the design in the vicinity of the A556 Chester Road. The construction and logistics design for the Western Leg Proposed Scheme has been further refined and efforts have been made to co-locate satellite civils construction compounds with railway systems compounds in order to limit the land required. The arrangement of compounds and construction routes can be seen in Volume 2, MA02 Map Book, Map series CT-05. The configuration of the construction compounds near Rudheath has been changed and now comprises the following (with duration of use included in brackets):

- Gad Brook Viaduct south satellite compound (three years and nine months);
- Gad Brook Viaduct north satellite compound (six years and six months);
- Rudheath Embankment satellite compound (three years and three months); and
- B5082 Penny's Lane satellite compound (three years and three months).

7.6.4 Rudheath Embankment satellite compound and B5082 Penny's Lane satellite compound have been added to the east of the Western Leg Proposed Scheme in order to service the construction of the Rudheath embankment and a transfer node to the north of B5082 Penny's Lane. Two previous satellite compound sites adjacent to the A530 King Street are no longer required and the Gad Brook viaduct north satellite compound has been reduced in size. Further details on the assessment of significant effects are provided in the Volume 2, Community Area report: Wimboldsey to Lostock Gralam (MA02) published as part of the ES accompanying the Bill.

7.6.5 The A556 Chester/Shurlach Road will be permanently realigned up to 90m to the north-west of its current alignment for 2.3km, resulting in a negligible change in journey length. The realignment will be constructed mostly offline over a period of three years and three months. Temporary realignments of the A556 Chester Road/Shurlach Road will be required during the construction including the junction with the A559 Manchester Road, which will be temporarily realigned over a distance of 240m, 22m north of its existing alignment, for a period of two years and six months. A further temporary realignment of the A556 Shurlach Road will be required over a distance of 233m, 30m north of its existing alignment, which will be in place for nine months.

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- 7.6.6 The current configuration will be reinstated once construction of Wade Brook viaduct and Lostock Gralam viaduct are complete. Only when the new permanent realignment is complete, will traffic be transferred onto the new road. Tie in works would typically be completed at weekends or overnight with a limited traffic management scheme implemented to reduce disruption.
- 7.6.7 The A530 King Street, the B5082 Penny's Lane, the A556 Chester Road and other local roads will be used by construction traffic for access to and from Rudheath embankment satellite compound, Gad Brook viaduct north and south satellite compounds and Penny's Lane satellite compound. These roads have been selected based on their suitability to provide access between the construction compounds for the Western Leg Proposed Scheme and the strategic road network. The CoCP will require the number of private car trips to and from the construction compounds to be reduced by encouraging alternative sustainable modes of transport or vehicle sharing. This will be supported by a workforce travel plan. However, changes in traffic flow will result in some temporary significant adverse effects due to congestion. There will also be temporary significant adverse effects through traffic-related severance for non-motorised users.
- 7.6.8 In addition there will be some permanent significant adverse effects due to congestion and significant permanent traffic-related severance effects for non-motorised users. See Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02), Section 14 for further information. The effect on the wider road network of this intervention will be reduced with traffic connecting Northwich and Knutsford able to continue throughout the construction of the Western Leg Proposed Scheme. Both temporary and permanent realignments have undergone independent safety assessment and the design is in accordance with the Design Manual for Roads and Bridges. There will be no significant effects on accidents and safety as there are no locations where there are both accident clusters and substantial changes in traffic due to either construction or the operation of the Western Leg Proposed Scheme.
- 7.6.9 The route of the Western Leg Proposed Scheme will cross eight PRow within the Wimboldsley to Lostock Gralam area, with a further five PRow in the Wimboldsley to Lostock Gralam area being affected as a result of construction activities. In Rudheath, there will be significant effects on non-motorised users of Footpath Rudheath 3/4/Footpath Rudheath 3/3/Footpath Lach Dennis 3X/2/Footpath Lach Dennis 3X/1 as a result of its closure. During construction, there will be a temporary diversion of this footpath to the east of the area required for the construction of the Western Leg Proposed Scheme for a period of four years and two months. This will increase the length of the journey by 660m for users and cause significant effects. Following operation, users will be diverted along the proposed maintenance access for the B5082 Penny's Lane telecommunications site to Cookes Lane/the A556 Shurlach Road, this will increase the length of the journey by 1.7km for some users and cause significant effects.
- 7.6.10 Challenging ground conditions are recognised across the route of the Western Leg Proposed Scheme, both naturally occurring and associated with the North West's industrial legacy. Initial ground investigations (GI) have been undertaken and further GI and assessment of remote sensing information will be undertaken following hybrid Bill deposit, to inform the

detailed design of the Western Leg Proposed Scheme. In addition, HS2 Ltd have engaged with salt producers, gas storage facility owners and Network Rail to obtain information on the performance of their structures. If required, additional site-specific remediation measures will be developed during the detailed design stage, to control any risks to human health. See Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02), Section 8 for further information.

7.7 Birches Lane

Consultation issues

- 7.7.1 Consultees raised a number of issues regarding the impact of the diverted Birches Lane on local residents, these included:
- impacts of construction and operational noise on residents of Birches Lane;
 - potential community impacts from increased journey times; and
 - potential flood risk due to construction activities.
- 7.7.2 Consultees who raised these issues included: Cheshire West and Chester Councils, Plumley with Toft and Bexton Parish Council, Lach Dennis Parish Council, Mid Cheshire Against HS2 and individuals.

Response to consultation issues

- 7.7.3 Since publication of the working draft ES, there have been several changes to the design in the vicinity of Birches Lane. The construction and logistics design for the Western Leg Proposed Scheme has been further refined and the area of land potentially required during construction has increased to take into account utility diversions, transfer nodes and temporary material stockpiles. Transfer nodes are additional areas of land required to unload, store and load bulk earthworks materials that are moved to and from the site on public highways. Stockpiles are stores for soil stripped as part of the works for the duration of construction, prior to it being used when the land is reinstated. Further details on the assessment of significant effects are provided in the Volume 2, Community area report: Wimboldsey to Lostock Gralam (MA02) published as part of the ES accompanying the hybrid Bill.
- 7.7.4 The design of Birches Lane and the associated footpath has also been altered since publication of the working draft ES. The section of Birches Lane east of the route of the Western Leg Proposed Scheme will include merge and diverge slip roads, which will result in an improvement of the junction with A556 Chester Road. The existing use of Birches Lane by non-motorised users has been surveyed to inform the design of the Western Leg Proposed Scheme. The provision of either an overbridge or underbridge for these non-motorised users of Birches Lane was not pursued as this would likely add significant cost and/or cause additional traffic impacts and demolitions to properties to the west of the Western Leg Proposed Scheme. Therefore, the scheme includes a new PRow off the realigned Birches

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Lane and passing under the Wade Brook offline overbridge to enable safe connectivity between Lostock Green and Lostock Gralam. Journey times due to the diversion of Birches Lane, however, will increase and there will be a significant effect on severance for non-motorised users of Birches Lane due to the increased journey length of 581m.

- 7.7.5 Significant temporary noise effects from highway works have been predicted at 20 residential properties in the vicinity of Birches Lane, Lostock Green for up to two months. With taller than standardised construction screening around the construction compound and noise insulation, individual residential properties around Birches Lane will not be significantly affected, but there will be a likely temporary significant effect on the overall acoustic character in Lostock Green during construction.
- 7.7.6 Conversely, during operation of the Western Leg Proposed Scheme, residents of Birches Lane, as well those in the vicinity of Village Close and Cinder Lane, are expected to experience decreases in sound from road traffic due to the diversion of Birches Lane. This is likely to have a beneficial effect on the acoustic character of the area around the properties.
- 7.7.7 Construction of Wade Brook viaduct and Wade Brook offline overbridge, which will cross Wade Brook, will require temporary working within areas at risk of flooding. This will include the site haul routes that involve spanning the main channels of Wade Brook. Method statements will be produced in consultation with the Environment Agency and the Lead Local Flood Authority. The flood risk assessment has identified that effects on Wade Brook floodplain will not be significant during construction and operation.

7.8 Ascol Drive and Winnington Wood

Consultation issues

- 7.8.1 Consultees raised concerns related to the Smoker Brook viaduct and potential impacts on Winnington Wood and the residents of Ascol Drive. Issues include:
- potential visual impacts of Smoker Brook viaduct, request for additional landscape mitigation to reduce visual impact;
 - area designated as a 'Noise Important Area' due to existing traffic noise, concerns this will be worsened due to cumulative impact during both construction and operation;
 - potential air quality impacts due to construction activities and nearby satellite compound may generate dust;
 - the impact of construction traffic in the vicinity of the Smoker Brook viaduct on congestion and journey times for local residents;
 - contamination concerns for the land required for construction adjacent to Ascol Drive due to previous brine pumping associated with Holford Brine field; and
 - concern that mitigation is not adequate to compensate for ancient woodland impacts in this area.

- 7.8.2 Consultees who raised these issues included: Cheshire West and Chester Council, Mid Cheshire Against HS2, Plumley with Toft and Bexton Parish Council and individuals.

Response to consultation issues

- 7.8.3 Since publication of the working draft ES, Smoker Brook viaduct has been reduced in length by 357m and the Lostock Gralam north embankment has been extended with associated cost and maintenance benefits. The size of Smoker Brook south satellite compound has also been reduced.
- 7.8.4 It is anticipated that construction of the Smoker Brook viaduct will result in an adverse effect on views west for residents on Ascol Drive. The removal of woodland, construction activities and temporary material stockpiles will be visible through Winnington Wood, albeit heavily screened by existing woodland. Views west including those representative of views from Ascol Drive and from Holford Cottages will be subject to significant effects during construction due to the change in composition of the views.
- 7.8.5 For residents of Holford Cottages, the Smoker Brook viaduct once operational at Year 1 will represent a new component in the local landscape between Smoker Wood and Winnington Wood, although much of the structure and its approach embankment will be screened by existing mature woodland. Once mature by Year 15, landscape mitigation planting will provide screening of the viaduct and integrate the structure into the landscape setting. Therefore, residents with views west of the Western Leg Proposed Scheme will not experience residual significant effects.
- 7.8.6 HS2 Ltd does recognise that some areas may be allocated for their importance in terms of noise and the Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02), Section 13 assessment assumes 'Important Areas' are controlled to the level where there is no Noise Action Plan requirement to investigate further mitigation. The mitigation measures included as part of the Western Leg Proposed Scheme will reduce construction noise inside all dwellings in the Plumley area such that it does not reach a level where it will significantly affect residents. Proposed mitigation measures in the Plumley area, such as noise barriers, will also reduce any adverse effects on residential properties due to operational airborne noise.
- 7.8.7 There will however be significant temporary noise effects from highway works as a result of specific construction activities have been predicted at Holford Hall for one year and two months. This temporary adverse effect from construction site noise may take the form of activity disturbance to users of the wedding venue. There will be no other significant sound, noise and vibration effects to any other businesses in the Plumley area during construction or operation. HS2 Ltd will continue to engage with Holford Hall and seek reasonably practicable measures to further reduce these significant effects. Section 4.20 and Section 15 of this report detail how construction activities will be managed in accordance with the draft CoCP to reduce traffic and noise effects.

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- 7.8.8 The draft CoCP methods outlined within Section 4.7 of this report are considered effective at reducing construction air quality emissions, for example the use of enclosures to contain dust emitted from construction activities, and therefore no significant construction effects are anticipated. There are also no significant adverse effects anticipated for air quality in this area during operation of the Western Leg Proposed Scheme.
- 7.8.9 The A556 Chester Road, the A559 Manchester Road and other local roads will be used by construction traffic for access to and from Smoker Brook Viaduct South satellite compound and Smoker Brook Viaduct North satellite compound. These roads have been selected based on their suitability to provide access between the construction compounds for the Western Leg Proposed Scheme and the strategic road network. The CoCP will require the number of private car trips to and from the construction compounds to be reduced by encouraging alternative sustainable modes of transport or vehicle sharing. This will be supported by a workforce travel plan.
- 7.8.10 There will be changes in traffic flow resulting in some temporary significant adverse effects due to congestion. There will also be temporary significant adverse effects through traffic-related severance for non-motorised users. In addition, there will be some permanent significant adverse effects due to congestion and significant permanent traffic-related severance effects for non-motorised users. See Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02), Section 14 for further information.
- 7.8.11 Construction works associated with the Smoker Brook viaduct will result in the permanent loss of ancient woodland habitat, including the loss of 0.6ha of ancient woodland from Winnington Wood Ancient Woodland Inventory (AWI) site and 0.4ha from Leonard's and Smoker Wood AWI site. The loss of this irreplaceable ancient woodland habitat will result in a permanent adverse effect on the structure and function of this Ancient Woodland Inventory (AWI) site which will be significant to a national level. Replacement woodland habitat will be created within the following two areas: 5.3ha between Winnington and Peas Wood LWS and Leonard's and Smoker Wood LWS and 2.1ha immediately to the south of Leonard's and Smoker Wood LWS. Woodland planting to partly compensate for the loss of ancient woodland will include further measures such as translocation of ancient woodland soil with its associated seed bank where appropriate. It is recognised that ancient woodland is irreplaceable, and the loss of this habitat will result in a permanent significant effect. Further details on the assessment of significant effects are provided in the Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02) published as part of the ES accompanying the Bill.
- 7.8.12 Challenging ground conditions are recognised across the route of the Western Leg Proposed Scheme, both naturally occurring and associated with the North West's industrial legacy. Initial ground investigations (GI) has been undertaken and further GI and assessment of remote sensing information will be undertaken following hybrid Bill deposit, so that the detailed design of the Western Leg Proposed Scheme can be informed. In addition, HS2 Ltd have engaged with salt producers, gas storage facility owners and Network Rail to obtain information on the performance of their structures. If required, additional site-specific remediation measures will be developed during the detailed design stage, to control any

risks to human health. See Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02), Section 8 for further information.

7.9 Holford Brine Field

Consultation issues

- 7.9.1 Consultees raised issues relating to Holford Brine Field, a major site for Inovyn Enterprise Limited activities and active brine field. Concern that impacts from construction works, particularly vibration, on the nearby A556 Chester Road will disturb the brine field and cause potential land contamination or subsidence.
- 7.9.2 Consultees who raised these issues included: Plumley with Toft and Bexton Parish Council, Lach Dennis Parish Council and Mid Cheshire Against HS2 and businesses.

Response to consultation issues

- 7.9.3 Since publication of the working draft ES, a multidisciplinary technical team working on behalf of HS2 Ltd have met with Inovyn to discuss the potential impact to Inovyn's utilities, environmental mitigation and determining details of Inovyn's underground assets.
- 7.9.4 The Holford Brinefield is operated by Inovyn and located at depth below land required for the construction and operation of the Western Leg Proposed Scheme on both sides of the A556 Chester Road at Lostock Green. The depth to the top of the caverns at Holford varies with the geology but the caverns are typically 200m to 350m below ground level in this area. The Western Leg Proposed Scheme will be designed to allow the continued safe extraction and use of the existing brine field. As a result of this, the impact on salt resources and human health are not considered to be significant however the consented Springbank Farm extension to Holford Brinefield sits partially under the route of the Western Leg Proposed Scheme. The route of the Western Leg Proposed Scheme could therefore potentially impact on the viability of five of the proposed 12 caverns. Therefore, it is anticipated that significant residual effects may occur with respect to sterilisation of the salt resources associated with the Springbank Farm extension to Holford Brinefield. An assessment of land quality impacts is included in Volume 2, Community Area report: Wimboldsley to Lostock Gralam (MA02), Section 10.
- 7.9.5 Challenging ground conditions are recognised across the route of the Western Leg Proposed Scheme, both naturally occurring and associated with the North West's industrial legacy. Initial ground investigations (GI) has been undertaken and further GI and assessment of remote sensing information will be undertaken following hybrid Bill deposit, so that the detailed design of the Western Leg Proposed Scheme can be informed. In addition, HS2 Ltd has engaged with salt producers, organisations overseeing gas storage in the area and Network Rail to obtain information on the performance of their structures. If required, additional site-specific remediation measures will be developed during the detailed design stage, to control any risks to human health.

8 Pickmere to Agden and Hulseheath (MA03)

8.1 Introduction

8.1.1 The following section sets out the key locations within the Pickmere to Agden and Hulseheath (MA03) area identified during the review of consultation responses and issues raised in respect of these. These locations comprise:

- Royal Cheshire Showground;
- Peacock Lane;
- Mere Court Hotel;
- Budworth Road closure;
- Hoo Green; and
- High Legh.

8.2 Royal Cheshire Showground

Consultation issues

8.2.1 Consultees raised a number of issues regarding the impact on Cheshire Showground, these included:

- land on which Cheshire Show (and various other activities) takes place is being severed by the 2018 Consultation Scheme causing concern for impacts on visitor numbers and the viability of a popular tourist attraction and recreational facility with importance to Cheshire's tourism industry;
- disruption to nearby road network (particularly Budworth Road) impacting journey times; and
- proximity to the 2018 Consultation Scheme anticipated to cause noise and visual intrusion, including anticipated in combination effect on the amenity of visitors to Cheshire Showground.

8.2.2 Consultees who raised these issues included: Tabley Parish Council, Cheshire Agricultural Society and individuals.

Response to consultation issues

8.2.3 Since publication of the working draft ES, alterations around the access arrangements across the Western Leg Proposed Scheme have been made in line with stakeholder feedback and through ongoing engagement with the Cheshire Agricultural Society. As a result, there has been a reduction in the amount of land permanently required from the Cheshire Showground.

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- 8.2.4 The construction of the Pickmere embankment, Footpath Pickmere 9/1 underbridge, Cheshire Showground North access diversion and Cheshire Showground South access diversion will require 25% of the area used for show rings and car parking at Cheshire Showground for up to three years and six months. A smaller area of the showground (5%) will also be required permanently for the Western Leg Proposed Scheme, resulting in the Cheshire Showground being permanently split into two parts. To accommodate Footpath Pickmere 9/1 across the Western Leg Proposed Scheme, the design now incorporates an underpass, which will require considerably reduced earthworks and a reduced height of infrastructure. During construction, temporary diversions will be in place and during operation, permanent diversions utilising Footpath Pickmere 9/1 underbridge will be in place, both of which allow movement between the two sections of the showground. It is recognised that there will be a significant effect on severance for non-motorised users of Footpath Pickmere 9/1 due to the increased travel distance of 345m (construction) and 248m (operation).
- 8.2.5 In order to maintain access and avoid severance of the site during construction, there will be a temporary realignment of Footpath Tabley Inferior 3/1 to the east and west of the Western Leg Proposed Scheme for a period of one year. It is recognised that there will be a significant effect on severance for non-motorised users of Footpath Tabley Inferior 3/1 due to the increased travel distance of 1.2km.
- 8.2.6 On completion of construction, Footpath Tabley Inferior 3/1 will be permanently realigned through Cheshire Showground South access and Cheshire Showground North access and a new underbridge at Cheshire Showground will allow pedestrians to move around the site. It is recognised that there will be a significant effect on severance for non-motorised users of Footpath Tabley Inferior 3/1 due to the increased travel distance of 866m. Vehicular access into the site will also be provided via the realigned B5391 Pickmere Lane and Flittogate Lane. See proposed footpath layout once the Western Leg Proposed Scheme is operational in Volume 2, MA03 Map Book, Map series CT-06.
- 8.2.7 To enable the permanent widening of School Lane from its current width of 4m to 7.3m, School Lane will be closed for through traffic for approximately one year. Widening is required to accommodate diverted traffic associated with the permanent closure of Budworth Road. A temporary diversion route will be set up via Frog Lane, Budworth Road and B5391 Pickmere Lane for six months, increasing journey length by 3km. Access to properties will be retained. The existing Frog Lane will be also temporary closed between Budworth Road and School Lane during construction of the Frog Lane realignment. Traffic will increase disruption to the nearby road network and will cause significant adverse effects. The realignments of Frog Lane and School lane will be completed before the closure of Budworth Road.
- 8.2.8 The permanent realignment of Frog Lane, 50m west of its current alignment for 323m will result in modifications to the junctions of Budworth Road/Frog Lane and Frog Lane/School Lane, decreasing journey length for some users by 30m. Due to the permanent closure of Budworth Road users and non-motorised users will experience a permanent increased journey length of up to 3km which will cause significant adverse delay effects. See Volume 2,

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Community Area report: Pickmere to Agden and Hulseheath (MA03), Section 14 for further information.

- 8.2.9 The CoCP will require the nominated undertaker to produce local traffic management plans in consultation with the local highways authorities, which will include measures to protect the safety of motorised and non-motorised users. The draft CoCP methods outlined within Section 4.19 are considered effective at reducing noise and vibration effects, for example the selection of quiet and low vibration equipment, review of construction methodology to consider quieter methods, location of equipment on site and control of working hours. Effects on the acoustic character in Pickmere are not considered likely to be significant. Furthermore, it is not anticipated that users of the Cheshire Showground will experience significant adverse effects due to operational airborne noise.
- 8.2.10 During operation, it is anticipated that users of Footpath Pickmere 8/1 and potential visitors to the Cheshire Showground with views north-west towards the Western Leg Proposed Scheme will experience significant effects as a result of the overhead line equipment and movement of trains visible on the Pickmere embankment. The loss of mature trees and diversion of the footpath along the embankment will allow close uninterrupted views of the Western Leg Proposed Scheme. It is anticipated that effects will be reduced to non-significant by year 30 due the maturity of landscape mitigation planting.
- 8.2.11 Whilst HS2 Ltd and the Cheshire Agricultural Society are working to retain the showground on the existing site, the business will experience a significant effect as a result of the permanent loss of land and because it may not be possible to reconfigure the showground within the remaining site.

8.3 Peacock Lane

Consultation issues

- 8.3.1 Consultees raised a number of issues in relation to the Peacock Lane part closure and realignment, and construction of overbridge and two satellite compounds nearby. Issues from the realignment include:
- predicted increase in congestion and journey times, and knock on impacts to nearby road network during construction and operation;
 - road closure and congestion issues likely to impact businesses located along the road; and
 - loss of agricultural land associated with realignment and construction of overbridge.
- 8.3.2 Consultees who raised these issues included: Cheshire East Council, High Legh Parish Council, High Legh Estate, businesses and individuals.

Response to consultation issues

- 8.3.3 Since publication of the working draft ES, the proposed realignment of Peacock Lane has undergone considerable design change. Following feedback to the 2018 Consultations, Peacock Lane has been shifted 175m north of its current alignment for 1.4km, crossing the route of the Western Leg Proposed Scheme over the Peacock Lane overbridge as shown in the Volume 2, MA03 Map Book, CT-06.
- 8.3.4 Temporary closures of sections of Peacock Lane will be required during construction activities over a one year period. These closures will be on a rolling and staggered basis to ensure access to properties on Peacock Lane and Back Lane is retained. Users between Hulseheath and High Legh will be temporarily diverted via Chapel Lane, the B5569 Chester Road, the A50 Knutsford Road/Warrington Road, the B5159 West Lane and Peacock Lane. During this time, road users will experience an increased journey length of 8.6km. It is also recognised that construction traffic will increase disruption to the nearby road network, particularly due to the temporary closure of Peacock Lane. This will cause temporary significant adverse delay effects for these road users. See Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03), Section 14 for further information.
- 8.3.5 Following construction, Peacock Lane will be permanently realigned over a distance of 1.4km. The western section will be realigned on an embankment up to 47m south of its current alignment and will be crossed by the route of the Western Leg Proposed Scheme on Peacock Lane overbridge. The realignment will intersect the current alignment of Peacock Lane in the vicinity of its existing junction with Back Lane and continue on the northern side of Peacock Lane, up to 175m north of its current alignment. There will be no increase in the journey length compared to the existing alignment and significant effects on the road users are not anticipated. See Volume 2, MA03 Map Book, Map series CT-06.
- 8.3.6 In order to reduce the impact of HGV on the local road network, it is proposed that direct access to the strategic road network (the A556) will be provided from Chapel Lane. This will be in the form of two temporary slip roads, providing access to and from the south (towards the M6 junction 19). These slip roads will take six months to construct, they will be available for HS2 construction traffic only and will be operational for approximately four years and six months.
- 8.3.7 Approximately 402ha of agricultural land within the Pickmere to Agden area will be required during the construction phase of the Western Leg Proposed Scheme. Of this total, it is anticipated that approximately 246ha will be restored and available for agricultural use following construction and 156ha of agricultural land will continue to be required permanently and has been identified as a significant effect in the agricultural assessment within the ES. The draft CoCP sets out measures to reduce agriculture effects, including a method statement for stripping, handling, storing and replacing of agricultural soils to reduce risks associated with soil degradation on areas of land to be returned to agriculture use following construction.

- 8.3.8 An assessment of impacts on businesses is included in Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03), Section 12 and has identified that there will be no significant effects to businesses on Peacock Lane during construction or operation of the Western Leg Proposed Scheme.

8.4 Mere Court Hotel

Consultation issues

- 8.4.1 A number of consultees raised concern regarding the impact to Mere Court Hotel, a Grade II listed building.
- 8.4.2 Concerns raised included that the setting of Mere Court Hotel will be negatively impacted during construction due to traffic movements and construction activity, and permanently due to its proximity to the Western Leg Proposed Scheme. There was concern raised around anticipated noise pollution, in an otherwise tranquil area, which is expected to impact amenity to visitors and thus have commercial impacts to the business.
- 8.4.3 Consultees who raised these issues included: Cheshire East Council, Cheshire Gardens Trust, businesses and individuals.

Response to consultation issues

- 8.4.4 Engagement has been undertaken with major asset owners and businesses within the Pickmere to Agden and Hulseheath area including Mere Court Hotel. Since the publication of the working draft ES, the introduction of Hoo Green North Cutting retaining wall has been incorporated in the design to reduce impacts on Mere Court Hotel.
- 8.4.5 The construction of the Hoo Green North cutting will require part of the Mere Court Hotel car park and a large section of the gardens (approximately 60% of the total site) for up to four years. Approximately 40% of the grounds will also be required permanently for the Western Leg Proposed Scheme, leading to a permanent loss of parking.
- 8.4.6 Since publication of the working draft ES, the design of the Western Leg Proposed Scheme has changed to include the realignment of the A50 Warrington/Knutsford Road by up to 15m to the south of its current alignment for 550m. This realignment is required to provide a new overbridge across the Western Leg Proposed Scheme. During construction, the A50 Warrington Road will be temporarily realigned 80m to the south of its existing alignment, increasing journey length by 32m. On completion of construction, which will take approximately two years and nine months, the A50 Warrington Road will cross the Western Leg Proposed Scheme via A50 Warrington Road overbridge. Changes in traffic in A50 Knutsford Road/Warrington Road will result in both temporary and permanent significant adverse effects through traffic-related severance for non-motorised users. See Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03), Section 14 for further information.

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- 8.4.7 It is anticipated that construction of the A50 Warrington Road realignment, the A50 Warrington Road overbridge, Hoo Green North cutting and Hoo Green Lane diversion will result in an adverse effect on views south-east for guests of Mere Court Hotel. The removal of mature trees/hedgerow, construction activities and temporary material stockpiles will open up expansive views and guests will experience significant visual effects.
- 8.4.8 Mere Court Hotel garden pond restoration and further landscape mitigation planting will help integrate the Western Leg Proposed Scheme into the surrounding landscape and provide visual screening for users of Mere Court Hotel. See Volume 2, MA03 Map Book (Map series CT-06). Therefore, some views will be partially filtered through a hedgerow planted along the garden boundary. However, the proximity of Hoo Green North cutting to Mere Court Hotel means that the Western Leg Proposed Scheme will continue to be visible from the hotel by Year 30, resulting in a residual significant adverse effect.
- 8.4.9 Noise from specific construction activities associated with the construction of the Hoo Green North cutting will result in significant residual temporary effects on Mere Court Hotel for four years and seven months. During operation, a likely residual significant airborne noise effect is also identified at Mere Court Hotel.
- 8.4.10 The temporary loss of 75 out of 120 parking spaces for up to four years at Mere Court Hotel will result in a significant effect to the business. Once operational, the Western Leg Proposed Scheme will result in the permanent loss of 28 of these parking spaces, which will be significant. Due to the loss of part of the gardens and parking, there will be a significant socio-economic and traffic and transport effects on this business.
- 8.4.11 Engagement with the Mere Court Hotel remains ongoing with the aim to identify means to retain the viability of the business during the construction and operation of the Western Leg Proposed Scheme.

8.5 Budworth Road closure

Consultation issues

- 8.5.1 Consultees raised a number of issues regarding the closure of Budworth Road, including:
- predicted increase in congestion and journey times, and knock on impacts to nearby roads including School Lane and Frog Lane; and
 - road closure negatively impacting businesses that depend on the road for access, including Heyrose Golf Club and Windmill Nurseries and local farms.
- 8.5.2 Consultees who raised these issues included: Cheshire East Council, Tabley Parish Council, businesses and individuals.

Response to consultation issues

- 8.5.3 The realignment of Frog Lane will result in modifications to the junctions of Budworth Road/Frog Lane and Frog Lane/School Lane. To accommodate diverted traffic associated with the permanent closure of Budworth Road, School Lane will be realigned, comprising carriageway widening from its current width of 4m to 7.3m.
- 8.5.4 To enable the permanent widening of School Lane from its current width of 4m to 7.3m, School Lane will be closed for through traffic for approximately one year. Widening is required to accommodate diverted traffic associated with the permanent closure of Budworth Road. A temporary diversion route will be set up via Frog Lane, Budworth Road and B5391 Pickmere Lane for six months, increasing journey length by 3km. Access to properties will be retained. The existing Frog Lane will be also temporary closed between Budworth Road and School Lane during construction of the Frog Lane realignment. Traffic will increase disruption to the nearby road network and will cause significant adverse effects. The realignments of Frog Lane and School lane will be completed before the closure of Budworth Road.
- 8.5.5 The permanent realignment of Frog Lane, 50m west of its current alignment for 323m will result in modifications to the junctions of Budworth Road/Frog Lane and Frog Lane/School Lane, decreasing journey length for some users by 30m. The Western Leg Proposed Scheme will cross Budworth Road and, as a result, the road will need to be closed permanently. Access to properties will be retained on both sides of the route. It is recognised that construction traffic will increase disruption to the nearby road network, particularly after the permanent closure of Budworth Road however the closure will take place after improvements to the alternative routes have been made. Overall, due to the permanent closure of Budworth Road users and non-motorised users will experience a permanent increased journey length of up to 3km which will cause significant adverse delay effects. See Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03), Section 14 for further information.
- 8.5.6 The closure of Budworth Road is likely to generate significant effects on the operation of local business, including Heyrose Golf Club, during construction of the Western Leg Proposed Scheme as a result of the increased journey distance to access the club along with loss of through traffic and isolation of the business. During operation, Heyrose Golf Club will experience significant in-combination effects due to significant residual noise and visual effects of the Western Leg Proposed Scheme.
- 8.5.7 The Western Leg Proposed Scheme, in the Pickmere to Agden and Hulseheath area, will affect 33 farm holdings permanently; of which 18 will experience significant effects. Six holdings will be affected by property demolition, including Heyrose Farm.

8.6 Hoo Green

Consultation issues

8.6.1 Consultees raised a number of community issues in the Hoo Green area, particularly in reference to the auto transformer feeder station and construction compounds intended to be located nearby. Issues included:

- major impacts to nearby residents living at Hoo Green Lane due to proximity of compounds, including dust, noise and visual intrusion from construction activities. Impact to health of Hoo Green residents as a result;
- Hoo Green Lane auto transformer feeder station impacting character of landscape causing visual intrusion to residents;
- concern about the locations of the Hoo Green Lane auto transformer feeder station and Peacock Lane GSP in Hoo Green; and
- increase in journey times and congestion for road users during construction due to road realignments in area and traffic on A50.

8.6.2 Consultees who raised these issues included: Cheshire East Council, High Legh Parish Council, Mere Parish Council, Hoo Green Residents Team, Councillor John Sykes, businesses and individuals.

Response to consultation issues

8.6.3 Since publication of the working draft ES, the proposed sites of both the Hoo Green Lane Auto Transformer Feeder Station and Grid Supply Point (GSP) have been relocated to better serve railway systems operations for the Western Leg Proposed Scheme. The auto transformer feeder station will be located 160m south of Peacock Lane overbridge in a triangular piece of land that lies between the Manchester spur and the route of the Western Leg Proposed Scheme. The Peacock Lane GSP will be located just to the east of the Manchester spur.

8.6.4 Both the Peacock Lane auto transformer feeder station and Peacock Lane GSP will be surrounded by landscape mitigation planting to help integrate the Western Leg Proposed Scheme into the surrounding landscape. These are shown in Volume 2, MA03 Map Book, Map series CT-06.

8.6.5 Construction of large scale elements, changes to the local terrain and removal of existing vegetation and farm dwellings will impact on the tranquillity of the rural landscape in the vicinity of the Peacock Lane auto transformer feeder station. There will be significant effects on views west, including those from Hoo Green Lane and Bowden View Lane, during construction due to the change in composition of their views. During operation, residents in Hoo Green with views west of the Western Leg Proposed Scheme will experience significant effects due to changes to their views. Effects will be reduced to non-significant by year 30 due the maturity of landscape mitigation planting.

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- 8.6.6 During construction, the A50 Warrington Road will be temporarily realigned to the south of the existing alignment. However there are changes in traffic flow which will result in a temporary significant adverse effect due to additional congestion and/or delays for road users. The proposed permanent realignment of the A50 Warrington Road, 15m to the south of its existing alignment for 550m, will take approximately two years and nine months to complete and will result in a negligible change in journey length. See Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03), Section 14 for further information.
- 8.6.7 Hoo Green Lane will be diverted 450m west of its current alignment for 800m. The diversion will connect with the A50 Warrington Road realignment at a new T-junction. The existing Hoo Green Lane will be closed where it crosses the Western Leg Proposed Scheme. Access will be retained on both sides of the route of the Western Leg Proposed Scheme for both properties and to fields.
- 8.6.8 Journey lengths will increase for some users by 828m and changes in traffic flow will result in a temporary significant adverse effect due to additional congestion and/or delays for road users. See Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03), Section 14 for further information.
- 8.6.9 It is anticipated that construction of the Western Leg Proposed Scheme will result in a significant effect on the landscape character of a predominantly rural area and also views west from Hoo Green. Once operational, Hoo Green North cutting, Hoo Green North embankment and the Hoo Green box structure will be partly screened by landscape earthworks and mitigation planting. Mitigation planting will partly restore the wooded character of the landscape however significant visual effects will remain after Year 30.
- 8.6.10 The proposed mitigation measures, such as noise insulation and with taller than standardised construction screening around the construction compound, will reduce construction noise inside all individual dwellings in Hoo Green such that residents will not be significantly affected. During operation, a likely residual significant for airborne noise is predicted for the community around Agden Lane, Warrington Lane and Spring Lane. HS2 Ltd will continue to seek reasonably practicable measures to further reduce or avoid these significant effects. In doing so, HS2 Ltd will continue to engage with stakeholders to fully understand the receptors, their use and the benefit of any identified measures.
- 8.6.11 The methods outlined within Section 4.7 of this report are considered effective at reducing dust emissions from construction activities and construction traffic, for example the use of enclosures to contain dust emitted, therefore no significant dust effects in this area are anticipated.
- 8.6.12 In terms of adverse effects on health, it is acknowledged that the A50 Warrington Road main compound will be directly west of Hoo Green and will provide temporary accommodation for around 155 workers for three years and nine months. During the day, the workforce will be present on construction sites and compounds throughout the area, including work sites and satellite compounds. The daily average number of workers at each site will typically be around 40 to 80, and the duration of the works at each site will range from approximately three years to six years and three months.

- 8.6.13 The presence of construction workers is likely to be very noticeable, with construction vehicles using local roads to access compounds, and workers using facilities within local settlements, particularly Hoo Green. The assessment has identified potential wellbeing effects within Hoo Green and other communities in the area, associated with the temporary construction workforce, which will be substantial relative to the size of these communities. Effects on the community are discussed in Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03), Section 6.
- 8.6.14 The draft CoCP includes a commitment to produce and implement a community engagement framework and provide appropriately experienced community relations personnel to implement the framework and provide a first point of contact. HS2 Ltd will engage with local authorities and community representatives to identify measures aimed at fostering and maintaining good relationships between the workforce and local communities. Any measures identified will be included within the community engagement framework as appropriate.

8.7 High Legh

Consultation issues

- 8.7.1 Consultees raised a number of issues with regard to the High Legh area, including:
- concern regarding suitability of access routes to compounds and suggestions for alternatives before construction commences; and
 - concerns regarding Agden Lane Closure and lack of alternative provision for non-motorised road users.
- 8.7.2 Consultees who raised these issues included: Cheshire East Council, High Legh Parish Council, Councillor John Sykes, businesses and individuals.

Response to consultation issues

- 8.7.3 Since publication of the working draft ES, the inclusion of Peacock Lane auto transformer feeder station satellite compound and Chapel Lane satellite compound has changed the configuration of the construction compounds near High Legh. Construction compounds are required in order to facilitate the construction of the Western Leg Proposed Scheme and efforts have been made to co-locate them with railway systems compounds in order to limit the land required.
- 8.7.4 The B5391 Pickmere Lane, the A556 Chester Road and other local roads will be used for access to and from Peacock Lane satellite compound for three years, to access Peacock Lane auto transformer feeder station satellite compound for five years and Chapel Lane satellite compound for three years. These roads have been selected based on their suitability to provide access between the construction compounds for the Western Leg Proposed Scheme and the strategic road network.

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- 8.7.5 Agden Lane will be permanently closed where it crosses the route of the Western Leg Proposed Scheme, traffic will be diverted along Moss Lane, Peacock Lane realignment and Thower Lane. Access will be retained to properties on the eastern and western sides of the route. As a result of permanent changes, road users, including non-motorised users will experience an increased journey length of 2.2km. This will cause permanent significant adverse delay effects for these non-motorised and road users. See Volume 2, Community Area report: Pickmere to Agden and Hulseheath (MA03), Section 14 for further information.
- 8.7.6 It is also recognised that construction traffic will result in significant effects due to increased pressure on the local road network. The CoCP will require the nominated undertaker to produce local traffic management plans in consultation with local highways authorities, which will include measures to protect the safety of motorised and non-motorised users.

9 Broomedge to Glazebrook (MA04)

9.1 Introduction

9.1.1 The following section sets out the key locations within the Broomedge to Glazebrook (MA04) area identified during the review of consultation responses and issues raised in respect of these. These locations comprise:

- the Manchester Ship Canal crossing;
- Warburton and the A6144 Paddock Lane diversion;
- the River Bollin;
- the Trans Pennine Trail and National Cycle Route 62;
- Glazebrook;
- Dam Head Lane;
- Hollins Green; and
- Coroners Wood.

9.2 Manchester Ship Canal crossing

Consultation issues

9.2.1 Consultees raised issues about the likely impacts associated with the construction of the Manchester Ship canal viaduct which will cross the Manchester Ship Canal and pass close to the communities of Hollins Green and Rixton-with-Glazebrook including:

- visual impact of the Manchester Ship Canal viaduct on nearby properties and potential disruption to rural character area;
- potential impacts on the Black Swan public house including loss of car parking and noise and visual impacts;
- potential disruption to the commercial viability of the Manchester Ship Canal during construction and operation;
- ecological impacts from the loss of 0.5ha of ancient woodland (Coroners Wood) associated with the construction of the Manchester Ship Canal viaduct; and
- potential noise impacts from the Manchester Ship Canal viaduct on residents of properties in Hollins Green, visitors to Hollinfare Cemetery and the Black Swan public house and the adequacy of the proposed mitigation during operation.

9.2.2 Consultees who raised these issues included: Greater Manchester Combined Authority, Warburton Parish Council, Warrington Borough Council, Trafford Metropolitan Borough Council, Rixton-with-Glazebrook HS2 Action Group, businesses, and individuals.

Response to consultation issues

- 9.2.3 In response to feedback to the working draft ES Consultation, the Manchester Ship Canal viaduct has now moved up to 70m to the east where it will pass the village of Hollins Green. Construction of the viaduct will take four years and three months to complete.
- 9.2.4 This change removes a direct impact on the Black Swan public house car park and reduces the impacts of construction and operation on visitors to the Hollinfare Cemetery. As a result, there is expected to be a reduction in adverse effects from sound, noise and vibration on these community facilities and receptors compared to that predicted in the working draft ES. The realignment will also reduce the construction noise impacts on the acoustic character in the majority of the residential community, but despite this, the effects on the acoustic character in the vicinity of St Helen's Close and Manchester Road are still likely to be significant. Noise from construction activities has also been identified as resulting in significant residual temporary effects on Rixton Community Hall and St Helen's Church in Hollins Green.
- 9.2.5 The draft CoCP methods outlined within Section 4.19 of this report are considered effective at reducing noise and vibration effects. Mitigation measures may include noise and vibration controls at source (for example: where equipment is located on site, the selection of quiet and low vibration equipment, and acoustic enclosures) and screening with perimeter hoardings or temporary material stockpiles. No significant noise and vibration effects from construction or construction traffic movements are anticipated. For operation, the Manchester Ship Canal viaduct will incorporate a noise fence barrier along the western side to reduce adverse impacts due to airborne noise at the community of Hollins Green. It is not anticipated that there will be a significant effect on the residents of Hollins Green from the trains travelling across the Manchester Ship Canal viaduct during operation of the Western Leg Proposed Scheme.
- 9.2.6 Despite the mitigation measures set out in the draft CoCP, visitors to the Black Swan public house will have near and middle-distance views to large-scale construction works which will result in an adverse significant effect. Landscape mitigation planting will provide some visual screening and reflect the existing landscape pattern of hedgerows and woodland. This mitigation planting aims to maintain connectivity of landscape elements beneath the viaduct, for example PRoW, field patterns and hedgerows in the areas adjacent to the Manchester Ship Canal. Significant adverse effects to the rural landscape character in areas surrounding the Manchester Ship Canal viaduct will reduce over time as the proposed mitigation planting matures and further filters the views. However, due to the scale and height of the structure, some significant effects are likely to remain after Year 30 of operation.
- 9.2.7 For residents of Hollins Green, the Manchester Ship Canal viaduct once operational at Year 1 will represent uncharacteristic element in views of the otherwise rural landscape. There will be near distance views of the underside of the viaduct deck, whereas long views will still be possible between the viaduct piers. By Year 30 mitigation planting will filter views of the lower sections of the viaduct, however it will remain visible above these and therefore

residents with views east and visitors to the Hollinfare Cemetery will experience residual significant effects.

- 9.2.8 The scale of the Manchester Ship Canal viaduct is driven by requirements to maintain operation of the canal, which have been established through continued engagement with Peel Ports Ltd who own and operate the canal. There are no plans for any long-term closures of the Manchester Ship Canal nor are any restrictions to navigation proposed during construction, with construction sequencing to be managed in order to reduce any impact on the canal's operation. The specific details and duration of any potential short-term closures will be confirmed at the detailed design stage. No temporary or permanent effects on the commercial operation of the Manchester Ship Canal are anticipated.
- 9.2.9 Construction of the Manchester Ship Canal viaduct will result in the loss of approximately 0.5ha (13%) of ancient woodland from Coroners Wood. The loss of this irreplaceable ancient woodland habitat will result in a permanent adverse effect on the structure and function of this Ancient Woodland Inventory (AWI) site which will be significant to a national level. HS2 Ltd recognises that ancient woodland and ancient and veteran trees are irreplaceable but the loss will be partly compensated through a range of measures, including the planting of approximately 3.4ha of native broadleaved woodland adjacent to the existing woodland to help maintain structure, function and ecological connectivity of the ancient woodland habitat. Woodland planting to partly compensate for the loss of ancient woodland may also include measures such as the translocation of ancient woodland soil with its associated seed bank and the planting of native trees and shrubs of local provenance where appropriate. Despite these compensation measures, the loss of this irreplaceable habitat will result in a permanent significant residual effect upon ancient woodland at Coroners Wood.

9.3 Warburton community and A6144 Paddock Lane diversion

Consultation issues

- 9.3.1 Consultees raised issues regarding the diversion of the A6144 Paddock Lane, including:
- potential impacts on traffic and transport causing increased journey times and traffic disruption to the local communities;
 - diversion of road likely to impact connectivity to community facilities, particularly St Werburgh's New Church, and further concerns of community severance;
 - impact on nearby businesses, such as Moss Brow Farm Shop and Saracens Head public house;
 - impacts on local community wellbeing due to the temporary closure of footpaths during construction; and
 - concerns regarding impacts to health and quality of life for residents of Warburton due to noise, vibration and air quality impacts during construction.

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- 9.3.2 Consultees who raised these issues included: Trafford Metropolitan Borough Council, Warburton Parish Council, Parochial Church Council of St Werburgh's Church and individuals.

Response to consultation issues

- 9.3.3 In response to feedback to the working draft ES Consultation, the design of the A6144 Paddock Lane realignment has been refined with the addition of a roundabout at each end of the realignment where it connects with the existing A6144 Warburton Lane/Paddock Lane/Bent Lane. This alignment is required to provide an overbridge across the Western Leg Proposed Scheme to maintain a link between the village of Warburton and hamlet of Mossbrow. The realignment will be constructed mostly offline over a period of two years and three months. Traffic will continue to use the existing road during this time, with temporary traffic signals during part of the construction period. During the most intensive periods of construction, changes in traffic will result in a temporary significant adverse effect through traffic-related severance for non-motorised users. Tie in works would typically be completed at weekends or overnight with a limited traffic management scheme implemented to reduce disruption. No permanent significant effects are anticipated for motorised users. See Volume 2, Community Area report: Broomedge to Glazebrook (MA04), Section 14 for further information.
- 9.3.4 There will be permanent realignment of two PRoW in the Warburton area. The realignment of Footpath Warburton 3, part of the Bollin Valley Way, will cross the Western Leg Proposed Scheme via the Footpath Warburton 3 accommodation overbridge, increasing the length of journey by 184m. Footpath Warburton 11, will cross the Western Leg Proposed Scheme under the Manchester Ship Canal viaduct increasing the length of the journey by 196m. Non-motorised users of these footpaths will experience permanent significant severance effects as a result of increased journey lengths.
- 9.3.5 The draft CoCP methods outlined within Section 4.7 of this report are considered effective at reducing construction air quality emissions, for example the use of enclosures to contain dust emitted from construction activities and a requirement for all construction vehicles and non-road mobile machinery to comply with minimum emission standards. Therefore, no significant effects on air quality from construction are anticipated. Furthermore, no significant effects are anticipated for air quality in this area during operation of the Western Leg Proposed Scheme.
- 9.3.6 The draft CoCP methods outlined within Section 4.19 of this report are considered effective at reducing noise and vibration effects at Warburton during construction works. Mitigation measures may include noise and vibration controls at source (for example: where equipment is located on site, the selection of quiet and low vibration equipment, and acoustic enclosures) and screening with perimeter hoardings or temporary material stockpiles. No significant noise and vibration effects from construction or construction traffic movements are anticipated.

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- 9.3.7 It is anticipated that significant ground-borne noise or vibration effects from the operational railway will be reduced through the design of the track and track-bed through Warburton and Mossbrow. Additionally, noise barriers in the form of landscape earthworks approximately 2m in height have been incorporated along the top of the Warburton cutting to provide visual screening and reduce significant airborne noise effects on the communities of Warburton and Mossbrow resulting in no anticipated significant effects.
- 9.3.8 The draft CoCP includes a range of provisions that will help mitigate community and health effects associated with construction impacts to local PRoW, including implementation of temporary diversions or realignments where reasonably practicable. The amenity and recreational value of some of these PRoW may be temporarily reduced due to their proximity to construction activities, as well as other aspects such as changes in their length and appearance. Overall, the community assessment does not report any temporary significant effects from impact on public open space or recreational routes in this area.
- 9.3.9 It is acknowledged that the two settlements of Warburton and Mossbrow share community facilities including the new Church of St Werburgh's to the west of the Western Leg Proposed Scheme and Moss Brow Farm Shop to the east. Therefore, the reduced access, the creation of a visual barrier and feelings of separation from fellow residents and community facilities will result in isolation permanently affecting some residents which will be considered an adverse significant effect. Effects on the community are discussed in Volume 2, Community Area report: Broomedge to Glazebrook (MA04), sections 6 and 8.
- 9.3.10 It is anticipated that customers may be permanently discouraged from using the Saracens Head public house and a farm shop at Moss Brow Farm on the A6144 Paddock Lane as both are expected to be affected by highway changes associated with the Western Leg Proposed Scheme. These likely residual socio-economic effects are considered significant and reported in the ES.
- 9.3.11 Engagement will continue with businesses potentially affected by the realignment of the A6144 Paddock Lane, including Moss Brow Farm Shop and the Saracens Head public house, as well as with Trafford Metropolitan Borough Council, Warburton Parish council and the local community.

9.4 River Bollin

Consultation issues

- 9.4.1 Consultees raised issues regarding the River Bollin and the impact of the River Bollin west viaduct, including:
- visual impact of the Heatley South embankment, River Bollin west viaduct and Manchester Ship Canal viaduct on the River Bollin Meadowlands Landscape Character Area (LCA);
 - impacts on the ecological biodiversity alongside the River Bollin, both with regard to impact on the existing habitat during construction and through permanent land

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requirements, as well as ensuring compatibility of proposed wetland habitat mitigation with existing adjacent habitats; and

- impacts on local PRow including the Cheshire Ring Canal Walk during construction that might affect connectivity with Dunham Massey.

9.4.2 Consultees who raised these issues included: Greater Manchester Combined Authority, The Cheshire Wildlife Trust, National Trust, Trafford Metropolitan Borough Council, Warrington Borough Council and individuals.

Response to consultation issues

9.4.3 In response to feedback to the working draft ES Consultation, refinements have been made to the Western Leg Proposed Scheme design in this area to reduce ecology, landscape and visual impacts. The Heatley South embankment has been reduced in height from 15m to 13m and relocated outside the extent of the River Bollin floodplain, taking four years to construct. The Heatley North embankment has also been relocated to avoid the floodplain impact and the River Bollin West viaduct has been reduced in height from 15m to 11m. Both of these structures will take two years to construct. In addition, the realignment of the Western Leg Proposed Scheme at Hollins Green has reduced direct impacts on Fox Covert and Meadows Site of Biological Importance (SBI) to 0.1ha.

9.4.4 Approximately 3.7ha of wet woodland will be planted adjacent to Fox Covert and Meadows SBI. The proposed woodland planting will compensate for the woodland lost within the SBI and for losses elsewhere, including at the former campsite at Glazebrook, and will provide enhanced ecological connectivity along the River Bollin. In addition, approximately 2.7ha of new grassland habitats south of the River Bollin and at Fox Covert will compensate for a loss of grassland and will provide foraging habitat for barn owls and foraging and commuting habitat for bats. Once established it is anticipated that this will reduce the adverse effect on grassland and the overall effect to a level that is not significant.

9.4.5 Ponds, species rich grassland and broadleaved woodland will be established within habitat creation areas south of the River Bollin and to the west and north of Mossbrow to compensate for the loss of breeding sites, foraging habitat and places of shelter used by great crested newts and other amphibians. Following implementation, the adverse effects on amphibian populations potentially present will be reduced to a level that is not significant.

9.4.6 The nominated undertaker will require its contractors to manage impacts from construction on ecological resources, through the implementation of the measures set out within the draft CoCP, which includes sensitive construction practices and habitat management plans.

9.4.7 Mitigation and compensation to address impacts on legally protected species where appropriate will include translocation of species, the provision of replacement habitat and provision of special measures such as habitat corridors to facilitate the movement of species across the route.

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- 9.4.8 It is anticipated that construction and operation of the Heatley South embankment and River Bollin West viaduct will result in a significant adverse effect on the River Bollin Meadowlands LCA. Proposed landscape mitigation and hedgerow planting along existing field boundaries will help to filter views to the design elements from users of the Trans Pennine Trail and National Cycle Route 62, Footpath Dunham 4, Footpath Dunham 8, the wider Dunham Massey estate and residents on the B5169 Mill Lane. By Year 30 of operation, the greater maturity of the mitigation planting will continue to integrate the railway into the landscape. However, the large-scale embankments will continue to divide the LCA and remain uncharacteristic landforms within the low-lying river valley landscape resulting in a residual adverse significant effect.
- 9.4.9 During construction it is anticipated that Footpath Lymm 43/3 (Cheshire Ring Canal Walk) will be temporarily diverted for a period of approximately one year and three months with an increase in journey distance of 105m and Footpath Dunham 8 temporarily diverted for approximately one year and nine months with an increase in journey distance of 450m. These diversions will result in a temporary adverse significant effect. Existing connectivity provided by the local PRow network will be retained for all users during construction including routes to Dunham Massey.

9.5 Trans Pennine Trail and National Cycle Route 62

Consultation issues

- 9.5.1 A number of consultees raised issues relating to the Trans-Pennine Trail and National Cycle Route 62:
- noise and visual impacts of the operational rail on the amenity of these popular multi-use (walking, cycling, horse riding) routes;
 - access for recreational users during construction; and
 - noise and visual impacts of the 2018 consultation scheme Western Leg Proposed Scheme on recreational users.
- 9.5.2 Consultees who raised these issues included: Greater Manchester Combined Authority, National Trust, Trans Pennine Trail Partnership, businesses and individuals.

Response to consultation issues

- 9.5.3 Since publication of the working draft ES, the River Bollin west viaduct has been reduced in height from 15m to 11m to help reduce the visual impact on users of the Trans Pennine Trail, which forms part of National Cycle Route 62. During construction, the Trans Pennine Trail will be temporarily diverted for a period of approximately one year and nine months increasing the length of the journey by 102m. On completion of construction, the trail will be

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reinstated along its existing alignment and lowered by up to 1m for 130m to provide sufficient clearance under the River Bollin West viaduct.

- 9.5.4 It is anticipated that users of the Trans Pennine Trail and National Cycle Route 62 will experience substantial changes to the rural character of sequential views along the trail during the construction phase which will result in an adverse significant effect.
- 9.5.5 Landscape mitigation planting is proposed on both sides of Heatley South and Heatley North embankments to provide visual screening for users of the trail and to help integrate the Western Leg Proposed Scheme into the surrounding landscape. However, the River Bollin West viaduct will continue to form the skyline in views to the east, with views along Trans Pennine Trail framed by the River Bollin West viaduct deck and piers. Footpath users will have close views to the underside of the River Bollin West viaduct as it crosses over the trail. This visual change will result in a permanent adverse significant effect at Year 30.
- 9.5.6 Levels of noise from the construction and operation of the Western Leg Proposed Scheme will vary as the Trans Pennine Trail moves closer to and further from the Western Leg Proposed Scheme. Noise effects will generally be reduced by the control measures defined in the draft CoCP during construction. During operation, train sound from the Western Leg Proposed Scheme will be intermittent. Significant noise effects are therefore not anticipated on the Trans Pennine Trail during either construction or operation.

9.6 Glazebrook

Consultation issues

- 9.6.1 Consultees raised a number of issues with regard to the community of Glazebrook, including:
- construction vehicles causing traffic disruption to the local communities;
 - noise and vibration impacts as a result of construction vehicle movements;
 - community isolation and fragmentation from community facilities, such as Hollins Green Community Centre and Hollinfares Cemetery; and
 - construction movements impacting rural landscape and the visual impact of the Manchester Ship Canal viaduct.
- 9.6.2 Consultees who raised these issues included: Warrington Metropolitan Borough Council, Rixton-with-Glazebrook Community Hall and individuals.

Response to consultation issue

- 9.6.3 Since publication of the working draft ES the construction and logistics design for the Western Leg Proposed Scheme has been further refined and efforts have been made to reduce the size of the Manchester Ship Canal viaduct north main compound and co-locate the satellite civils construction compounds in order to limit the land required. The

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arrangement of compounds and construction routes can be seen in Volume 2, MA04 Map Book, Map series CT-05. The configuration of the construction compounds near Glazebrook has been changed and now comprises the following (with duration of use included in brackets):

- Manchester Ship Canal viaduct north main compound (four years and three months);
- Glazebrook Railway south satellite compound (three years); and
- Glazebrook Railway north satellite compound (four years).

- 9.6.4 The A57 Manchester Road, Manchester Road, Dam Lane and the B5212 Glazebrook Lane will be used by construction vehicles for access to and from the Manchester Ship Canal viaduct north main compound and the Glazebrook Railway south satellite and north satellite compounds. These roads have been selected based on their suitability to provide access between the construction compounds for the Western Leg Proposed Scheme and the strategic road network. It is recognised that this construction traffic will increase pressure on the local road network and cause significant effects for these road users. Construction traffic is not likely to cause significant adverse noise effects on any occupants of dwellings in the Glazebrook area.
- 9.6.5 The CoCP will require the nominated undertaker to produce local traffic management plans, which will include measures to protect the safety of motorised and non-motorised users. Further detail can be found in Section 4.20 of this report.
- 9.6.6 The diversion of Dam Head Lane via Bank Street has been removed from the Western Leg Proposed Scheme in response to local consultees concerns regarding the suitability of Bank Street to safely accommodate additional traffic, the severance of agricultural land and the assessment of further traffic studies.
- 9.6.7 No temporary construction or permanent operational effects on community facilities are anticipated in the area. The existing Dam Head Lane will be permanently closed to motorised traffic to allow for the construction and operation of the Glazebrook (Railway) viaduct which will take two years and nine months to complete. Motorised users will be diverted along Dam Lane, the A57 Manchester Road and the B5212 Glazebrook Lane increasing the length of the journey by up to 2km resulting in an adverse significant effect for road users. It is not anticipated that this diversion will result in any significant effect on congestion or delays at junctions based on the traffic assessment. Access will be maintained to all community facilities between Glazebrook and Hollins Green including the Hollins Green Community Centre and Hollinfare Cemetery.
- 9.6.8 The introduction of a new PRoW to connect the retained section of Dam Head Lane with Bank Street, will pass under Glazebrook (Railway) viaduct to maintain access under the route of the Western Leg Proposed Scheme for non-motorised users. This will take up to six months to complete.
- 9.6.9 Construction works to the Glazebrook south embankment, Glazebrook north embankment and works associated with the Manchester Ship Canal viaduct will be visible for some local residents of Glazebrook with views south-east towards the Western Leg Proposed Scheme.

During construction, there will also be temporary realignments of Footpath Rixton-with-Glazebrook 8, Footpath Rixton-with-Glazebrook 9 and Footpath Rixton-with-Glazebrook 14 with adverse significant effects on footpath users from increases in journey length.

- 9.6.10 Landscape mitigation planting will provide some visual screening of the Manchester Ship Canal viaduct for residents of Hollins Green and Glazebrook. The planting will reflect the existing landscape pattern of hedgerows and woodland, with the aim of maintaining connectivity of landscape elements beneath the viaduct, for example PRoW, field patterns and hedgerows in the areas adjacent to the canal and around Hollins Green. However, it is anticipated that there will be significant adverse effects on receptors from most viewpoints in the area. Significant adverse effects to the rural landscape character in areas surrounding the Manchester Ship Canal viaduct will reduce over time as the proposed mitigation planting matures and further filters views. However, due to the scale and height of the structure some significant effects are likely to remain after Year 30 of operation.

9.7 Dam Head Lane

Consultation issues

- 9.7.1 Consultees raised a number of issues regarding the proposed Dam Head Lane diversion including:
- disruption to road users including congestion and increased journey times due to the diversion, and the associated effects on surrounding roads such as Glazebrook Lane and the A57 Manchester Road;
 - disruption to traffic impacting the communities of Glazebrook and Hollins Green; and
 - concerns around the suitability of Bank Street to be used as part of the Dam Head Lane diversion, from a practical and safety perspective.
- 9.7.2 Consultees who raised these issues included: Rixton with Glazebrook Parish Council and individuals.

Response to consultation issues

- 9.7.3 The diversion of Dam Head Lane via Bank Street has been removed from the Western Leg Proposed Scheme in response to concerns regarding the suitability of Bank Street to safely accommodate additional traffic, severance of agricultural land and the assessment of further traffic studies. No temporary community effects during construction or permanent community effects following operation are anticipated in the area.
- 9.7.4 The existing Dam Head Lane will be permanently closed to motorised traffic to allow for the construction and operation of the Glazebrook (Railway) viaduct resulting in road users experiencing an increased journey length of 2km. Although this will cause a permanent significant adverse effect on journey length for these road users, it is not anticipated that this diversion will result in any significant effect on congestion or delays at junctions based

on the traffic assessment. However, it is recognised that construction traffic will temporarily increase disruption to the nearby road network, particularly due to the permanent closure of Dam Head Lane. See Volume 2, Community Area report: Broomedge to Glazebrook (MA04), Section 14 for further information.

- 9.7.5 The introduction of a new PRow to connect the retained section of Dam Head Lane with Bank Street, will pass under Glazebrook (Railway) viaduct to maintain access under the route of the Western Leg Proposed Scheme for non-motorised users. This will take up to six months to complete.

9.8 Hollins Green

Consultation issues

- 9.8.1 Consultees raised a number of issues relating to potential impacts to the community of Hollins Green, including:
- use of a number of roads in the village during construction will likely lead to congestion and increased journey times;
 - anticipated impacts to local residents as a result of construction traffic and proximity to Manchester Ship Canal satellite compounds;
 - size and scale of the Manchester Ship Canal viaduct north main compound and associated worker accommodation;
 - visual and noise intrusion on the tranquil setting of Hollinfare Cemetery, an historic asset, impacting visitor experience of this space due to proximity to the Western Leg Proposed Scheme; and
 - closure of, or disruption to, a number of PRow in the area during construction.
- 9.8.2 Consultees who raised these issues included: Warrington Borough Council, Rixton with Glazebrook HS2 Action Group, former MP Helen Jones, The Recreation and Leisure Group of the Rixton with Glazebrook Community Plan and individuals.

Response to consultation issues

- 9.8.3 In response to feedback on the 2018 Consultations, the alignment of the route of the Western Leg Proposed Scheme has now moved the Manchester Ship Canal viaduct up to 70m to the east where it will pass the village of Hollins Green. Construction of the viaduct will take four years and three months to complete.
- 9.8.4 The alignment change removes a direct impact to the Black Swan public house car park and reduces the impacts of construction and operation on visitors to the Hollinfare Cemetery. As a result, there is expected to be a reduction in adverse impacts from sound, noise and vibration on these community facilities and receptors. The realignment will also reduce the construction noise effects on the acoustic character in the majority of the residential

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community but despite this, the effects on the acoustic character in the vicinity of St Helen's Close and Manchester Road are still likely to be significant.

- 9.8.5 The draft CoCP methods outlined within Section 4.7 of this report will help in reducing noise and vibration effects at Hollins Green during construction of the Western Leg Proposed Scheme. Mitigation measures may include noise and vibration controls at source (for example: where equipment is located on site, quieter, low vibration equipment and acoustic enclosures) and screening with taller construction hoardings around the construction sites. These measures will reduce construction noise and provide some visual screening for visitors to the Black Swan public house, Hollinfare Cemetery and residents of Hollins Green. However, despite these measures, noise from construction activities will result in temporary significant adverse effects on Rixton Community Hall and St Helen's Church in Hollins Green.
- 9.8.6 Visitors to the Hollinfare Cemetery will have near and middle-distance views to large-scale construction works which will result in an adverse significant visual effect. Landscape mitigation planting will provide some visual screening and reflect the existing landscape pattern of hedgerows and woodland, with the aim of maintaining connectivity of landscape elements beneath the viaduct, for example PRoW, field patterns and hedgerows in the areas adjacent to the Manchester Ship Canal. Significant adverse effects to the rural landscape character in areas surrounding the Manchester Ship Canal viaduct will reduce over time as the proposed mitigation planting matures and further filters views.
- 9.8.7 It is anticipated that the location and proximity of the Manchester Ship Canal viaduct will impact on the setting of the Hollinfare cemetery. The viaduct piers will be prominent and uncharacteristic elements within the views across the rural landscape resulting in a permanent significant adverse effect at Year 30. It is also anticipated that due to the height of the structure, the overhead line equipment, noise fence barrier and movement of trains will be significantly elevated enough to not be prominent in the views for cemetery visitors.
- 9.8.8 The A57 Manchester Road, Manchester Road, Dam Lane and the B5212 Glazebrook Lane will be used by construction vehicles for access to and from the Manchester Ship Canal viaduct north main compound and the Glazebrook Railway south satellite and north satellite compounds. These roads have been selected based on their suitability to provide access between the construction compounds for the Western Leg Proposed Scheme and the strategic road network. It is recognised that this construction traffic will increase pressure on the local road network and cause significant effects for these road users. Construction traffic is not likely to cause adverse noise effects on any occupants of dwellings in the Glazebrook area.
- 9.8.9 The CoCP will require the nominated undertaker to produce local traffic management plans, which will include measures to protect the safety of motorised and non-motorised users. Further detail can be found in Section 4.20 of this report. During the most intensive periods of construction there are changes in traffic flow which will result in temporary significant adverse effects due to additional congestion and/or delays for road users. See Volume 2, Community Area report: Broomedge to Glazebrook (MA04), Section 14 for further information. The draft CoCP methods outlined within Section 4.7 of this report are

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considered effective at reducing construction air quality emissions, for example the use of enclosures to contain dust emitted from construction activities and a requirement for all construction vehicles and non-road mobile machinery to comply with minimum emission standards. Therefore, no significant effects on air quality from construction are anticipated. Furthermore, no significant effects are anticipated for air quality in this area during operation of the Western Leg Proposed Scheme.

- 9.8.10 The design of the Manchester Ship Canal viaduct north main compound has been refined in response to consultee concerns regarding its proximity to Hollinfare Cemetery and residential properties in Hollins Green. The compound has been reduced in size and repositioned so that the western boundary is approximately 100m to the east of the cemetery. The Manchester Ship Canal viaduct north main compound will be operational for approximately four years and three months with some temporary accommodation for up to 115 workers provided during that time. During the day, the workforce will be present on construction sites and compounds throughout the area, including work sites and satellite compounds in the vicinity. The presence of these construction workers is likely to be noticeable, with construction vehicles using local roads to access compounds, and workers using facilities within local settlements, particularly Hollins Green. HS2 Ltd will engage with local authorities and community representatives to identify measures aimed at fostering and maintaining good relationships between the workforce and local communities. Any measures identified will be included within the Community Engagement Framework as appropriate.
- 9.8.11 It is anticipated that the following PRoW will be temporarily diverted or realigned during construction of the Manchester Ship Canal: Footpath Rixton-with-Glazebrook 7/1, Footpath Rixton-with-Glazebrook 8/1, Footpath Rixton-with-Glazebrook 9/1 and Footpath Rixton-with-Glazebrook 14/1 (all for a period of approximately three years and six months). These diversions will result in temporary adverse significant effects on users due to increase in journey lengths.
- 9.8.12 On completion of construction, Footpath Rixton-with-Glazebrook 7/1 and 8/1 will be reinstated along their existing alignments and Footpath Rixton-with-Glazebrook 9/1 will be permanently realigned to avoid piers of the viaduct with a decrease in journey length of up to 76m. Footpath Rixton-with-Glazebrook 14/1 will be permanently diverted up to 416m to the south of its current alignment for 1km resulting in an adverse significant effect on footpath users from an increase in journey length of up to 384m.

9.9 Coroners Wood

Consultation issues

- 9.9.1 Consultees raised a number of issues regarding the impact of the 2018 Consultations Scheme on Coroners Wood. Key concerns raised included:

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- concern that Coroners Wood is an area of ancient woodland and Site of Biological Importance. Ancient woodland is an irreplaceable resource;
- concern that impacts would represent a large loss in terms of ecological value and value to the local community as an area of leisure and recreation; and
- request that any mitigation must be in keeping with local biodiversity and landscape character.

9.9.2 Consultees who raised these issues included: Greater Manchester Combined Authority, Trafford Metropolitan Borough Council, The Cheshire Wildlife Trust, The Woodland Trust and individuals.

Response to consultation issues

- 9.9.3 Since publication of the working draft ES, the Manchester Ship Canal viaduct has been realigned up to 70m to the east to reduce impacts on the community of Hollins Green resulting in the loss of approximately 0.5ha (13%) of ancient woodland from Coroners Wood. The loss of this irreplaceable ancient woodland habitat will result in a permanent adverse effect on the structure and function of this AWI site. HS2 Ltd recognises that ancient woodland and ancient and veteran trees are irreplaceable, but the loss will be partly compensated through a range of measures including the planting of approximately 3.4ha of native broadleaved woodland adjacent to the existing woodland to help maintain structure, function and ecological connectivity of the ancient woodland habitat.
- 9.9.4 Woodland planting to partly compensate for the loss of woodland may also include measures such as the translocation of ancient woodland soil with its associated seed bank and the planting of native trees and shrubs of local provenance where appropriate. Despite these compensation measures, the loss of this habitat will result in a permanent significant residual effect upon ancient woodland at Coroners Wood.
- 9.9.5 The draft CoCP methods outlined within Section 4.10 of this report detail the appropriate measures to be adopted to protect the ecology of the area where the Western Leg Proposed Scheme will be constructed, with special attention to specified areas of ecological value as identified in the ES. This includes designated sites such as ancient woodland and locally important sites such as those that are identified as Sites of Biological Interest.
- 9.9.6 No temporary or permanent significant effects on Coroners Wood as a recreational resource for the local community are anticipated.

10 Risley to Bamfurlong (MA05)

10.1 Introduction

10.1.1 The following section sets out the key locations within the Risley to Bamfurlong (MA05) area identified during the review of consultation responses and issues raised in respect of these. These locations comprise:

- Wigshaw Lane and Croft;
- Partridge Lakes Fishery;
- Byrom Hall Wood and surrounding area;
- Culcheth Linear Park;
- Lowton community;
- Holcroft Moss; and
- Culcheth.

10.2 Wigshaw Lane and Croft

Consultation issues

- 10.2.1 Consultees raised a number of concerns regarding the proposed closure of Wigshaw Lane, including:
- closure of Wigshaw Lane increasing journey times, congestion and general disruption for road users accessing schools, work and local community facilities;
 - impacts to nearby roads, particularly Kenyon Lane and the A574 Warrington Road and community isolation of Croft from Culcheth;
 - closure of Wigshaw Lane disproportionately affecting elderly and disabled persons due to length of diversion;
 - loss of community amenity associated with closure of Footpath 8;
 - A574 Warrington Road realignment intruding on area used by Culcheth Athletic Junior Football Club; and
 - noise, air quality and visual disturbance for residents of Croft during construction.
- 10.2.2 Consultees who raised these issues included: Warrington Borough Council, Croft Parish Council, Culcheth and District Rail Action Group, representatives on behalf of Culcheth Community Group, Culcheth Athletic Junior Football Club, former MP Helen Jones, businesses and individuals.

Response to consultation issues

- 10.2.3 In response to feedback to the working draft ES Consultation, engagement with Warrington Borough Council, Croft Parish Council and feedback from the local community, revisions have been made to the highways design in and around Culcheth. This includes the permanent realignment of Wigshaw Lane with a further provision to allow Wigshaw Lane to remain open during construction.
- 10.2.4 Wigshaw Lane will now be realigned up to 180m north-west of its current alignment, crossing the route of the Western Leg Proposed Scheme on Wigshaw Lane overbridge. This realignment is required to maintain connectivity between the communities of Croft and Culcheth, addressing concerns regarding community severance and access to community facilities. The realignment will be constructed mostly offline over a two-year period and traffic will continue to use the existing road during this time. Tie in works would typically be completed at weekends or overnight with a limited traffic management scheme implemented to reduce disruption. The Wigshaw Lane realignment will result in a negligible change in journey length for the majority of users. See Volume 2, Community Area report: Risley to Bamfurlong (MA05), Section 14 for further information.
- 10.2.5 During operation of the Western Leg Proposed Scheme, Glaziers Lane will be permanently closed to through traffic at Wigshaw Lane but will remain open at A574 Warrington Road with a replacement link provided south of Culcheth Linear Park. This will connect Wigshaw Lane with A574 Warrington Road and provide access to Partridge Lake Fishery from the east via Glaziers Lane. This will have a negligible change in journey length for users travelling between Wigshaw Lane with A574 Warrington Road, however road users visiting the Fishery will experience an adverse residual significant effect due to an increased journey length of 2.6km. It is also recognised that construction traffic will increase disruption to the nearby road network, particularly due to the permanent closure of Glaziers Lane. This will cause temporary significant adverse delay effects for these road users. See Volume 2, Community Area report: Risley to Bamfurlong (MA05), Section 14 for further information.
- 10.2.6 The proposed Culcheth Link Road, as described in the working draft ES will take one year and three months to complete. The link road will provide connectivity between the A574 Warrington Road and Wigshaw Lane with a new roundabout providing connection to the Wigshaw Lane realignment.
- 10.2.7 The noise assessment has found that 15 residential properties on Wigshaw Lane and 10 in the vicinity of Pendle Gardens and Wigshaw Lane will experience noise associated with the construction of the Culcheth cutting and Wigshaw Lane overbridge and realignment which will take three years and nine months to complete. The proposed mitigation measures, such as noise insulation and taller than standardised construction screening around the construction compound, will reduce construction noise inside all individual dwellings such that it does not reach a level where it will significantly affect residents. Despite these measures, the effects on the acoustic character in the Wigshaw community are considered to be significant.

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- 10.2.8 HS2 Ltd will continue to seek reasonably practicable measures to further reduce or avoid these significant effects and continue to engage with stakeholders. The design of the Western Leg Proposed Scheme in this area is partially in cutting and proposed mitigation measures, such as landscape earthworks, will also reduce adverse effects from operational airborne noise to a level that is non-significant.
- 10.2.9 The draft CoCP methods outlined within Section 4.7 of this report are considered effective at reducing construction air quality emissions, for example the use of enclosures to contain dust emitted from construction activities, and therefore no significant construction effects are anticipated. Furthermore, no significant effects are anticipated for air quality in this area during operation of the Western Leg Proposed Scheme.
- 10.2.10 The nearest residential properties in the community of Croft are located 700m south of the route of the Western Leg Proposed Scheme. No significant noise, air quality or visual effects from the construction of the Western Leg Proposed Scheme are anticipated.
- 10.2.11 In response to feedback to the 2018 Consultations and feedback from the local community, revisions have been made to the design of the A574 Warrington Road realignment. This design change removes previously anticipated effects on Culcheth Athletic Football Club and Yew Tree Farm.
- 10.2.12 The A574 Warrington Road will now be realigned up to 160m east of its current alignment, crossing the route of the Western Leg Proposed Scheme on the A574 Warrington Road overbridge and maintaining access to Culcheth from south of the Western Leg Proposed Scheme. The realignment will be constructed mostly offline over a three-year period and traffic will continue to use the existing road during this time. Tie in works will typically be completed at weekends or overnight with a limited traffic management scheme implemented to reduce disruption.
- 10.2.13 It is anticipated that there will be a permanent adverse significant effect on the setting of the Grade II listed Newchurch Old Refectory (also known as Newchurch Old Rectory) and a permanent significant effect on Bates Farm due to severance and proportion of land required for construction of the Western Leg Proposed Scheme.
- 10.2.14 The A574 Warrington Road, Glaziers Lane, Wigshaw Lane and Kenyon Lane will be used by construction vehicles for access to and from the A574 Warrington Road satellite compound, the Liverpool to Manchester Railway South satellite compound and the B5207 Wilton Lane Satellite compound. These roads have been selected based on their suitability to provide access between the construction compounds for the Western Leg Proposed Scheme and the strategic road network. It is recognised that construction traffic will increase pressure on the local road network, which will result in temporary significant adverse effects due to additional congestion and/or delays for these road users. Construction traffic is not likely to cause adverse noise effects on any occupants of dwellings in the Culcheth area.
- 10.2.15 The CoCP will require the nominated undertaker to produce local traffic management plans, which will include measures to protect the safety of motorised and non-motorised users. Further detail can be found in Section 4.20 of this report.

- 10.2.16 During construction there will be a temporary diversion of Footpath Croft 8 via the existing Wigshaw Lane for a period of one year and nine months, increasing journey length by 107m and resulting in an adverse significant effect. On completion of construction, Footpath Croft 8 will be closed permanently where it crosses the route of the Western Leg Proposed Scheme with users diverted on to the Wigshaw Lane realignment, resulting in an adverse significant effect from an increase in journey length of up to 448m.

10.3 Partridge Lakes Fishery

Consultation issues

- 10.3.1 Consultees raised concern in regard to Partridge Lakes Fishery, including:
- restricted access and impact on viability of business and visitor numbers to popular leisure facility;
 - request that alternative access off Glaziers Lane be provided;
 - placement of a noise fence barrier will mean more noise is reflected towards the fishery causing detrimental impact on fish and user experience;
 - landscape and visual effects due to proximity to the route; and
 - impact on fish due to construction activities causing vibrations, noise disturbance or air quality impacts changing oxygen conditions for fish.
- 10.3.2 Consultees who raised these issues included: Wigan Metropolitan Borough Council, Warrington Borough Council, representatives on behalf of Culcheth Community Group and individuals.

Response to consultation issues

- 10.3.3 Since publication of the working draft ES, the design of the Western Leg Proposed Scheme revisions have been made to the highways design in this location. This includes the permanent realignment of Wigshaw Lane with a further provision to allow Wigshaw Lane to remain open during construction and the closure of Glaziers Lane at Partridge Lake Fishery.
- 10.3.4 Glaziers Lane will now be realigned for 300m, 10m south of its current alignment and will be permanently closed to through traffic where it crosses the route of the Western Leg Proposed Scheme at Wigshaw Lane. This realignment is required to accommodate the construction of the Western Leg Proposed Scheme and associated engineering earthworks. Construction will take approximately one year and three months to complete with access to the Partridge Lakes Fishery maintained via the existing A574 Warrington Road and the existing Wigshaw Lane.
- 10.3.5 On completion of construction, the realigned Glaziers Lane will provide access to the Partridge Lakes Fishery, but will be closed to through traffic. The closure of Glaziers Lane will result in an adverse residual significant effect for motorised users travelling from Wigshaw Lane due to an increase in journey length of 2.6km.

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- 10.3.6 Land will be permanently required for construction and operation of the Western Leg Proposed Scheme, including the demolition of Phillips Farm, its associated outbuildings and the Warehouse Studios which comprises 11 businesses. No direct impacts to the ponds are anticipated but the removal of vegetation from the boundary of Partridge Lakes Fishery and the demolition of Phillips Farm will have a significant adverse effect on the setting by opening up views to construction works and the emerging structures.
- 10.3.7 The draft CoCP methods outlined within Section 4.7 of this report are considered effective at reducing construction air quality emissions, for example the use of enclosures to contain dust emitted from construction activities and a requirement for all construction vehicles and non-road mobile machinery to comply with minimum emission standards. Therefore, no significant effects on air quality from construction are anticipated. Furthermore, no significant effects are anticipated for air quality in this area during operation of the Western Leg Proposed Scheme.
- 10.3.8 The draft CoCP methods outlined within Section 4.7 of this report are considered effective at reducing noise and vibration effects at Partridge Lake Fishery during construction works. Mitigation measures may include noise and vibration controls at source (for example: where equipment is located on site, the selection of quiet and low vibration equipment, and acoustic enclosures) and screening with perimeter hoardings or temporary material stockpiles. No significant noise and vibration effects from construction or construction traffic movements are anticipated.
- 10.3.9 In response to feedback to the 2018 Consultations, the proposed noise fence barriers on the northern side of the Culcheth cutting have been removed. Noise barriers in the form of landscape earthworks approximately 2m in height have been incorporated along the top of both sides of the cutting to provide visual screening and to reduce significant adverse airborne noise effects to the fishery. Furthermore, it is anticipated that any significant ground-borne noise or vibration effects from the operational railway will be reduced through the design of the track and track-bed.
- 10.3.10 Proposed mitigation measures, such as taller than standardised construction screening around the construction compound, will provide visual screening for recreational users and employees of the fishery during construction. Landscape earthworks, and associated landscape mitigation planting have been incorporated into each side of the Western leg Proposed Scheme to provide visual screening for residential properties and local businesses including Partridge Lakes Fishery.
- 10.3.11 Engagement will continue with Partridge Lakes Fishery with the aim to reduce any significant adverse effects on the business operations during both the construction and operational phases of the railway as far as reasonably practicable.

10.4 Byrom Wood and surrounding area

Consultation issues

- 10.4.1 Consultees raised concerns regarding Byrom Wood as the Proposed Scheme will pass through the area on low level embankment, including:
- severance at Byrom Wood resulting in a loss of popular green space and negative effects to habitats and species;
 - visual impacts and noise intrusion from the 2018 consultation scheme will impact on tranquillity of setting; and
 - Byrom Hall is a Grade II listed building that has been acquired by HS2 Ltd, concern to local people that setting will be impacted and future use will not be community oriented.
- 10.4.2 Consultees who raised these issues included: Greater Manchester Combined Authority, Wigan Metropolitan Borough Council, Leigh Ornithological Society and individuals.

Response to consultation issues

- 10.4.3 Since publication of the working draft ES, the design of the Pennington embankment (now renamed the Lowton north embankment) has been reduced in height from 18m to 8m to help reduce the visual impact on visitors to Byrom Wood.
- 10.4.4 The construction and logistics design for the Western Leg Proposed Scheme has been further refined with the area of land potentially required during construction increasing to take into account utility diversions resulting in the permanent loss of 9ha (87%) of mixed woodland habitat within Byrom Wood. Construction will result in a significant adverse effect on the tranquillity of the area and will have a permanent impact on the views across the woodland for recreational users of Byrom Wood. Construction activities and associated vegetation removal will open up views to construction works and the emerging Lowton North embankment. Views of the Western Leg Proposed Scheme under construction will result in a significant adverse effect for residents of Byrom Hall, properties along Slag Lane, residents on the edge of Lowton and recreational users of Byrom Wood.
- 10.4.5 It is recognised that the woodland area is a valued community asset and HS2 Ltd is working with the local community, the Forestry Commission and Wigan Metropolitan Borough Council to review mitigation measures and determine the most effective methods to mitigate impacts to community use, including maintenance of the existing permissive circular footpath in Byrom Wood. Such measures will aim to provide new sections of permissive footpath to create a new circular walk in the vicinity of Byrom Wood.
- 10.4.6 The loss of this woodland will have a permanent adverse effect on the conservation status of the woodland that is significant up to district/borough level. A range of measures, including the planting of 3.5ha of native broadleaved woodland is proposed to compensate for impacts and provide ecological connectivity to existing retained woodland. The loss of

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foraging and commuting habitat will be addressed by the provision of suitable habitat creation comprising the woodland planting at Byrom Wood, grassland, wetland habitat creation and pond creation at Lightshaw Hall. Following the implementation of these measures, the effect on the bat population associated with habitats north-east of Golborne will be reduced to a level that is not significant.

- 10.4.7 Grassland habitat compensation identified as part of the Western Leg Proposed Scheme in this area will be planted as early as reasonably practicable within the construction programme to allow maximum time for them to establish prior to the losses associated with the construction of the Western Leg Proposed Scheme.
- 10.4.8 As set out in the draft CoCP, avoidance and mitigation measures will be implemented during construction to reduce adverse impacts on recreational users of Byrom Wood from airborne construction noise. It is not anticipated that there will be any significant noise effects during the operation of the Western Leg Proposed Scheme.
- 10.4.9 The draft CoCP sets out the measures that will be adopted, insofar as reasonably practicable, to control impacts on heritage assets. Design measures have been included to reduce impacts on Byrom Hall and include landscape mitigation planting to the south and west of the asset. No significant effects are expected to occur during construction or operation of the Western Leg Proposed Scheme.
- 10.4.10 Once operational, the high-level embankment will be a permanent barrier to views across Byrom Wood and despite maturing landscape mitigation planting partially screening views of the structure through this area it will still result in a significant adverse visual effect at Year 30.

10.5 Culcheth Linear Park

Consultation issues

- 10.5.1 Consultees raised concerns regarding land acquisition at Culcheth Linear Park, and community suggestions that up to 50% of the Park will be lost temporarily, issues raised include:
- temporary loss of leisure and recreational area to community;
 - a number of footpaths within the park are subject to diversion or disruption; and
 - concerns regarding drainage from nearby agricultural holdings.
- 10.5.2 Consultees who raised these issues included: Warrington Borough Council, Culcheth and District Rail Action Group and individuals.

Response to consultation issues

- 10.5.3 Since publication of the working draft ES, the construction and logistics design for the Western Leg Proposed Scheme has been further refined with the area of land potentially

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required during construction increasing to take into account utility and drainage works. This will result in the permanent loss of approximately 0.3ha of woodland habitat within Culcheth Linear Park. To accommodate these drainage and utilities works, some sections of the park may experience temporary closures. These temporary closures will be for short periods of time during construction and are not anticipated to have a significant adverse effect on recreational users of the park.

- 10.5.4 The A574 Warrington Road satellite compound will be located adjacent to Culcheth Linear Park and will manage the construction of the A574 Warrington Road realignment and overbridge and the new Culcheth Link Road. The compound will be operational for approximately four years and three months. Dense woodland vegetation along the dismantled railway line will partially filter views of construction works for visitors to Culcheth Linear Park but an adverse significant effect on the tranquillity of the park is anticipated with large-scale changes to local landform substantially altering the setting in this location.
- 10.5.5 During the first year of operation visitors to Culcheth Linear Park will experience a substantial change to the composition of near and middle-distance views. Culcheth cutting, the realigned A574 Warrington Road, overbridge and Culcheth Link Road will all be new and uncharacteristic large-scale elements introduced into views of the otherwise pastoral landscape. By Year 30, the greater maturity of mitigation planting will continue to filter views of the Western Leg Proposed Scheme but an adverse significant effect will remain in this area.
- 10.5.6 During construction, local measures will be used for a period of six months to keep Footpath Croft 19 open, where reasonably practicable. On completion of construction, Footpath Croft 19 will be closed and users will be permanently diverted along a section of A574 Warrington Road realignment and New Hall Lane resulting in a significant adverse effect from an increase in journey length of up to 861m.
- 10.5.7 During construction, local measures will be used for a period of two years to keep Footpath Croft 8a open, where reasonably practicable. On completion of construction, Footpath Croft 8a will be permanently realigned over Footpath Croft 8a and 108 overbridge resulting in a significant adverse effect from an increase in journey length of up to 300m. The footpath will cross the Linear Park at its existing location.
- 10.5.8 During construction, local measures will be used for a period of two years to keep Footpath Croft 108 and Culcheth and Glazebury 108 open, where reasonably practicable. On completion of construction, Footpath Croft 108 and Culcheth and Glazebury 108 will be permanently realigned over Footpath Croft 8a and 108 overbridge resulting in a significant adverse effect from an increase in journey length of up to 591m. The footpath will cross the Culcheth Linear Park approximately 320m to the south of its existing crossing before re-connecting to its original alignment.
- 10.5.9 The draft CoCP methods outlined within Section 4.7 of this report will require the nominated undertaker to monitor and manage flood risk and other extreme weather events, insofar as reasonably practicable, that may affect agriculture, forestry and soil resources during

construction. If necessary, temporary provision will be made to reduce the potential for impacts on existing land drainage systems during construction.

- 10.5.10 The design of the Western Leg Proposed Scheme aims to mitigate permanent impacts on flood risk and land drainage in the area during operation. Measures to do this will include provision to pass surface water runoff and land drainage flows beneath sections of raised embankment where reasonably practicable.
- 10.5.11 Where the Western Leg Proposed Scheme passes in cutting, drainage measures will be provided to prevent flow into the cutting and diverting the water into its natural catchment. Balancing ponds for new sections of highway and railway drainage have also been included in the design. There are considered to be no significant adverse effects related to water resources and flood risk arising from operation of the Western Leg Proposed Scheme.

10.6 Lowton community

Consultation issues

- 10.6.1 Consultees raised a number of concerns regarding impacts to the community of Lowton, including:
- anticipated increase in journey times and congestion for road users as a result of construction traffic and road realignments, including Slag Lane and Newton Road;
 - acquisition of residential properties;
 - impacts to residents from proximity to construction compounds, particularly residents on Scott Road;
 - concern from residents regarding increased flood risk during construction of the Proposed Scheme as Lowton has a high water table;
 - impact on Lowton Junior and Infant School particularly relating to the construction of the Lowton cutting, A580 East Lancashire Road main compound, construction routes particularly on the A572 Newton Road, air quality and health impacts and drainage concerns in and around Pocket Nook; and
 - noise intrusion during construction of Pennington embankment and operational noise from trains through Lowton.
- 10.6.2 Consultees who raised these issues included: Greater Manchester Combined Authority, Wigan Metropolitan Borough Council, Lowton Junior and Infant School, Lowton Angling Club and individuals.

Response to consultation issues

- 10.6.3 Since publication of the working draft ES, the construction and logistics design for the Western Leg Proposed Scheme has been further refined with Slag Lane now permanently realigned up to 80m to the south-east of its current alignment, crossing the route of the Western Leg Proposed Scheme under the Slag Lane viaduct. This realignment is required to

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maintain connectivity between the communities of Golborne and Leigh to the east. The realignment will be constructed mostly offline over a three-year period and traffic will continue to use the existing road during this time. Tie in works would typically be completed at weekends or overnight with a limited traffic management scheme implemented to reduce disruption.

- 10.6.4 The A572 Newton Road will be temporarily realigned up to 20m to the south-east of its existing alignment, crossing the route of the Western Leg Proposed Scheme on the A572 Newton Road overbridge. This realignment is required to maintain connectivity between the communities of Lowton St Mary's and Wash End. The realignment will be constructed mostly offline over a two-year period and traffic will continue to use the existing road during this time. Tie in works would typically be completed at weekends or overnight with a limited traffic management scheme implemented to reduce disruption.
- 10.6.5 The A580 East Lancashire Road, A572 Newton Road, Sandy Lane, Slag Lane and A573 Church Street will be used by construction vehicles for access to and from A572 Newton Road satellite compound, Slag Lane satellite compound and A573 Wigan Road satellite compound. These roads have been selected based on their suitability to provide access between the construction compounds for the Western Leg Proposed Scheme and the strategic road network. However, there are changes in traffic flow, which will result in temporary significant adverse effects due to additional congestion and/or delays for road users. Construction traffic on the A573 Bridge Street between Ashton Road and the A580 East Lancashire Road in this area is likely to cause significant residual noise effects on adjacent residential properties. Scott Road will not be used by construction vehicles or to provide access to construction compounds.
- 10.6.6 The CoCP will require the nominated undertaker to produce local traffic management plans, which will include measures to protect the safety of motorised and non-motorised users. Further detail can be found in Section 4.20 of this report. See Volume 2, Community Area report: Risley to Bamfurlong (MA05), Section 14 for further information.
- 10.6.7 Since safeguarding was confirmed on 15 November 2016 and updated 17 July 2017, 27 September 2017, 6 June 2019, 15 April 2020 (for individual sites) and 7 October 2020, qualifying owner-occupiers of property within the safeguarded area have been able to serve blight notices. Doing so requires the Government to consider purchasing their property on compulsory purchase terms (before it is actually required for the Western Leg Proposed Scheme). This is a statutory process, not specific to HS2. In addition to the statutory blight provisions that apply within the safeguarded area, property owners inside and outside of this area may be eligible for one of a number of schemes, in most cases depending on the distance of the land or property from the planned route. These schemes are non-statutory, formulated specifically for properties affected by HS2. They include property purchase schemes and cash payment schemes. Property owners may have more than one option available to them.
- 10.6.8 The draft CoCP methods outlined within Section 4.19 of this report are considered effective at reducing sound, noise and vibration effects at Lowton during construction works.

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Mitigation measures may include noise and vibration controls at source (for example: where equipment is located on site, the selection of quiet and low vibration equipment, and acoustic enclosures) and screening with perimeter hoardings or temporary material stockpiles.

- 10.6.9 The noise assessment has found that approximately 170 dwellings at Lowton will experience noise associated with the construction of the Western Leg Proposed Scheme. Proposed mitigation measures, such as noise insulation and taller than standardised construction screening around the construction compound will reduce construction noise inside all individual dwellings such that it does not reach a level where it will significantly affect residents. Despite these measures, the effects on the acoustic character in the following vicinities are considered likely to be significant. These include: Brancaster Drive, Stradbroke Close, Hesketh Meadow Lane, A57 Newton Road, Waddington Close and Horncastle Close; approximately 65 dwellings at Lowton in the vicinity of Linbeck Grove, Garton Common and Slag Lane; and approximately 10 dwellings at Lowton in the vicinity of Slag Lane.
- 10.6.10 HS2 Ltd will continue to seek reasonably practicable measures to further reduce or avoid these significant effects and continue to engage with stakeholders. The design of the Western Leg Proposed Scheme in this area is partially in cutting and proposed mitigation measures such as landscape earthworks, and noise fence barriers, will seek to reduce any adverse effects due to operational airborne noise.
- 10.6.11 Construction of the Western Leg Proposed Scheme will take place in proximity to Lowton Junior and Infant School on the A572 Newton Road, Lowton. The A572 Newton Road is the sole access to the school and will be used as a construction traffic route, enabling access to the A572 Newton Road satellite compound, which will be in operation for a period of four years. The A580 East Lancashire Road main compound will be located adjacent to the school and will be in operation for a period of four years and nine months. Construction of A572 Newton Road overbridge will take four years to complete and Lowton cutting will take three years and three months to complete with both located directly to the east of the school buildings and playground.
- 10.6.12 The construction activities will result in significant adverse visual effects on the school. In addition, a significant adverse noise effect has been identified at the school on a precautionary basis. Together the noise and visual effects will result in a major adverse in-combination effect for users of Lowton Junior and Infant School, which is considered significant. HS2 Ltd will work closely with Lowton Junior and Infant School to identify reasonably practicable measures to further mitigate the residual significant amenity effects, including discretionary measures identified in the draft CoCP.
- 10.6.13 During operation of the railway, the Western Leg Proposed Scheme will be in cutting up to 10m in depth in this area and associated earthworks and landscape mitigation planting will provide visual screening for the Lowton Junior and Infant School. No significant adverse effects are anticipated during operation of the Western Leg Proposed Scheme.
- 10.6.14 The design of the Western Leg Proposed Scheme is undertaken according to HS2 Ltd specifications and relevant legislation to ensure that there is no increase in flood risk

elsewhere as a result of the Western Leg Proposed Scheme. Measures will include replacement floodplain storage areas to address any possible loss of floodplain and sustainable drainage systems to ensure consistent draining from the Western Leg Proposed Scheme during its operational phase.

- 10.6.15 Construction of the Carr Brook aqueduct will require temporary working within the flood zone for a period of two years and three months. During construction, sequencing and temporary works will be designed to reduce potential flood risk to a level that is not significant.
- 10.6.16 The nominated undertaker will also work in accordance with Section 16 of the draft CoCP to ensure monitoring and measures are applied during the works to minimise any impacts to the local hydrology. No significant adverse effects related to water resources and flood risk are anticipated during the operation of the Western Leg Proposed Scheme in this area.

10.7 Holcroft Moss

Consultation issues

- 10.7.1 Consultees raised issues regarding Holcroft Moss Site of Special Scientific Interest (SSSI) and Risley Moss SSSI which are both part of the wider Manchester Mosses Special Area of Conservation (SAC) which may potentially be impacted due to its proximity to the Western Leg Proposed Scheme. These include:
- Glazebrook North embankment, west of Holcroft Moss SSSI, will sever the connection between Risley Moss and Holcroft Moss, the connectivity between these two sites is important for wildlife movement and health of habitats;
 - disruption to the connection between mosses will disrupt hydrological connectivity and affect the integrity of Holcroft Moss; and
 - preference for the Glazebrook North embankment west of Holcroft Moss to be changed to a viaduct.
- 10.7.2 Consultees who raised these issues included: Natural England, Environment Agency, Greater Manchester Combined Authority, Warrington Borough Council, Wigan Metropolitan Borough Council, Risley Moss Action Group, The Wildlife Trust for Lancashire, Manchester & North Merseyside, The Cheshire Wildlife Trust and individuals.

Response to consultation issues

- 10.7.3 In response to feedback to the working draft ES Consultation and engagement with Natural England and the Cheshire Wildlife Trust, revisions have been made to the design of the Western Leg Proposed Scheme in the vicinity of Holcroft Moss SSSI.
- 10.7.4 The Western Leg Proposed Scheme will pass approximately 40m to the west of Holcroft Moss SSSI on the M62 west viaduct, which has been extended south from 70m to 830m. This has been extended to avoid impacts on the local groundwater at Holcroft Moss SSSI and

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maintain ecological connectivity between the mosses and the wider landscape. Construction of the M62 West viaduct on the south side of the M62, will take two years and three months to complete. As a result of this change, the Glazebrook embankment adjacent to Holcroft Moss in the working draft ES has been removed from this area and no significant effects on ecology or water resources are now anticipated.

- 10.7.5 The realignment of a high-pressure gas pipeline to cross the Western Leg Proposed Scheme will require the decommissioning of the existing pipeline, which crosses beneath Holcroft Moss SSSI. The works will be undertaken from outside the boundary of the SSSI and no significant adverse effect on the integrity of the SSSI is anticipated. This approach has been agreed with Natural England.
- 10.7.6 The draft CoCP methods outlined within Section 4.7 of this report are considered effective at reducing construction and air quality emissions, for example the use of enclosures to contain dust emitted from construction activities and a requirement for all construction vehicles and non-road mobile machinery to comply with minimum emission standards. Therefore, no significant effects on air quality from construction are anticipated. Furthermore, no significant effects are anticipated for air quality in this area during operation of the Western Leg Proposed Scheme.
- 10.7.7 Holcroft Moss is located adjacent to the M62 which will be used as a construction traffic route. However, no significant effects on air quality during construction of the Western Leg Proposed Scheme is anticipated.

10.8 Culcheth

Consultation issues

- 10.8.1 Consultees raised concerns regarding impact to the area of Culcheth, these include:
- community severance between Culcheth and Croft, particularly for pedestrians;
 - noise, air quality and visual disturbance, and general disruption for residents, associated with construction work, construction traffic and construction activities for residents at Culcheth; and
 - impact to schools, particularly travel disruption for students to and from Culcheth High School, and disturbance to Newchurch Community Primary School as a result of proximity to A574 Warrington Road satellite compound.
- 10.8.2 Consultees who raised these issues included: Croft Parish Council, Councillor Susan Bland, Culcheth Women's Institute, Culcheth and District Rail Action Group, former MP Helen Jones, businesses and individuals.

Response to consultation issues

- 10.8.3 In response to feedback to the 2018 Consultations, engagement with Croft Parish Council and feedback from the local community, revisions have been made to the highways design

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in and around Culcheth. This includes the permanent realignment of Wigshaw Lane with a further provision to allow Wigshaw Lane to remain open during construction.

- 10.8.4 Wigshaw Lane will now be realigned up to 180m north-west of its current alignment, crossing the route of the Western Leg Proposed Scheme on Wigshaw Lane overbridge. This realignment is required to maintain connectivity between the communities of Croft and Culcheth, addressing concerns regarding community severance and access to community facilities. The realignment will be constructed mostly offline over a two-year period and traffic will continue to use the existing road during this time. Tie in works would typically be completed at weekends or overnight with a limited traffic management scheme implemented to reduce disruption. The Wigshaw Lane realignment will result in a negligible change in journey length for the majority of users. See Volume 2, Community Area report: Risley to Bamfurlong (MA05), Section 14 for further information.
- 10.8.5 During operation of the Western Leg Proposed Scheme, Glaziers Lane will be closed permanently to through traffic at Wigshaw Lane but will remain open at A574 Warrington Road with a replacement link provided south of Culcheth Linear Park. This will connect Wigshaw Lane with A574 Warrington Road and provide access to Partridge Lake Fishery from the east via Glaziers Lane. This will have a negligible change in journey length for users travelling between Wigshaw Lane and A574 Warrington Road, however road users visiting the Fishery will experience an adverse residual significant effect due to an increased journey length of 2.6km.
- 10.8.6 It is also recognised that construction traffic will increase disruption to the nearby road network, particularly due to the permanent closure of Glaziers Lane. This will cause temporary significant adverse delay effects for these road users. See Volume 2, Community Area report: Risley to Bamfurlong (MA05), Section 14 for further information.
- 10.8.7 The proposed Culcheth Link Road described in the working draft ES will take one year and three months to complete. The link road will provide connectivity between the A574 Warrington Road and Wigshaw Lane with a new roundabout providing connection to the Wigshaw Lane realignment.
- 10.8.8 The A574 Warrington Road, Glaziers Lane, Wigshaw Lane and Kenyon Lane will be used by construction vehicles for access to and from the A574 Warrington Road satellite compound, the Liverpool to Manchester Railway South satellite compound and the B5207 Wilton Lane Satellite compound. These roads have been selected based on their suitability to provide access between the construction compounds and the strategic road network. It is recognised that construction traffic will increase pressure on the local road network and cause significant effects for road users. Construction traffic is not likely to cause adverse noise effects on any occupants of dwellings in the Culcheth area.
- 10.8.9 The CoCP will require the nominated undertaker to produce local traffic management plans, which will include measures to protect the safety of motorised and non-motorised users. Further detail can be found in Section 4.20 of this report. However, there are changes in traffic flow, which will result in temporary significant adverse effects due to additional

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congestion and/or delays for road users. See Volume 2, Community Area report: Risley to Bamfurlong (MA05), Section 14 for further information.

- 10.8.10 The draft CoCP methods outlined within Section 4.7 of this report are considered effective at reducing construction air quality emissions, for example the use of enclosures to contain dust emitted from construction activities. As a result, no significant construction effects are anticipated. Furthermore, no significant effects are anticipated for air quality in this area during operation of the Western Leg Proposed Scheme.
- 10.8.11 The draft CoCP methods outlined within Section 4.19 of this report are considered effective at reducing noise and vibration effects at Culcheth during construction works. Mitigation measures may include noise and vibration controls at source (for example: where equipment is located on site, the selection of quiet and low vibration equipment, and acoustic enclosures) and screening with perimeter hoardings or temporary material stockpiles. Despite these measures, noise and vibration from specific construction activities have been identified as resulting in significant residual temporary effects on Newchurch Community Primary School in Glebeland. HS2 Ltd will continue to seek reasonably practicable measures to further reduce or avoid these significant effects and will continue to seek engagement with key stakeholders in the area, including schools.
- 10.8.12 Proposed mitigation measures, such as noise insulation and taller than standardised construction screening around the construction compound will reduce construction noise inside all individual dwellings such that it does not reach a level where it will significantly affect residents. Despite these measures, the effects on the acoustic character in the vicinity of Wigshaw Lane, Robins Lane, Crossfield Avenue, Newchurch Lane, Pendle Gardens and Glebeland, in the area of Culcheth are considered likely to be significant.
- 10.8.13 The design of the Western Leg Proposed Scheme in this area is partially in cutting and proposed mitigation measures in the form of landscape earthworks approximately 2m in height have been incorporated along the top of the Culcheth cutting to provide visual screening and to reduce significant adverse airborne noise effects to the communities of Culcheth and Wigshaw.

11 Hulseheath to Manchester Airport (MA06)

11.1 Introduction

11.1.1 The following section sets out the key locations within the Hulseheath to Manchester Airport (MA06) area identified during the review of consultation responses and issues raised in respect of these. These locations comprise:

- Rostherne Mere (Ramsar, SSSI, National Nature Reserve);
- Ashley;
- Manchester Airport and station;
- Hale Barns and Warburton Green;
- Mobberley Road;
- Sunbank Woods and Ponds and Davenport Green Woods; and
- Tatton Park.

11.2 Rostherne Mere (Ramsar, SSSI, National Nature Reserve)

Consultation issues

11.2.1 Consultees raised issues relating to the impact on Rostherne Mere, including:

- impact of the balancing pond near Blackburn's Brook on the ecological biodiversity of Rostherne Mere;
- potential impacts during the construction and operation of the 2018 consultation scheme on the hydrological regime at Rostherne Mere; and
- issues relating to construction impacts, such as the potential for noise, vibration or air quality changes to harm wildlife.

11.2.2 Consultees who raised these issues included: Natural England, Cheshire East Council, Rostherne Parish Council, Cheshire Wildlife Trust, Esther McVey MP for Tatton and individuals.

Response to consultation issue

11.2.3 Since the publication of the working draft ES, a number of changes have been incorporated around Rostherne Mere, including to the balancing pond located near Blackburn's Brook, which is no longer included in the Western Leg Proposed Scheme. Groundwater mitigation has also now been included in the design.

11.2.4 Construction is anticipated to extend over a period of four to five years and will comprise intensive activity, including but not limited to the movement of large number of vehicles, the

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movement and stockpiling of soils, excavations, and the storage of materials. All represent potential risks to the Ramsar site which could result in contamination of surface and sub-surface flows, or the generation of dust from vehicles on construction traffic routes, these potential impacts associated with construction activities will be managed throughout the implementation of the CoCP. Therefore, in terms of construction related activities, the implementation of the CoCP will avoid adverse effects on the integrity of Rostherne Mere with no residual effects.

- 11.2.5 It is acknowledged that there is concern that Hoo Green, Millington and Rostherne cuttings could restrict groundwater flow to Rostherne Mere. Restricted groundwater flow could lead to reduced volumes of water reaching the mere and lead to the degeneration and potential loss of habitats associated with Rostherne Mere. Changes to water levels will be mitigated through an appropriate drainage system, which has been developed through engagement with Natural England and the Environment Agency. This will return groundwater from an area of the cutting via gravel recharge trenches located along Cherry Tree Lane and south of Hoo Green North cutting which is in the Rostherne Mere catchment area. The recharge trenches will maintain groundwater discharge to at least current baseline levels. Once implemented, it is anticipated that any adverse effect on standing water habitats at Rostherne Mere will be reduced to a level that is not significant.
- 11.2.6 It is not anticipated that significant adverse effects on the structure and function of the Ramsar site will occur due to changes in air quality resulting from construction activities.
- 11.2.7 Sound, noise and vibration impacts have not been identified as having a significant adverse effect on wildlife. However, impacts on biodiversity will be managed throughout the construction phase through the measures set out in the draft CoCP. This will mean that procedures are implemented to control and limit disturbance to areas of nature conservation interest and protected species.

11.3 Ashley

Consultation issues

- 11.3.1 Consultees raised issues relating to the village of Ashley as a result of construction and operation of the Ashley embankment, Thorns Green embankment and the closure and realignment of Ashley Road and Mobberley Road. Issues raised include:
- visual impacts and noise impacts of the 2018 consultation scheme at Ashley embankment during operation to a quiet, rural area;
 - a cutting was proposed as an alternative to the Ashley embankment to reduce landscape and noise impacts and request for clarity as to why this was not possible;
 - Ashley Road realignment will result in increased journey times and congestion, making it difficult to access community facilities in Ashley and surrounding areas; and
 - number of visitors accessing the Ashley area for recreational activities, such as walking and cycling, that will potentially be impacted by the 2018 consultation scheme.

- 11.3.2 Consultees who raised these issues included: Cheshire East Council, Tatton Park Board, Esther McVey MP for Tatton and individuals.

Response to consultation issues

- 11.3.3 Since the publication of the working draft ES, foundations to enable future provisions for NPR have been introduced to the Ashley area. These include:
- a viaduct for NPR Manchester to Liverpool junction;
 - the Ashley IMB-R, to support railway infrastructure maintenance activities and the Mid-Cheshire (Railway); and
 - the Mobberley Road viaduct to carry the route over the Mid-Cheshire Line and the realigned Mobberley Road.
- 11.3.4 Due to stakeholder concern around noise and landscape and visual impacts affecting the village of Ashley, an alternative design to explore the implications of Ashley in cutting and to compare with the design of the Western Leg Proposed Scheme has been considered. Whilst the cutting would result in reduced landscape and visual impacts, generally the cutting design would have a minor worsening environmentally, with a major worsening for ecology and water resources due to increased direct and indirect habitat loss compared to the current Western Leg Proposed Scheme design. The findings concluded that the current design overall provides a better solution when considering overall a range of factors including technical complexity, environmental impact, cost and impact to construction programme.
- 11.3.5 The design of the Western Leg Proposed Scheme requires the permanent closure of Ashley Road where it crosses the route of the Western Leg Proposed Scheme. A turning head will be provided to facilitate vehicle access on the retained section of Ashley Road. Users will be diverted up to 850m south-east of its current alignment for 1km and will join the realigned Mobberley Road before crossing the route of the Western Leg Proposed Scheme underneath the Mid-Cheshire (Railway) and Mobberley Road viaduct, increasing journey length by up to 2.7km. On completion of construction, there will be tie-in works and traffic management for a period of six months to connect the new diversion with the existing road, to the south of the Western Leg Proposed Scheme, and realigned Mobberley Road.
- 11.3.6 The diversion of Ashley Road will also affect users of Footpaths Ashley 3/1 and 6/5. These will need to be diverted temporarily, with an increase in distance between 1.3km and 1.7km respectively. Both footpath diversions are considered to have a moderate significant adverse effect on non-motorised users. Users of Footpath Ashley 6/4 will be required to use an alternative route along the diverted Footpath Ashley 8/1 to cross under Western Leg Proposed Scheme at the Mid-Cheshire (Railway) and Mobberley Road viaduct. This is considered significant for non-motorised users as a result of increasing the overall distance by up to 157m. A new PRoW will be included to maintain the north-south link under the viaduct from the Ashley Road diversion to Ashley Road, west of the Mid-Cheshire Line. It will

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also connect with the diverted Footpath Ashley 6/5. See Volume 2, Community Area report: Hulseheath to Manchester Airport (MA06), Section 14 for further information.

- 11.3.7 Ashley Road and Mobberley Road have been assessed and proposed for construction traffic routes based on their suitability to accommodate the vehicle movements required. It is expected that there will be some temporary traffic disruption such as congestion as a result of the increased pressure on the road network in and around Ashley. As set out in Section 4.20 of this report, the CoCP will require the nominated undertaker to produce local traffic management plans in consultation with local stakeholders such as the Local Highway Authorities and transport operators, so any diversions take account of local transport routes. In addition, as far as reasonably practicable, HGV will use temporary site haul routes alongside the route of the Western Leg Proposed Scheme to reduce the number of movements on the strategic and/or primary road network to reduce the impact on the local road network including Ashley Road and Mobberley Road. However during the most intensive periods of construction, changes in traffic will result in temporary significant adverse effects through traffic-related severance for non-motorised users (including cyclists).
- 11.3.8 During operation, increases in traffic will also result in increased traffic severance for non-motorised users (including cyclists) along Mobberley Road between Breach House Lane and Back Lane. See Volume 2, Community Area report: Hulseheath to Manchester Airport (MA06), Section 14 for further information.
- 11.3.9 It is recognised that construction of elements including Ashley embankment and Thorns Green embankment will impact the Ringway Lower Wooded Farmland Landscape Character Area (LCA), including the wider area of Ashley. There will be significant adverse effects on landscape and visual receptors for this LCA due to the introduction of large-scale earthworks and the presence of temporary material stockpiles as well as construction traffic, which will introduce uncharacteristic levels of movement along Ashley Road, which is currently a country road.
- 11.3.10 A series of landscape mitigation measures, including landscape planting and landscape earthworks, have been proposed to provide screening for the Ashley embankment and Thorns Green embankment from residents of Ashley. It is anticipated that these mitigation measures will assist to integrate the assets into their wider landscape context. Landscape mitigation planting and hedgerow planting will, as it matures, further screen the Ashley embankment, Mid-Cheshire line (Railway) and Mobberley Road viaduct and Thorns Green embankment. However, once operational it is acknowledged that due to the scale of the structures, some significant landscape and visual effects are likely to remain on the LCA in Year 30.
- 11.3.11 The assessment has identified that there are no temporary or permanent effects on recreational facilities, public open space or recreational routes in this area. See Volume 2, Community Area report: Manchester Piccadilly Station (MA08), Section 6 for further information.
- 11.3.12 At the community level, the operation of the Western Leg Proposed Scheme in the village of Ashley has not been identified as having a significant adverse noise effect. As a result of

Mobberley Road being realigned further south from residential receptors, there is likely to be a beneficial effect on approximately 10 dwellings in the vicinity of Ashley Road.

11.4 Manchester Airport and station

Consultation issues

- 11.4.1 Consultees raised issues regarding Manchester Airport High Speed station, including:
- transport connectivity between Manchester Airport High Speed station and Manchester Airport;
 - integration of Manchester Airport High Speed station (and associated car parks) into the existing landscape character area;
 - how impacts to the tranquillity of the landscape will be managed; and
 - the demolition of Grade II Listed building, Buckhall, The Four Seasons Hotel (also known as the Manchester Airport Marriott Hotel).
- 11.4.2 Consultees who raised these issues included: Trafford Metropolitan Borough Council, Greater Manchester Combined Authority (GMCA), Transport for Greater Manchester (TfGM), Ringway Parish Council, Hale Barns Residents Group, businesses and individuals.

Response to consultation issues

- 11.4.3 Since the publication of the working draft ES, changes have been made to Manchester Airport High Speed station through design development and to accommodate future NPR services and Metrolink services, such as:
- the realignment of the A538 Hale Road, realignment of the A538 Hale Road/Station Access gyratory, and permanent closure of Hasty Lane to enable access to Manchester Airport High Speed station;
 - highway improvements at the M56 junction 6 connecting the realigned A538 Hale Road, the A538 Wilmslow Road and Runger Lane;
 - increase in the length of Manchester Airport High Speed station cutting by 100m; and
 - temporary realignment of a 1.4km section of the M56 during the construction period to accommodate the construction of M56 East tunnel.
- 11.4.4 HS2 Ltd continues to work with key local stakeholders including Highways England, TfGM, GMCA, Manchester Airports Group, Manchester City Council and Trafford Metropolitan Borough Council to ensure a transport connection between Manchester Airport High Speed station and Manchester Airport.
- 11.4.5 The provision for a Metrolink viaduct at Manchester Airport High Speed station will allow for future connectivity between Manchester Airport High Speed station and Manchester Airport. A section of viaduct will be constructed as part of the Western Leg Proposed Scheme to enable future provision of a Metrolink Station. Approaches to the viaduct from the west and

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east will not be constructed as part of the Western Leg Proposed Scheme, as they will be delivered by other schemes.

- 11.4.6 The Manchester Airport High Speed station building will have forecourts to the east and west leading to a central concourse area. The western forecourt will include provision for public transport such as taxi queuing bays, taxi pick-up and drop-off bays, bus bays, an airport shuttle bus bay, and bicycle bays. The eastern forecourt will include provision for private motorised vehicular drop-offs and pick-ups.
- 11.4.7 Changes to the existing road network will improve traffic flows at the M56 junction 6 and will provide vehicular access to Manchester Airport High Speed station. M56 Hasty Lane underpass extension will maintain non-motorised user access between Hasty Lane and Manchester Airport High Speed station. A pedestrian and cycle route will run parallel to Manchester Airport High Speed station access road (west), connecting the realigned A538 Hale Road to the realigned Thorley Lane.
- 11.4.8 The landscape and visual assessment has identified significant visual effects to residents and users of the A538 Hale Road, Brooks Drive and Roaring Gate lane due to views of the Manchester Airport High Speed station (and associated car parks) and the loss of woodland at Davenport Green Wood. Landscape mitigation planting, woodland habitat creation and hedgerows are proposed throughout the area, including early planting prior to construction works east of Brooks Drive, between Davenport Green Wood and Flaxhigh Covert. This will gradually become more established during construction activity and during operation this will provide some visual screening as planting matures. Effects will remain significant until Year 30 where the magnitude of change will have reduced to non-significant as a result of maturing planting.
- 11.4.9 The introduction of construction compounds such as the Manchester Airport High Speed station North satellite compound will introduce a lit area into the middle-distance for residents of Brooks Drive. The removal of vegetation during construction will open up distant views of the lighting on the M56 and at Manchester Airport. There will be a medium magnitude of visual change and a moderate adverse significant effect. The controls on light spill set out in the draft CoCP will limit the change these new light sources introduce to the wider view.
- 11.4.10 The permanent lighting required for the Manchester Airport High Speed station (and associated car parks), cars and buses on the western access road will be clearly visible during night-time from dwellings on Brooks Drive from Year 1 operation of the Western Leg Proposed Scheme, resulting in a significant night-time effect. Overtime, maturing woodland habitat creation will partially screen the lighting along the elevated access road to Manchester Airport High Speed station and on the station forecourt, by Year 30 the night-time effect will reduce to non-significant due to growth and maturity of the woodland habitat planting.
- 11.4.11 New structures such as the Manchester Airport High Speed station (and associated car parks), Manchester Airport High Speed cutting, Thorley Lane overbridge, Manchester Airport High Speed, A538 Hale Road overbridge (north), Manchester tunnel south portal building

and Manchester tunnel south portal auto-transformer station will substantially alter the landscape character of Altrincham and Hale Urban Fringe Farmland LCA. Mitigation planting will provide some landscape integration of Manchester Airport High Speed station (and associated car parks), Manchester Airport High Speed station access roads (east and west), Thorley Lane overbridge, A538 Hale Road overbridge (north) and Manchester tunnel south portal building. By Year 30, new areas of woodland will partly restore the wooded character of the landscape. The magnitude of change will remain medium and there will be a moderate adverse significant effect. Tranquillity will also be affected, although traffic and aircraft noise are already perceptible across the local area.

- 11.4.12 HS2 Ltd will continue to engage with local stakeholders so the design of the Manchester Airport High Speed station (and associated car parks) takes into consideration the local aspirations for development in this area. Woodland habitat creation and landscape mitigation planting will provide some visual screening of the Manchester Airport High Speed station (and associated car parks), but the large scale means that the tops of the station buildings will remain visible above intervening vegetation.

11.5 Hale Barns and Warburton Green areas

Consultation issues

- 11.5.1 Consultees raised issues regarding Hale Barns and Warburton Green, including:
- noise from operational trains, in combination with existing noise from Manchester Airport and the M56, impacting quality of life, particularly due to the proximity of the route to the residential area;
 - request for a sound barrier to mitigate operational noise impact;
 - issues regarding visual impact associated with proximity of route to residential area;
 - a cut and cover tunnel was suggested as an alternative to the cutting to reduce landscape and noise impacts; and
 - anticipated traffic disruption and congestion due to diversion of traffic to Manchester Airport High Speed station via Hale Road and use of the roundabout.
- 11.5.2 Consultees who raised these issues included: Greater Manchester Combined Authority, Ringway Parish Council, Hale Barns Residents Group and individuals.

Response to consultation issues

- 11.5.3 Since the publication of the working draft ES, changes have been made to Manchester Airport High Speed station through design development and to accommodate future NPR services and Metrolink services.
- 11.5.4 Noise impacts as a result of the operation of the Western Leg Proposed Scheme, including embedded mitigation measures, will avoid or reduce adverse effects due to airborne noise for the majority of receptors in the Hale Barns area. Existing baseline sound levels are

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included as part of the noise assessment undertaken and includes baseline sound levels from main transport routes, such as the M56, the A538 Hale Road and Manchester Airport.

- 11.5.5 At the individual residences, the proposed mitigation measures will reduce operational noise inside all dwellings such that it does not reach a level where it will significantly affect residents and, therefore, no likely residual significant effects are identified.
- 11.5.6 Noise fence barriers have not been included as part of the design of the Western Leg Proposed Scheme in the Hale Barns and Warburton Green areas; the noise assessment has not identified a requirement for their inclusion. Where there are no envisaged noise barriers, noise will be reduced by landscape earthworks provided to avoid or reduce significant visual effects and engineering structures such as cuttings and safety fences on viaducts.
- 11.5.7 At the community level, mitigation measures including landscape earthworks along south-eastern side of Ringway cutting and to the west and east of Manchester Airport High speed station cutting and noise mitigation will substantially reduce the potential airborne sound impacts and noise effects that would otherwise arise from the Western Leg Proposed Scheme. In addition, the speed of operational trains will be reduced on approach to and departure from Manchester Airport High Speed station.
- 11.5.8 Residents of Burnside, Warburton Green and PRoW users will experience visual effects to the east due to large-scale components associated with construction, such as the M56 East satellite compound, earthworks and temporary stockpiles. The visual assessment has also identified a significant night-time effect due to light spill from the M56 East satellite compound, however controls on light spill set out in the draft CoCP are expected to limit the change this light source will introduce. Views of the Manchester Airport High Speed station cutting will be partially screened at ground level by a landscape earthwork, extending the length of the cutting, however loss of vegetation during construction will open up longer range views. Woodland habitat creation and landscape mitigation planting in association with landscape earthworks will largely screen Manchester Airport High Speed station cutting and the A538 Hale Road realignment from ground level. Visual effects will remain significant until Year 30 where the magnitude of change will have reduced to non-significant as a result of maturing planting.
- 11.5.9 During construction, residents and users of the A538 Hale Road will experience significant visual effects due to the construction of the A538 Hale Road service roads (south and north), the A538 Hale Road realignment, Manchester Airport High Speed station cutting, the A538 Hale Road/station access gyratory and the A538 Hale Road overbridges (south and north). The removal of roadside and garden vegetation will open up views of construction and the emerging structures. The visual assessment has also identified a significant night-time effect due to light spill from the M56 East satellite compound, however controls on light spill set out in the draft CoCP are expected to limit the change this light source will introduce.
- 11.5.10 During operation, residents and users of the A538 Hale Road will experience close range views of the A538 Hale Road service roads (north and south) and the A538 Hale Road realignment, due to the loss of garden and roadside vegetation during construction. The service roads, constructed in the gardens of properties along the road, will bring traffic

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closer to residents at the eastern end of the A538 Hale Road. The hedgerow planting will not restore the screening effect of the trees and mature garden vegetation removed from residential gardens during construction, therefore residual significant effects are predicted to remain at year 30.

- 11.5.11 Consideration has been given to a cut and cover tunnel alternative between the M56 (near junction 6) and A538 Hale Road and whilst this option would have fewer landscape and visual impacts, this alternative would have greater environmental impacts during construction i.e. noise air and visual mainly from increased construction traffic as well as increased construction footprint. Furthermore, this cut and cover tunnel would require larger land take, take longer to construct and have a higher construction cost.
- 11.5.12 The Manchester Airport High Speed Station cutting, landscape earthworks and surrounding landscape planting will provide mitigation for noise and visual effects, anticipated air quality impacts will be managed through the draft CoCP that will set out measures to manage dust, air pollution, odour and exhaust emissions. The feasibility of a cut and cover tunnel option was discussed with the Hale Barns Residents Group in September 2019.
- 11.5.13 Changes to the existing road network will form the A538 Hale Road/Station Access gyratory, which will provide access to and accommodate Manchester Airport High Speed station. The existing roundabouts located northbound and southbound of the M56 junction 6 will be replaced with a signalised crossroad (northbound) and gyratory system to access the Manchester Airport High Speed station; and a signalised crossroad (southbound). The following changes are described in detail below:
- realignment of the A538 Hale Road, 285m north-east of its current alignment for 725m. Eastbound traffic will cross the route of the Western Leg Proposed Scheme via A538 Hale Road overbridge (north). Westbound traffic will cross the route of the Western Leg Proposed Scheme via A538 Hale Road overbridge (south). The A538 Hale Road service road (south) will be provided to maintain access to residential properties;
 - closure of a section of Hasty Lane to the west of the Western Leg Proposed Scheme. The A538 Hale Road service road (north) will be provided to maintain access to residential properties;
 - the junction of the realigned A538 Hale Road, M56 junction 6 northbound slip roads, and A538 Wilmslow Road will be changed from a roundabout to a signalised crossroad; and
 - the junction of the A538 Wilmslow Road, the M56 junction 6 southbound slip roads and Runger Lane will be changed from a roundabout to a signalised crossroad.
- 11.5.14 Temporary highway changes required to facilitate the construction of the permanent highway diversions and realignments such as the temporary realignment of a section of the M56 south of junction 6 is required for three years and three months; and temporary realignment of the A538 Hale Road for a period of two years and eight months. The draft CoCP sets out measures to ensure that any disruption caused by construction traffic is minimised by contractors and that public access is maintained where reasonably practicable.

- 11.5.15 The Western Leg Proposed Scheme will require the permanent widening, diversion and realignment of the A538 Hale Road and the A538 Wilmslow Road. The revised road layout has been designed to provide adequate capacity for traffic demands as well as forecasted traffic growth. HS2 Ltd continues to engage with stakeholders so that the Western Leg Proposed Scheme design aligns with anticipated forecasted traffic growth.
- 11.5.16 There are changes in traffic flow, which will result in a permanent significant adverse effect due to additional congestion and/or delays for road users. See Volume 2, Community Area report: Hulseheath to Manchester Airport (MA06), Section 14 for further information.

11.6 Mobberley Road

Consultation issues

- 11.6.1 Consultees raised issues regarding the impacts from realignment of Mobberley Road, these include:
- realignment of Mobberley Road, which is already considered a busy road, resulting in increased journey times, congestion and road traffic accidents;
 - associated footpath realignments (e.g. Footpath No. 6) being disruptive to users and concerns that design must be made accessible to all users; and
 - road realignment impacts LWS and woodland near Arden House, as well as Erlam's Meadow SBI and associated habitats and protected species.
- 11.6.2 Consultees who raised these issues included: Cheshire Wildlife Trust, Millington Parish Council, Tatton Park Board and individuals.

Response to consultation issues

- 11.6.3 Since publication of the working draft ES, a temporary railhead at Ashley, the Mid-Cheshire (Railway) and Mobberley Road viaduct to carry the route of the Western Leg Proposed Scheme over the Mid-Cheshire Line and the realigned Mobberley Road have all been introduced to the design of the Western Leg Proposed Scheme.
- 11.6.4 The temporary railhead at Ashley will provide a facility for the rail systems contractor to construct track, signal and electrifications systems for the Western Leg Proposed Scheme. The realigned Mobberley Road will pass over the Mid-Cheshire Line (Railway) and under the Western Leg Proposed Scheme (Mobberley Road viaduct). The Western Leg Proposed Scheme will require the permanent realignment of Mobberley Road up to 142m east of its current alignment for 824m, which will take two years to complete. The length of journey will increase by 43m resulting in negligible change in journey length. It is anticipated that the realignment will be built offline and tied into the existing alignment on completion, in order to reduce impacts on traffic in this location. Mobberley Road will remain open during the realignment.

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- 11.6.5 On completion of construction, there will be tie-in works and traffic management requiring weekend closures over a period of six months. The movement of excavated or fill material and construction vehicles accessing construction compounds during the construction of the Western Leg Proposed Scheme together with temporary road closures and diversions is expected to result in changes in daily traffic flows. This will result in a temporary significant adverse effect due to additional congestion and/or delays for road users. See Volume 2, Community Area report: Hulseheath to Manchester Airport (MA06), Section 14 for further information.
- 11.6.6 It is recognised that the PRow network is a valued community asset and HS2 Ltd has worked with the local community and Cheshire East Council to review the required temporary and permanent PRow diversions and determine the most effective methods to mitigate impacts to community use.
- 11.6.7 Any temporary arrangements required during construction will remain in place until the PRow is either re-established or a permanent diversion or realignment is constructed. A section of Footpath Ashley 6/5 will be diverted up to 440m east of its current alignment for 1.3km, to join the new PRow and crossing the route of the Western Leg Proposed Scheme underneath the Mid-Cheshire line (Railway) and Mobberley Road viaduct, which is considered to result in a significant effect from increase in travel distance of up to 1.7km.
- 11.6.8 The draft CoCP sets out the approach that will be undertaken to reduce impacts due to diversions, realignments and/or closures of PRow. Where reasonably practicable, PRow, including diversions, will be maintained for pedestrians, cyclists and equestrians, including reasonable adjustments to maintain or achieve inclusive access. HS2 Phase 2b Western Leg Information Paper E5: Roads and public rights of way⁴⁰ explains how the effects of the Western Leg Proposed Scheme on roads and PRow along the line of route will be managed.
- 11.6.9 The permanent realignment of Mobberley Road has undergone an independent safety assessment and the design is in accordance with the Design Manual for Roads and Bridges. There will be no significant effects on accidents and safety as there are no locations where there are both accident clusters and substantial changes in traffic due to either construction or the operation of the Western Leg Proposed Scheme.
- 11.6.10 It is anticipated that changes in traffic will result in permanent significant adverse effects through traffic-related severance for non-motorised users (including cyclists). As set out in Section 4.20 of this report, the CoCP will require the nominated undertaker to produce local traffic management plans in consultation with local stakeholders such as the Local Highway Authorities and transport operators, so any diversions take account of local transport routes. During operation increases in traffic will also result in increased traffic severance for non-motorised users (including cyclists) along Mobberley Road between Breach House Lane and Back Lane. See Volume 2, Community Area report: Hulseheath to Manchester Airport (MA06), Section 14 for further information.
- 11.6.11 Construction of Ashley railhead, the realigned Mobberley Road and Mobberley Road offline overbridge will result in the permanent loss of 1.3ha (100%) of lowland deciduous woodland at Ashley Brickworks LWS (formally Erlam's Meadow LWS). The loss of woodland will have a

permanent adverse effect, which will be significant at the county/metropolitan level. The creation of a 1.7ha area of rough meadow with ponds and stream habitat around the area of the realigned Mobberley Road has been proposed to mitigate the loss of this LWS. Due to the extent of habitat creation and measures to ensure the establishment there will be no significant effect on the conservation status of woodland or grassland habitats.

- 11.6.12 The loss of the Arden House LWS woodland and ancient woodland habitat will be partly compensated through a range of measures, including planting of approximately 0.9ha of native broadleaved woodland within the Ashley railhead site following removal of the railhead site after completion of construction works.

11.7 Sunbank Woods and Ponds and Davenport Green Woods

Consultation issues

- 11.7.1 Consultees raised issues regarding Sunbank Wood, Hancock's Bank Ancient Woodland and Davenport Green Wood including:
- impact on ancient woodlands within Sunbank Wood and Davenport Green Wood;
 - impact to species and habitats in Sunbank Wood due to construction of Ringway Cutting and Sunbank Lane realignment;
 - potential impacts to ponds and watercourses within Sunbank Wood and Davenport Green Wood Site of Biological Interest (SBI); and
 - impact on setting of ancient woodland due to proximity to the scheme, potentially impacting its amenity to visitors.
- 11.7.2 Consultees who raised these issues included: Natural England, The Woodland Trust, Cheshire East Council, Ringway Parish Council and individuals.

Response to consultation issues

- 11.7.3 Since the publication of the working draft ES, changes have been made to Manchester Airport High Speed station through design development and in order to accommodate future NPR services and Metrolink services.
- 11.7.4 Construction of the Manchester Airport High Speed station will result in the permanent loss of 0.7ha (54%) ancient woodland habitat from Davenport Green Wood Ancient Woodland Inventory (AWI) site, resulting in a significant effect to a national level. The loss of ancient woodland will be partly compensated through a range of measures, including planting of 5.1ha of native broadleaved woodland, in three locations, between Warburton Green and Davenport Green Wood. The proposed planting will provide habitat connectivity between Davenport Green Wood and Flaxhigh Covert. It is recognised that ancient woodland is

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irreplaceable and will result in a permanent adverse residual effect where this habitat is lost. This will be significant at the national level.

- 11.7.5 The construction of Ringway cutting and Sunbank Lane realignment will not result in any impacts to species or habitats within Sunbank Wood.
- 11.7.6 Construction of River Bollin East viaduct will result in the permanent loss of 0.3ha (1%) of Sunbank Wood and Ponds SBI. The loss of mixed semi-natural woodland and ponds supporting a range of amphibian species including great crested newt will have an adverse effect on the structure and function of the site, which will be significant at up to the county/metropolitan level.
- 11.7.7 There are two watercourses within Sunbank Wood and Ponds SBI; Tributary of River Bollin 1 and Tributary of River Bollin 2. Neither of these watercourses will be crossed or significantly impacted by the Western Leg Proposed Scheme. The draft CoCP will set out measures to ensure that site activities and working methods are effectively managed. This will protect the quality of surface water and groundwater resources from other adverse effects, including significant changes to the hydrological regime, through controls to manage the rate and volume of runoff.
- 11.7.8 Timperley Brook flows through Davenport Green Wood SBI and will be crossed by the Western Leg Proposed Scheme at the location of the Manchester Airport High Speed station. Where Timperley Brook is crossed by the Western Leg Proposed Scheme, an inverted siphon is proposed to convey Timperley Brook underneath the Manchester Airport High Speed station. This has the potential to result in a significant effect on the hydromorphology of the watercourse. The loss of open channel in this location will be mitigated by a floodplain and a new section of open channel to the west of Brooks Drive. On a precautionary basis, it is anticipated that significant residual effects will remain on the water quality in Timperley Brook. HS2 Ltd continues to work with stakeholders, such as Natural England and the Environment Agency, so that impacts during construction and operation are minimised on Davenport Green Wood SBI.
- 11.7.9 Davenport Green Wood SBI, covering an area of 3.6ha, is designated for semi-natural broadleaved woodland and bird assemblages. Construction of Manchester Airport High Speed station will result in the permanent loss of 1.7ha (50%) of Davenport Green Wood SBI, of which 0.7ha (54%) is ancient woodland habitat from Davenport Green Wood AWI site. The loss of woodland, including ancient woodland, at Davenport Green Wood SBI will result in the loss of features that contribute to the existing character of the rural landscape. This contributes towards a permanent significant landscape effect on Altrincham and Hale Urban Fringe Farmland Landscape Character Area (LCA) during construction and operation of the Western Leg Proposed Scheme. The draft CoCP sets out measures that will be put in place to protect the visual amenity in rural and urban areas (including designated landscape areas, parks and open spaces and smaller green spaces in urban areas) from construction activities.

11.8 Tatton Park

Consultation issues

11.8.1 Consultees raised issues regarding Tatton Park including:

- landscape and visual impacts upon the Grade II* listed Park and Garden Tatton Park from views from Tatton Park including views of the embankment at Ashley and the Mobberley Road realignment; and
- access constraints and effects on the wider road network to Tatton Park during events following the closure of Ashley Road and the use of Cherry Tree Lane for construction traffic leading to a socio-economic impact on loss of visitors attending events.

11.8.2 Consultees who raised these issues included: Cheshire East Council, Rostherne Parish Council, Tatton Park Board and individuals.

Response to consultation issues

- 11.8.3 Since publication of the working draft ES, Ashley infrastructure maintenance base-rail (IMB-R), Rostherne East embankment have been included in the design of the Western Leg Proposed Scheme. The introduction of Ashley IMB-R will support the railway infrastructure maintenance activities for the Western Leg Proposed Scheme. Rostherne East embankment will be introduced to provide passive provision for the NPR Manchester to Liverpool junction. See Volume 2, MA06 Map Book, Map series CT-05.
- 11.8.4 The design of the Western Leg Proposed Scheme requires the permanent closure of Ashley Road where it crosses the route of the Western Leg Proposed Scheme, with access to properties on the northern side of the route maintained. The Ashley Road Diversion will be constructed and opened for use before closure of the existing Ashley Road. Users will be diverted up to 850m south-east of its current alignment for 1km and will join the realigned Mobberley Road before crossing the route of the Western Leg Proposed Scheme underneath the Mid-Cheshire (Railway) and Mobberley Road viaduct, increasing journey length by up to 2.7km. On completion of construction, there will be tie-in works and traffic management for a period of six months to connect the new diversion with the existing road, to the south of the Western Leg Proposed Scheme, and realigned Mobberley Road.
- 11.8.5 The Ashley Road, Cherry Tree Lane, the M56 Temporary Overbridge and other local roads will be used by construction traffic for access to and from Rostherne cutting satellite compound and Blackburn's Brook satellite compound. These roads have been selected based on their suitability to provide access between the construction compounds for the Western Leg Proposed Scheme and the strategic road network. It is acknowledged that visitors to Tatton Park use a variety of roads will be aware of the construction traffic using Ashley Road, but no significant socio-economic effects are anticipated on the park.
- 11.8.6 Landscape earthworks and mitigation planting along Rostherne cutting, Rostherne East box structure and Rostherne East embankment will provide visual screening to nearby receptors.

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Therefore, no significant effects are expected. Views experienced by Tatton Park visitors are mainly contained within the estate woodland, with visitors to Tatton Park unlikely to experience any change to views because the Ashley IMB-R, and Ashley embankment will be screened by the existing landform and intervening vegetation.

12 Davenport Green to Ardwick (MA07)

12.1 Introduction

12.1.1 The following section sets out the key locations within the Davenport Green to Ardwick (MA07) area identified during the review of consultation responses and issues raised in respect of these. These locations comprise:

- Manchester tunnel south portal;
- Withington Golf Club;
- Ashfield Lodge;
- Wrengate Wood;
- Christie Hospital;
- Lytham Road vent shaft site; and
- Manchester tunnel construction works.

12.2 Manchester tunnel south portal

Consultation issues

12.2.1 Consultees raised concerns in relation to the construction and operation of the Manchester tunnel south portal. Key issues included:

- concern that design and construction of tunnel will not be in keeping with the local area; particularly given Manchester tunnel south portal is located within the Hale and Davenport Green Urban Fringe Landscape Character Area;
- permanent loss of habitats including woodland, grassland, scrub and ponds due to construction;
- impact to residential properties from the tunnel boring machine (TBM) during construction of the Manchester tunnel;
- impacts to general quality of life as a result of noise and vibration arising from tunnelling activities; and
- transportation and management of large volumes of excavated material.

12.2.2 Consultees who raised these issues included: Cheshire Wildlife Trust, Trafford Metropolitan Borough Council and individuals.

Response to consultation issues

12.2.3 A description of the 12.9km section of the Western Leg Proposed Scheme, including the section of scheme between Manchester tunnel south portal to the Manchester tunnel north

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portal is described in Volume 2, Community Area report: Davenport Green to Ardwick (MA07), Section 2.

- 12.2.4 The Western Leg Proposed Scheme will be predominantly in tunnel to avoid adverse effects on residential property as it passes through the Davenport Green to Ardwick area. It is anticipated that this will reduce the potential for impacts on designated sites, habitats and species and will avoid or reduce impacts on features of ecological value during operation. A landscape character assessment has been undertaken and is outlined in Volume 5 of the ES along with the Volume 5, Map Books. The most apparent changes to the landscape and views are related to the presence of construction plant, construction compounds and material storage and stockpiling.
- 12.2.5 Since publication of the working draft ES, additional mitigation planting has been included in the design around the Manchester Airport High Speed station and Manchester tunnel south portal. This mitigation planting aims to provide some integration of the Western Leg Proposed Scheme into the landscape of Altrincham and Hale Urban Fringe Farmland Landscape Character Area (LCA) within Hulseheath to Manchester Airport (MA06) area. The tops of Manchester Airport High Speed station (and associated car parks) and the Manchester tunnel south portal building will remain visible above the vegetation during operation of the Western Leg Proposed Scheme. The extensive areas of new woodland will partly restore the wooded character of the LCA. Due to the remaining visibility of the tops of these structures, the environmental assessment does identify a permanent moderate adverse significant effect.
- 12.2.6 The Manchester tunnel itself will be underground and not be visible to impact the Altrincham and Hale Urban Fringe Farmland LCA. However, there are surface structures, which will be visible from the LCA, these being vent shafts, tunnel portals and associated infrastructure. The design of these structures will be refined during detailed design.
- 12.2.7 Construction of the Manchester tunnel north portal will result in the permanent loss of 0.6ha of open mosaic habitat at Ardwick and construction of the Palatine Road vent shaft will result in the removal of 1.4 ha (20%) of woodland within the Withington golf course.
- 12.2.8 Since publication of the working draft ES, and in accordance with the route-wide approach to mitigation outlined in the EIA SMR, additional woodland habitat creation has been included in the design. As part of the Western Leg Proposed Scheme, 2.7ha of woodland habitat creation will be created in response to the loss of non-ancient woodland. To compensate for the loss of 0.6ha of open mosaic habitat in Ardwick, an area of 1ha of open mosaic habitat will be created at ground level and on the retained section of an existing viaduct within the land required for construction of the Western Leg Proposed Scheme. Following establishment, the adverse effect on open mosaic habitat will be reduced to a level that is not significant.
- 12.2.9 The Manchester tunnel will be constructed using tunnel boring machines (TBM) working northwards from Manchester tunnel south portal, and southwards from Manchester tunnel north portal. The TBM will be extracted at Palatine road vent shaft. As the rotating head of the TBM 'cuts' through the ground, the TBM could give rise to ground-borne noise and

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vibration that is perceptible, albeit only for short periods of time (generally a matter of days as the TBM approaches and passes) to the nearest residential receptors. Modern TBM that control vibration and ground-borne noise generation at source will be used.

- 12.2.10 In line with the draft CoCP, any residual temporary ground-borne noise or vibration impacts will be managed through community engagement including advanced notification to residents. Taking account of this and the short duration of potential ground-borne noise or vibration impacts, significant effects on residential receptors as a result of tunnelling are considered unlikely.
- 12.2.11 Material from excavation of the Manchester tunnel will be removed at both the south and north portals. From the Manchester tunnel north portal, the proposed construction sidings will connect with the Glossop Line for the movement of excavated materials. This will reduce the volume of construction traffic on local roads within the vicinity of the Manchester tunnel north portal.
- 12.2.12 Material generated from excavation of Manchester tunnel and associated works in the area will be used for backfilling of borrow pits in other community areas or removed off site by rail and road for external disposal.
- 12.2.13 Based on the construction planning and programme, the excavated material from the Manchester tunnel south portal will be managed via the Manchester tunnel south portal main compound, which will provide a transfer node to the south of the compound, accessed from Thorley Lane and via site haul routes.
- 12.2.14 Traffic modelling has been undertaken to assess the impact of construction of the Western Leg Proposed Scheme on the local road network. Traffic impacts have been assessed based on all changes and therefore direct impacts from removal of spoil cannot be isolated. The movement of excavated or fill material and construction vehicles accessing construction compounds during the construction of the Western Leg Proposed Scheme together with temporary road closures and diversions is expected to result in changes in daily traffic flows. Further details on the traffic assessment can be found in Volume 2, Community Area report: Manchester Piccadilly Station (MA07), Section 14.

12.3 Withington Golf Club

Consultation issues

- 12.3.1 Consultees raised concerns regarding impacts to Withington Golf Club, due to construction and operation of the Palatine Road vent shaft. Key issues included:
- displacement of water as a result of new infrastructure associated with the Western Leg Proposed Scheme such as the Palatine road vent shaft and the auto transformer station within the existing Didsbury flood plain;
 - wider flood risk to properties that displacement of water might cause;

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- impacts on construction as a result of 'deliberate' flooding of the golf course multiple times per year;
- visual impacts of the headhouse building, auto transformer station (ATS) and elevated roadway associated with the vent shaft;
- impacts on user experience and impacts on visitor numbers to the golf course; and
- noise from vent shaft on a quiet and rural area.

12.3.2 Consultees who raised these issues included: Greater Manchester Combined Authority, Manchester City Council, The Friends of Marie Louise Gardens, Didsbury West Ward, businesses and individuals.

Response to consultation issues

- 12.3.3 Since publication of the working draft ES and in response to consultation feedback, the Palatine Road vent shaft has been relocated to the site of the Withington Golf Club car park to reduce the impact on flood storage capacity in the area. The revised location of the Palatine Road vent shaft formed part of the Design Refinement Consultation, which ran from June to September 2019. Since closure of the Design Refinement Consultation, the Secretary of State has confirmed the relocation of the vent shaft at Palatine Road.
- 12.3.4 Based on the Western Leg Proposed Scheme design and programme, the Palatine Road vent shaft satellite compound will be used to manage construction of the Palatine Road vent shaft and headhouses, which will take five years to complete. The installation of railway systems equipment in the Palatine Road vent shaft and headhouses will take nine months to complete. Construction sequencing and temporary works will be designed to reduce potential flood risk. Method statements will be produced by the nominated undertaker in consultation with the Environment Agency and the Lead Local Flood Authority (LLFA). HS2 Ltd will continue to consult with the Environment Agency and the LLFA to reduce, as far as reasonably practicable, flood risk impacts and required mitigation for the River Mersey floodplain and Didsbury flood storage basin.
- 12.3.5 Following discussion with the Environment Agency, there is a need to provide volume for volume floodplain compensation. This is required for the temporary and permanent loss of floodplain storage due to the location of the Palatine Road vent shaft satellite compound during both construction and operation of Palatine Road vent shaft within the statutory reservoir of Didsbury flood storage basin. Due to presence of the existing Didsbury flood storage basin and River Mersey flood zone area, a replacement floodplain storage area is required. This will be located within the existing Environment Agency Didsbury flood storage basin within Withington Golf Club golf course.
- 12.3.6 Although this replacement floodplain storage area did not form part of the working draft ES consultation, it was included in the subsequent 2020 Phase 2b Western Leg Design Refinement Consultation, which ran from 7 October 2020 to 11 December 2020, and reflects changes made in this area. Additional measures will be required to mitigate for the increase in peak flood levels at four residential properties to the north and west of Palatine Road vent

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shaft. These mitigation measures may include provision of flood walls or bunds along the boundary of Withington golf course and/or the increase in size of the culvert conveying Tributary of River Mersey 2 beneath B5167 Palatine Road. HS2 Ltd will continue to engage with the Environment Agency, and other stakeholders, to identify potential mitigation to reduce the flood risk impact and ensure no significant effects on flood risk to nearby receptors as far as reasonably practicable.

- 12.3.7 Since publication of the working draft ES, landscape planting mitigation has been provided around the Palatine Road vent shaft headhouse and ATS to reduce landscape and visual impacts from the Western Leg Proposed Scheme. A landscape character assessment has been undertaken and is outlined in Volume 5 of the ES along with the Volume 5, Map Books. The landscape and visual impacts of the Palatine Road vent shaft headhouse building and the ATS when viewed from the Withington golf course are anticipated to be significant during operation in Year 1. Engagement with local stakeholders will continue in order to consider local aspirations within the detailed design and with the aim that the design contributes to the natural and built environment where feasible. As it matures, landscape mitigation planting will partially screen the Palatine Road vent shaft reducing visual impacts. This planting will mature until the effects are predicted to be non-significant by year 15 of operation.
- 12.3.8 Land required from Withington Golf Club during construction of the Western Leg Proposed Scheme will affect four holes and result in the demolition of the club house. For the purposes of the environmental impact assessment, it is assumed that the loss of the club house and four holes will result in the golf club being unable to function at the commencement of the construction of the Western Leg Proposed Scheme. HS2 Ltd is continuing to engage with owners and operators of Withington Golf Club, to identify reasonably practicable measures to help mitigate the likely significant effects identified in this assessment.
- 12.3.9 No significant construction or operational noise effects from the Palatine Road vent shaft are currently anticipated. Construction activities will be managed in accordance with the draft CoCP to reduce noise impacts arising from construction activities and their effects on local residents, individual receptors and wider communities.

12.4 Ashfield Lodge

Consultation issues

- 12.4.1 Consultees raised concerns regarding impacts to Ashfield Lodge residential properties, due to construction and operation of Palatine Road vent shaft. Key issues included:
- in combination impacts to nearby residents during construction of the Palatine Road vent shaft including dust, light pollution, noise and vibration;
 - visual intrusion of the Palatine Road vent shaft to residents where they used to have uninterrupted views across the golf course; and

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- specific concerns raised by individual residents, concerning personal impacts and impacts on property access.

12.4.2 Consultees who raised these issues included: The Friends of Marie Louise Gardens, Didsbury West Ward, businesses and individuals.

Response to consultation issues

12.4.3 Since publication of the working draft ES, the Palatine Road vent shaft has been relocated to the site of the Withington Golf Club car park. This revised location formed part of the Design Refinement Consultation, which ran from June to September 2019. Since closure of Design Refinement Consultation, the Secretary of State has confirmed the relocation of the vent shaft at Palatine Road.

12.4.4 As a result of this relocation, there are not anticipated to be any significant dust or noise effects from construction of the Western Leg Proposed Scheme on Ashfield Lodge. Residential properties are relatively well screened by existing roadside and garden vegetation.

12.4.5 Street lighting lights the B5167 Palatine Road, however, the presence of the Palatine Road vent shaft satellite compound will intensify sky glow in the surrounding area. The controls on light spill set out in the draft CoCP such as use of appropriate lighting will limit the change these new light sources introduce to the wider view, although the extent of the new lighting will result in an adverse significant effect during construction.

12.4.6 Looking south, residents at Ashfield Lodge will see the removal of vegetation to make way for a temporary access track leading to areas of new woodland habitat creation during construction. During operation of the Western Leg Proposed Scheme, growth and maturity of the landscape mitigation planting will reduce these effects to non-significant by year 15.

12.4.7 Access to Ashfield Lodge residential properties will be maintained throughout construction of the Western Leg Proposed Scheme. Further information can be found in the HS2 Phase 2b Western Leg Information Paper D10: Maintaining access to residential and commercial property during construction⁸⁵

12.5 Wrengate Wood

Consultation issues

12.5.1 Consultees raised concerns regarding impacts to Wrengate Woods Site of Biological Importance (SBI) as a result of construction and operation of Palatine Road vent shaft. Key issues included:

⁸⁵ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper D10: Maintaining access to residential and commercial property during construction*.

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- impacts from construction activity on habitat and habitat connectivity such as within Mersey Valley;
- impacts on woodland areas and species that are valued by the local community from construction of the vent shaft; and
- increased likelihood of flood risk and subsidence as a result of construction impacts to Fielden Brook (connected to Wrengate Wood).

12.5.2 Consultees who raised these issues included: Natural England, Didsbury West Ward, Greater Manchester Combined Authority, Manchester City Council, businesses and individuals.

Response to consultation issues

12.5.3 Since publication of the working draft ES, the Palatine Road vent shaft has been relocated to the site of the Withington Golf Club car park. The revised location formed part of the Design Refinement Consultation, which ran from June to September 2019. Since closure of Design Refinement Consultation, the Secretary of State has confirmed the relocation of the vent shaft at Palatine Road.

12.5.4 The proposed location for the Palatine Road vent shaft will not involve any direct adverse impacts upon the Wrengate Wood SBI. Wrengate Wood SBI is partially within an area of 2.7ha identified for habitat creation or enhancement to compensate for woodland lost as a result of the Palatine Road vent shaft construction works. The mitigation planting is proposed to connect Wrengate Wood SBI and Heyscroft Ancient Woodland, with Stenner Woods and Millgate Fields Local Nature Reserve. This planting will help maintain the structure and enhance the function of the woods and wildlife. A temporary adverse effect on woodland habitat within the Davenport Green to Ardwick area is expected until these areas have become established, after which these measures will reduce the overall effect on woodland to a level that is not significant.

12.5.5 The Palatine Road vent shaft and headhouse will be located in the floodplain of the River Mersey. Construction and operation of Palatine Road vent shaft will not result in any direct adverse impacts upon the Fielden Brook.

12.5.6 Details of the water resources and flood risk assessment undertaken; including flood risk modelling is included in the Volume 2, Community Area report: Davenport Green to Ardwick (MA07), Section 15. The modelling shows that the presence of Palatine Road vent shaft will lead to localised changes to peak flood levels. The assessment identifies a permanent moderate adverse effect on peak flood levels at four residential properties near Palatine Road vent shaft, due to changes in the conveyance of flood flows around the vent shaft site. Additional measures will be required to compensate for the increase in peak flood levels and may include provision of flood walls or bunds along the boundary of Withington Golf course and/or the increase in size of the culvert conveying Tributary of River Mersey 2 beneath the B5167 Palatine Road. Maps showing the location of the key environmental features, the key construction and key operational features can be found in the Volume 2, MA07 Map Book, Map series CT-10, CT-05 and CT-06, respectively.

- 12.5.7 HS2 Ltd is continuing to engage with the Environment Agency in order to identify reasonably practicable measures to help mitigate the likely significant effects identified in this assessment.

12.6 Christie Hospital

Consultation issues

- 12.6.1 Consultees raised concerns regarding impact to The Christie Hospital as a result of construction of Manchester tunnel and Wilmslow Road vent shaft. Key issues included:
- noise and vibration impacts to the hospital arising from tunnelling activities during the construction of the Manchester tunnel;
 - impact on visitors to the hospital as a result of losing 30% of the car parking spaces due to construction of the Wilmslow Road vent shaft; and
 - increased traffic and congestion on Wilmslow Road as a result of vent shaft construction impacting ease of access to the hospital as well as connectivity between the towns of Didsbury and Withington.
- 12.6.2 Consultees who raised these issues included: Greater Manchester Combined Authority, Manchester City Council, businesses and individuals.

Response to consultation issues

- 12.6.3 A tunnel boring machine (TBM) will be used to construct the Manchester tunnel. As the rotating head of the TBM 'cuts' through the ground, the TBM could give rise to ground-borne noise and vibration that is perceptible, although only for short periods of time (generally a matter of days as the TBM approaches and passes) to the nearest receptors. Modern TBM that control vibration and ground-borne noise generation at source will be used for the construction of the Manchester tunnel.
- 12.6.4 The Christie Hospital has been identified as a hospital with vibration sensitive equipment/operations and a specific risk assessment has been carried out which indicates that during construction, predicted vibration levels at the closest hospital building with vibration sensitive equipment will be above the established criteria. The Hospital's new development, which will include a magnetic resonance imaging (MRI) room, is considered to be the most vibration sensitive space and will be located in the basement of the new building. On the basis of a precautionary assessment, The Christie Hospital is identified as being subject to a likely significant temporary adverse vibration effect during construction for a period greater than one month. Any residual temporary ground-borne noise or vibration effects will be managed through best practicable means, for example the development of a noise and vibration monitoring protocol, to minimise vibration from construction activities through controlling at source and screening. Further information on managing vibration impacts during construction can be found in the draft CoCP.

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- 12.6.5 During operation of the Western Leg Proposed Scheme, the predicted vibration levels in the hospital buildings with vibration sensitive equipment are below the established criteria for the operational railway. As such it is predicted that the vibration from passing trains will not affect the operation of vibration sensitive equipment.
- 12.6.6 Construction of the Wilmslow Road vent shaft will result in the permanent loss of The Christie Hospital Car Park D. Car Park D currently operates under temporary planning permission and it is assumed that at commencement of construction of the Western Leg Proposed Scheme, the car park will continue to operate under a temporary planning permission. Car Park D is one of two designated patient and visitor car parks that serve The Christie Hospital. The loss of car parking space will remove space for approximately 135 vehicles, which is anticipated to constitute a significant community effect. The nearest alternative hospital car park is Car Park C, which has approximately 200 parking spaces and is located on the B5167 Palatine Road immediately north-west of the hospital. HS2 Ltd is continuing to engage with owners and operators of The Christie Hospital Car Park D, to identify reasonably practicable measures to help mitigate the loss of parking spaces.
- 12.6.7 B5167 Palatine Road, B5095 Wilmslow Road, A5145 Barlow Moor Road and other local roads will be used for access to and from the Wilmslow Road Vent Shaft satellite compound and the strategic road network. These roads have been selected based on their suitability to provide access between the construction compounds for the Western Leg Proposed Scheme and the strategic road network. There are likely to be increases in traffic and congestion on Wilmslow Road as a result of vent shaft construction, which will impact ease of access to the hospital as well as connectivity between the towns of Didsbury and Withington. The draft CoCP will require the number of private car trips to and from the construction compounds to be reduced by encouraging alternative sustainable modes of transport or vehicle sharing. This will be supported by workforce travel plan. There are changes in traffic flow which will result in a temporary significant adverse effect due to additional congestion and/or delays for road users. See Volume 2, Community Area report: Davenport Green to Ardwick (MA07), Section 14 for further information.
- 12.6.8 Engagement has been offered to blue light emergency service stakeholders including fire and rescue, police force and ambulance service providers, with meetings undertaken to share information on the Western Leg Proposed Scheme. This has included design review meetings to present design detail on fire engineering and safety design aspects of the Western Leg Proposed Scheme. Engagement will continue with these stakeholders as the project progresses, including consultation to support the development of local traffic management plans prior to construction starting.
- 12.6.9 Engagement will continue with these stakeholders as the project progresses, including consultation to support the development of local traffic management plans prior to construction starting.
- 12.6.10 During construction works, the nominated undertaker will require that the impacts from construction traffic on the local community be reduced by its contractors where reasonably practicable. Route-wide, local area and site-specific traffic management measures will be

implemented during the construction of the project on public roads affected by the Western Leg Proposed Scheme as necessary. More information on traffic management measures during construction can be found in the draft CoCP.

12.7 Lytham Road vent shaft

Consultation issues

- 12.7.1 Consultees raised concerns regarding impact to the Manchester Enterprise Academy (MEA) Central school due to the proposed Lytham Road vent shaft, specifically with regard to access to the school and the ability of the school to function during the construction and operation of the Western Leg Proposed Scheme.
- 12.7.2 Consultees who raised these issues included: Greater Manchester Combined Authority, Manchester City Council, and individuals.

Response to consultation issues

- 12.7.3 Since publication of the working draft ES and in response to consultation feedback and ongoing stakeholder engagement, an alternative location has been identified for the Lytham Road vent shaft. The revised location is on Birchfields Road on the site of the Fallowfield Retail Park. As a result, there is now no direct impact on the MEA Central. The revised location of the Birchfields Road vent shaft formed part of the Design Refinement Consultation, which ran from June to September 2019.
- 12.7.4 Since closure of Design Refinement Consultation, the Secretary of State has confirmed the relocation of the vent shaft at Birchfields Road. The revised vent shaft location does remove the parking currently used as a 'park and stride' facility by Birchfields Primary School and MEA Central School. HS2 Ltd are working with traffic and transport experts to further understand the impact, and engagement will continue in order to identify reasonably practicable measures to address this concern.

13 Manchester Piccadilly Station (MA08)

13.1 Introduction

13.1.1 The following section sets out the key locations within the Davenport Green to Ardwick (MA08) area identified during the review of consultation responses and issues raised in respect of these. These locations comprise:

- Manchester Piccadilly High Speed station area; and
- Mancunian Way.

13.2 Design of Manchester Piccadilly High Speed station

Consultation issues

13.2.1 Consultees raised concerns regarding the design of the proposed Manchester Piccadilly High Speed station and its integration with the surrounding environment. It was stated that the station design should be developed in accordance with the Manchester Piccadilly Strategic Regeneration Framework, which was approved by the Manchester City Council Executive in June 2018. Key issues included:

- the need for careful and considered architecture and landscape design to regenerate the Manchester Piccadilly area;
- need for assurance that the design will consider carefully the Grade II listed elements of Piccadilly Station;
- integration of the design with the urban setting including consideration for public realm;
- request for a boulevard that enables commercial development; and
- the use of existing pedestrian access ramp station entrance for rail passengers not being suitable as a long-term solution.

13.2.2 Consultees who raised these issues included: Historic England, Greater Manchester Combined Authority, Manchester City Council, businesses and individuals.

Response to consultation issues

13.2.3 Since the publication of the working draft ES, further design development has reconfigured the Manchester Piccadilly High Speed station from four platforms to six platforms, increasing the width of the station footprint by 15m and requiring a change from two viaducts to three viaducts. This change is required to enable future connections between HS2 and NPR. The two additional platforms will provide capacity for use of the station by NPR services at a future time, without disruption to HS2 services. The station has been designed to provide an interchange with the existing Manchester Piccadilly Station.

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- 13.2.4 The Manchester Piccadilly High Speed station will be 445m in length and 60m in width, located above ground on the Piccadilly station viaduct depicted further in Volume 2, MA08 Map Book, Map series CT-06.
- 13.2.5 HS2 Ltd have worked closely with heritage specialists and architects when developing the design of the Manchester Piccadilly High Speed station. In line with HS2 Ltd's mitigation hierarchy, impacts on heritage assets have been avoided, reduced or mitigated wherever reasonably practicable. However, the train shed and undercroft at the existing Manchester Piccadilly Station is a Grade II listed building and is located within the land required for the Western Leg Proposed Scheme. The train shed is set above a rail-served undercroft. This heritage asset will be physically impacted by the construction of the Manchester Piccadilly High Speed station. The new station will be adjacent to the existing train shed building, with a new concourse area, creating connectivity between the two stations.
- 13.2.6 HS2 Ltd will continue engagement with key stakeholders regarding the consideration of architecture and landscape design in this area to inform the detailed design of the Manchester Piccadilly High Speed station.
- 13.2.7 The undercroft, on the north side of the existing Manchester Piccadilly Station will be visible from Sheffield Street and includes brick arches and two rows of large red and white painted cast-iron columns. These support the former goods yard deck, which is now a car park. The columns and deck will be partially removed, which will constitute a significant adverse effect on this heritage asset. The remaining brick undercroft will remain intact. Potential further mitigation measures such as planting and noise fencing will be considered through detailed design to reduce physical impact of the Western Leg Proposed Scheme.
- 13.2.8 Since publication of the working draft ES and in response to ongoing stakeholder engagement, public realm around the Manchester Piccadilly High Speed station has been refined. There are three areas of public realm proposed, which can be seen in the Volume 2, MA08 Map Book, Map Series CT-06:
- New Sheffield Street, along the northern face of Manchester Piccadilly High Speed station, which will include tree planting, green walls, soft landscaping, footways, a single carriageway public road, a cycle way and pedestrian priority crossings;
 - station access ramp at the western extent of Manchester Piccadilly High Speed station, which will include green walls, tree and ornamental planting, soft landscaping, seating and cycle storage; and
 - a multi-modal transport hub to the east, which will include green walls and areas of hard and soft landscaping.
- 13.2.9 The Manchester Piccadilly High Speed station has been designed to provide connections with public transport such as Metrolink and buses, as well as sustainable modes such as walking and cycling to promote non-car access. The station design includes new pedestrian access, a new cycleway along New Sheffield Street and provision of 523 bicycle parking spaces. Provision for taxi drop off and pick up will be made along with improved highway

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accesses. There will also be connectivity between the Manchester Piccadilly High Speed station and new car parks with at-grade pedestrian access.

- 13.2.10 Network Rail retail units will be re-provided and provision of new retail units included within the Manchester Piccadilly High Speed station on both the ground level concourse and upper level concourse. The ground level concourse will be accessible from two entrances to the north, from New Sheffield Street public realm, which will act as a boulevard. The upper level will be accessible from one entrance to the west, from the Station Access ramp.
- 13.2.11 HS2 Ltd has undertaken modelling on the Station Approach ramp near the station entrance for pedestrians outside Gateway House. This modelling has identified that this is a suitable solution, which will support HS2, NPR, and TfGM pedestrian flows.
- 13.2.12 Engagement will continue with key stakeholders such as Transport for Greater Manchester, Manchester City Council, Transport for the North, Network Rail, Highways England, Historic England, Environment Agency, Canal & River Trust as well as local stakeholders to support development of the station design, including car parking facilities. The design will complement local aspirations and contribute to the natural and built environment where reasonably practicable at the detailed design stage.

13.3 Construction of Manchester Piccadilly High Speed station

Consultation issues

- 13.3.1 Consultees raised concerns regarding impacts from the construction and operation of the Manchester Piccadilly High Speed station. Key specific concerns raised included:
- duration of the construction period and the use of the construction areas after the scheme is operational;
 - use of Store Street as a construction traffic route under the Grade II* Store Street Aqueduct with a 4.6m height restriction;
 - impact to local property and business; and
 - request for assurance that air quality issues are considered both at a local and a route-wide level, to ensure that air quality targets continue to be met in line with the Greater Manchester Clean Air Plan to tackle nitrogen dioxide exceedances.
- 13.3.2 Consultees who raised these issues included: Historic England, Network Rail Infrastructure, Transport and Health Science Group and Faculty of Public Health, Campaign for Better Transport (CBT) West & North Yorkshire Rail Group, Manchester City Council, Canal & River Trust, Greater Manchester Combined Authority, businesses and individuals.

Response to consultation issues

- 13.3.3 In the Manchester Piccadilly Station area for the construction of the Western Leg Proposed Scheme there will be one main civil engineering compound; the Manchester Piccadilly High Speed station main compound. This compound will be required to manage civil engineering works for a period of nine years. The main compound will manage four civil engineering satellite compounds in the Manchester Piccadilly Station area. The location of construction compounds in the Manchester Piccadilly station area is shown in the Volume 2, MA08 Map Book, Map series CT-05.
- 13.3.4 There will be multiple access routes to the compounds and working areas. The use of individual routes will depend on the programme and location of works defined post royal assent during the detailed design phase. The main access to the Manchester Piccadilly High Speed station main compound will be via Great Ancoats Street and Adair Street. The Store Street access from Great Ancoats Street has a height restriction under the heritage aqueduct. Construction traffic using this route will be controlled to prevent vehicles higher than this using this access. The arrangements for management of traffic routes is detailed in the draft CoCP.
- 13.3.5 The assessment of impacts on all heritage assets in the Manchester Piccadilly area is described in Volume 5, Appendix HE-002-0MA08. No impacts to the Store Street aqueduct are anticipated from construction or operation of the Western Leg Proposed Scheme.
- 13.3.6 Since safeguarding was confirmed on 15 November 2016 and updated 17 July 2017, 27 September 2017, 6 June 2019, 15 April 2020 (for individual sites) and 7 October 2020, qualifying owner-occupiers of property within the safeguarded area have been able to serve blight notices. Serving a blight notice requires the Government to consider purchasing their property on compulsory purchase terms (before it is actually required for the Western Leg Proposed Scheme). This is a statutory process, not specific to HS2.
- 13.3.7 In addition to the statutory blight provisions that apply within the safeguarded area, property owners inside and outside of this area may be eligible for one of a number of schemes, in most cases depending on the distance of the land or property from the planned route. These schemes are non-statutory, formulated specifically for properties affected by HS2. They include property purchase schemes and cash payment schemes and property owners may have more than one option available to them.
- 13.3.8 When land that is acquired under compulsory measures for the Western Leg Proposed Scheme becomes surplus to requirements after construction works are complete, landowners may be offered the opportunity to buy back land, at market value, that has been compulsorily purchased from them.
- 13.3.9 Over 80 resources in this community area are anticipated to experience permanent direct impacts during construction of the Western Leg Proposed Scheme. It is also anticipated that over 20 businesses will experience significant isolation effects as a result of construction of the Western Leg Proposed Scheme. This could lead to a loss of trade for the affected businesses.

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- 13.3.10 No resources are expected to experience significant direct socio-economic or isolation effects as a result of the operation of the Western Leg Proposed Scheme. Businesses with a qualifying interest in land, either being acquired or possessed for the Western Leg Proposed Scheme, which can demonstrate a loss of profit, will be compensated in accordance with the Compensation Code. HS2 Ltd recognises the importance of businesses displaced from their existing premises being able to relocate to suitable alternative premises and will, therefore, offer additional support over and above statutory requirements to facilitate this process.
- 13.3.11 HS2 Ltd's Environmental Policy seeks to develop an exemplar project and commits to protecting the environment through the avoidance and prevention of pollution, and by meeting all compliance obligations. The policy also states that HS2 Ltd will manage the impact of construction and operation on people and the environment including effects from air pollution.
- 13.3.12 The Western Leg Proposed Scheme itself is in keeping with air quality objectives. As a mode of transport being powered by electricity, it avoids causing public and workforce exposure to air pollutants.
- 13.3.13 There will be a residual significant adverse effect, during construction, in relation to NO₂ concentrations at two residential receptors at Chapeltown Street, Manchester and Farm Lane, Worsley. However, NO₂ concentrations at the Farm Lane, Worsley receptor are predicted to exceed the air quality standard without the Western Leg Proposed Scheme. There will also be a residual significant beneficial effect in relation to NO₂ concentrations at one residential receptor on Chester Street, Manchester.
- 13.3.14 Areas identified through environmental assessment, where there are predicted temporary significant air quality effects around highways as a result of construction, will be managed through the measures outlined in the draft CoCP. The management process is based on the Local Air Quality Management provisions of Part IV of the Environment Act 1995. This requires measurements of air quality, periodic reviews of those measurements, and if necessary, the development of action plans to address any significant effects, with the objective of removing them as soon as, and as far as, reasonably practicable. The management process described above will be undertaken by working with the relevant local authorities. They will be consulted on the monitoring, reviews, assessments and action plans.
- 13.3.15 No significant residual effects are anticipated for air quality in this area during operation of the Western Leg Proposed Scheme. Further information on management of air quality can be found in Section 7 of the draft CoCP and the HS2 Western Leg Information Paper E14: Air quality⁸⁶.

⁸⁶ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E14: Air Quality*.

13.4 Integration of Manchester Piccadilly High Speed station with other transport schemes

Consultation issues

- 13.4.1 Consultees raised concerns regarding the integration of the proposed new Manchester Piccadilly High Speed station with other transport schemes. Key themes included:
- integrating the proposed new station effectively with the surrounding development aspirations;
 - maximising connectivity for non-motorised users and active transport (including the proposed Beeline cycling routes);
 - integration of the station with existing public services including buses to ensure sustainable transport connections are provided;
 - avoidance of adverse effects on future development in the Pin Mill Brow area from highway changes;
 - consideration for future Metrolink expansion and introduction of increased capacity; and
 - concern that the three multi-storey car parks proposed in the city centre do not align with Manchester City Council's policies on car parking and air quality.
- 13.4.2 Consultees who raised these issues included: Greater Manchester Combined Authority, Manchester City Council and individuals.

Response to consultation issues

- 13.4.3 The Manchester Piccadilly High Speed station has been designed adjacent to the existing Manchester Piccadilly Station and with the integration of a new realigned Metrolink station below. In addition, the station will include two additional platforms to accommodate future services from NPR which will allow connection to local and regional transport. A shared concourse will facilitate exchange between the two stations. As a result, the Manchester Piccadilly High Speed station will be well connected with links to London and Birmingham via HS2, regional destinations such as Leeds and Liverpool via NPR as well as the full range of Network Rail regional services.
- 13.4.4 The Manchester Piccadilly High Speed station has been designed to provide connections by public transport such as Metrolink and buses, as well as non-motorised modes such as walking and cycling to promote non-car access. The design includes new pedestrian access into the station, a new cycleway along New Sheffield Street and provision of 523 bicycle parking spaces. Provision for taxi drop off and pick up will be included along with improved highway accesses. There will also be connectivity between the station and new car parks with at-grade pedestrian access.
- 13.4.5 HS2 Ltd is aware of the proposed Beelines network in the vicinity of Piccadilly. Only some of these routes have been delivered to date and some proposed routes have no detailed

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proposals yet. The Western Leg Proposed Scheme does not preclude the Beelines future delivery, except where sections of existing roads crossed by the Western Leg Proposed Scheme will be permanently closed, such as St Andrew's Street, Sparkle Street and Store Street, south of Jutland Street. HS2 Ltd will continue to engage with TfGM and Manchester City Council on identifying potential future opportunities during detailed design for future Beelines.

- 13.4.6 Areas of land within the Manchester Piccadilly Station area, including land within the Pin Mill Brow area, will be made available for return to suitable development use, following construction of the Western Leg Proposed Scheme.
- 13.4.7 HS2 Ltd has worked closely with TfGM in developing the Western Leg Proposed Scheme to reduce impact on Metrolink services and to integrate Metrolink with the Manchester Piccadilly High Speed station. The design of the Manchester Piccadilly High Speed station will maintain access to Metrolink services. Piccadilly Metrolink stop will be relocated beneath Manchester Piccadilly High Speed station and provision for a new Metrolink stop will be made immediately south-east of the Manchester Piccadilly High Speed station, called Piccadilly Central.
- 13.4.8 Engagement with Manchester City Council and TfGM has been undertaken during development of the Western Leg Proposed Scheme to understand parking requirements and relevant baseline information for air quality assessments. No significant air quality impacts are anticipated as a result of operation of the Western Leg Proposed Scheme.
- 13.4.9 As part of the Western Leg Proposed Scheme, a total 2,029 short and long stay car park spaces will be provided in two car parks for the Manchester Piccadilly High Speed station. This will comprise 1,068 parking spaces to offset existing Piccadilly Station parking spaces that will be displaced and an additional 961 parking spaces for the new Manchester Piccadilly High Speed station. HS2's proposal also results in the removal of some 1,250 general parking spaces in the vicinity of the station.
- 13.4.10 Engagement will continue with stakeholders in the Greater Manchester area including Manchester City Council and TfGM, along with Network Rail and Transport for the North.

13.5 Manchester Piccadilly Station and Ardwick area businesses

Consultation issues

- 13.5.1 Consultees raised concerns regarding impacts upon businesses in the area around Manchester Piccadilly Station and Ardwick area. Key issues included:
- impacts on business and retaining jobs in Greater Manchester;
 - loss of operational space for parking articulated vehicles used in business and employee car parking needing to be replaced elsewhere;

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- uncertainty around the construction programme impacting investment decisions to develop residential and commercial spaces nearby; and
- request for local people to be given access to new job opportunities created as a result of the Western Leg Proposed Scheme, in particular those associated with construction.

13.5.2 Consultees who raised these issues included: Network Rail Infrastructure, Greater Manchester Combined Authority, Manchester City Council, businesses, and individuals.

Response to consultation issues

13.5.3 An assessment of both temporary and permanent socio-economic impacts on businesses in the Manchester Piccadilly area is included in the Volume 2, Community Area report: Manchester Piccadilly Station (MA08), Section 12.

13.5.4 Land required for diversion of a 3650mm combined sewer along the A6 London Road and Ducie Street will include the car parking of Stocktons furniture store on the A665 Great Ancoats Street and will result in an impact to a committed development. The Western Leg Proposed Scheme will require the demolition of seven groups of socio-economic resources on: the A665 Chancellor Lane; Dark Lane, Cresbury Street and William Street; the B6469 Fairfield Street and Crane Street; Helmet Street; the B6469 Fairfield Street and St Andrew's Square; and two groups of resources at the existing Manchester Piccadilly Station, as well as land take from West Way Nissan Manchester.

13.5.5 During construction, businesses along Ducie Street will experience significant temporary isolation effects as a result of a temporary road closure. During construction and continuing into operation, businesses on North Western Street, Hoyle Street, the B6469 Fairfield Street and Sheffield Street will experience significant permanent isolation effects as a result of road closure. Also, during construction, customers may be discouraged from using a number of hotels and aparthotels, namely: Malmaison on Gore Street; Premier Inn on Dale Street; La Reserve Aparthotel, Native and Dakota Manchester all on Ducie Street; Staycity Aparthotel at Gateway House; and a committed development hotel on Adair Street. These are expected to be affected by construction works associated with the Western Leg Proposed Scheme.

13.5.6 Overall, over 80 resources in this community area are anticipated to experience permanent direct impacts through job losses or displacement as a result of construction of the Western Leg Proposed Scheme.

13.5.7 It is estimated that up to 2,630 jobs⁸⁷ will either be displaced or possibly lost within the Manchester Piccadilly Station area as a result of the Western Leg Proposed Scheme. The impact on the local economy from the relocation or loss of jobs is not considered to be

⁸⁷ Employment within businesses has been estimated through a combination of sources, for example surveys of businesses, the Experian employment dataset, employment floor space and the Homes and Communities Agency (HCA) Employment Densities Guide 3rd Edition (2015). The estimate is calculated using standard employment density ratios and estimates of floor areas and may vary significantly from actual employment at the sites.

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significant. This is in the context of the total number of people employed in the Manchester City Centre area (approximately 410,000 jobs) and the scale of economic activity and opportunity in the area. There is a reasonable probability that most businesses will be able to relocate to places that will still be accessible to residents within the travel to work areas due to the general availability of vacant premises. However, there may be cases where alternative locations are problematic, and the businesses may be unable to relocate on a like-for-like basis within the area.

- 13.5.8 The Manchester Piccadilly High Speed station will create 140 HS2-related jobs with a further 150 concourse retail jobs. These employment opportunities will be accessible to residents in the locality.
- 13.5.9 Direct operational employment created by the Western Leg Proposed Scheme could also lead to indirect employment opportunities for local businesses in terms of supplying the project or benefiting from expenditure of directly employed workers on goods and services.
- 13.5.10 Some of these employment opportunities will be accessible to residents in the locality and, given the transport accessibility within the local area, to residents living further afield. To help spread the benefits of the project, HS2 Ltd has a target for 60% of its supply chain to be with Small and Medium-sized Enterprises (SMEs). HS2 Ltd's Meet The Contractor events link its main contractors with potential subcontractors as well as mandates the use of CompeteFor, a subcontractor opportunities portal which highlight opportunities on the programme. As at spring 2021 over 70% of HS2 Ltd contracts are with SMEs.
- 13.5.11 Advanced works within the Manchester Piccadilly Station community area will begin during the 1st quarter of 2025. Additional information on the indicative construction programme can be found in Volume 2, Community Area report: Manchester Piccadilly Station (MA08). Businesses with an interest in land, either being acquired or possessed by the Western Leg Proposed Scheme, which can demonstrate a loss of profit, will be compensated in accordance with the Compensation Code.
- 13.5.12 HS2 Ltd recognises the importance of businesses displaced from their existing premises being able to relocate to suitable alternative premises and will therefore offer additional support over and above statutory requirements to facilitate this process. Where loss of operational space for parking occurs due to the Western Leg Proposed Scheme, HS2 Ltd will work with the businesses affected to identify opportunities where reasonably practicable to mitigate impacts on parking. HS2 Ltd is continuing to work with Royal Mail to identify suitable mitigation to impacts for Royal Mail articulated vehicle parking space.

13.6 Mancunian Way

Consultation issues

- 13.6.1 Consultees raised concerns regarding impacts to Mancunian Way during construction, including:

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- construction causing disruption and increased journey times around Manchester Piccadilly station, especially in association with the Mancunian Way; and
- consideration around the history of sinkholes on Mancunian Way and impacts on land quality during construction.

13.6.2 Consultees who raised these issues included: Manchester City Council and individuals.

Response to consultation issues

- 13.6.3 The A635 Mancunian Way southbound will be realigned 100m north-west of its current alignment for 200m to form the western side of the new gyratory system, resulting in a negligible change in journey length. A 307m section of the A635 Mancunian Way northbound will be realigned within the footprint of the existing road resulting in a negligible change in journey length. The southbound realignment will take approximately one year and two months to complete. The northbound realignment will also take approximately one year and two months to complete. The diversion will tie in with the new gyratory system between the A635 Mancunian Way, the A635 Fairfield Street, the A665 Pin Mill Brow and the A665 Chancellor Lane constructed as part of the Western Leg Proposed Scheme. Highway alterations and diversions around the station, including Mancunian Way, will be undertaken using a phased approach.
- 13.6.4 As far as reasonably practicable, new sections of carriageway will be constructed offline in order to reduce disruption to the local highway network. Connection of new carriageway and existing roads will take place in low traffic flow periods (e.g. at night) as far as reasonably practicable, to reduce disruption to the highway network. During construction there will be temporary, periodic, partial closure of the A635 Mancunian Way northbound carriageway of up to one week intervals over a period of three years and six months, will be required. During this time, traffic flow along the carriageway will be maintained, resulting in no change in journey length. There will also be periodic, partial, temporary closure of the A635 Mancunian Way southbound carriageway with up to one week intervals over the same period of three years and six months. During this time traffic will be diverted via the A665 Pin Mill Brow, the A665 Chancellor Lane and the diverted A665 Chancellor Lane, increasing journey length by up to 422m.
- 13.6.5 These temporary closures are not predicted to have a significant effect for traffic diversions because the change in journey length is less than 1km and Mancunian Way will remain open throughout. Some temporary road realignments may also be required to maintain connectivity during the construction period. The CoCP will require the nominated undertaker to produce local traffic management plans in consultation with local stakeholders such as the Local Highway Authorities, emergency services and transport operators, to ensure that any diversions take account of local transport routes. The temporary closures are not predicted to have a significant effect on journey length for road users because the change in journey length is less than 1km and Mancunian Way will remain open throughout. See Volume 2, Community Area report: Manchester Piccadilly Station (MA08), Section 14 for further information.

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- 13.6.6 The A635 Mancunian Way and other local roads will be used for access to and from the Manchester approach viaduct satellite compounds B, C and D satellite compounds and the strategic road network. These roads have been selected based on their suitability to provide access between the construction compounds for the Western Leg Proposed Scheme and the strategic road network. Some temporary road realignments may be also required to maintain connectivity during the construction period. There are changes in traffic flow that will result in a permanent significant adverse effect due to additional congestion and/or delays for road users. See Volume 2, Community Area report: Manchester Piccadilly Station (MA08), Section 14 for further information.
- 13.6.7 HS2 Ltd is aware of the previous sewer collapse in this location and is engaging with utilities companies to undertake surveys and diversions where necessary. Further to that, HS2 Ltd has undertaken desktop geotechnical investigations to inform the geotechnical risks associated with ground conditions that could be susceptible to sinkholes and will be undertaking physical geotechnical investigations in due course.

14 Consultation issues relating to off-route works

14.1 Introduction

- 14.1.1 Volume 4 of the working draft ES provided stakeholders with an overview of the potential off-route works considered during design development of the full Phase 2b route.
- 14.1.2 As described in Section 2, since publishing the working draft ES for consultation, the decision was made to progress the Western Leg Proposed Scheme separately. Some works outlined in the consulted documents were specific to the Eastern Leg and are not included in this consultation summary report.
- 14.1.3 The need for off-route works has arisen from the design development of the full Phase 2b route and has continued to evolve following the working draft ES for the Western Leg Proposed Scheme.
- 14.1.4 Consultees raised a number of issues with regard specifically to the off-route works related to the Western Leg of Phase 2b as presented in the working draft ES. These included:
- Preston Station;
 - Carlisle Station;
 - Carstairs Station; and
 - Carlisle, Glasgow and Edinburgh areas (stabling and depot facilities).
- 14.1.5 Consultees who raised issues included: The Woodland Trust, Historic England, Canal & River Trust, Network Rail, Cumbria Chamber of Commerce, local enterprise partnerships, Transport for the North, local authorities and individuals.

14.2 Off-route works to existing stations

Preston Station

Consultation issues

- 14.2.1 Consultees raised a number of issues with regard to Preston Station, including:
- concern surrounding the upgrades on the two-track section between Preston and Carlisle;
 - concern over legitimacy of time saved and the value that this will add to the local area;
 - train service specifications and how works would affect demand for existing local and regional services, including concerns regarding any reduction in existing services;
 - impacts on current users of the station;

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- benefits to Preston and the wider region; and
- suggested inclusion in the ES around reference to Preston Station being a Grade II listed building.

Response to consultation issues

Upgrading works required

- 14.2.2 The Proposed Scheme in the Preston Station area will comprise works to the existing Preston Station. The Proposed Scheme makes provision for HS2 trains to call at Preston Station, and for the associated upgrades to the station that are needed to enable this. These upgrades will include extensions to two existing platforms, reinstatement of a platform not currently used for passenger trains to the south of the station, in order to accommodate HS2 services to call at the station.
- 14.2.3 Modifications will also be required to the track layout (see Volume 4, Off-route effects map book, Map CT-06-801, D6 and Map CT-06-802, A6 to F5). These works will take place over approximately one year and nine months, commencing in 2026.

Journey time saved and service specifications

- 14.2.4 It is anticipated that there will be up to four HS2 trains per hour each way passing serving Preston Station. All of these HS2 trains will serve Preston Station. Services are expected to operate between 05:00 and midnight from Monday to Saturday and between 08:00 and midnight on Sunday.
- 14.2.5 It is anticipated that, in addition to the proposed four HS2 trains per hour each way, the current level of service provided by TPE and Northern services, will continue to be provided through Preston Station. The introduction of HS2 services does not preclude the existing services from running.
- 14.2.6 The Western Leg Proposed Scheme will be beneficial for rail passengers as a result of the introduction of HS2 services at Preston Station, including improved journey times between Preston Station, the Midlands and the south of England and released capacity on the network easing pressure on other passenger rail services.

Impact to station users

- 14.2.7 Volume 4 (Section 5) of the ES provides an assessment of the changes in passenger numbers at existing off-route stations, including Preston, associated with the Proposed Scheme.
- 14.2.8 The introduction of HS2 services calling at Preston Station is expected to result in increased passenger demand entering and leaving the station. It is forecast that by 2046, passenger demand at Preston Station will increase by approximately 16%, equivalent to 3,518 additional passengers per day, as a result of the Western Leg Proposed Scheme in combination with Phase One and Phase 2a.

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- 14.2.9 Volume 4 of the ES identifies the predicted environmental effects from the forecasted increase in passenger use, including impacts on Traffic and Transport. This assessment has predicted that in 2046 the Proposed Scheme in combination will generate 57 additional vehicular trips in the morning peak hour and 75 additional trips in the evening peak hour at Preston Station. This will create adverse effects in terms of parking and at drop-off facilities.
- 14.2.10 There may be an increase in parking demand and use of drop-off facilities as a result of a combination of increased passenger demand and operational staff with the potential for insufficient car parking available for all users. The station owner/operator and the local highways authorities may need to give consideration as to any measures to address any shortfall in parking. HS2 Ltd will continue to engage with stakeholders including Transport for the North and local authorities around the Western Leg Proposed Scheme at Preston Station.

Benefits to Preston and the wider region

- 14.2.11 Direct construction employment could lead to opportunities for local businesses to supply the Western Leg Proposed Scheme or to benefit from expenditure of construction workers.
- 14.2.12 Direct operational employment created by the Proposed Scheme could also lead to indirect employment opportunities for local businesses in terms of supplying the project or benefiting from expenditure of directly employed workers on goods and services. Operational employment will be created at locations along the route including stations, train crew facilities and infrastructure/maintenance depots. The likely economic and employment impacts, including employment opportunities, during construction and operation of the Proposed Scheme in the Preston Station area have been assessed and are outlined in Volume 4 of the ES.
- 14.2.13 In addition, the anticipated increased footfall at and around stations is likely to generate demand for new retail and office floorspace, and generate wider employment opportunities during the operational phase. This is also likely to encourage investment in their surrounding areas as businesses seek to capture transport user benefits and footfall.
- 14.2.14 The impact of construction and operational employment has been assessed as part of Volume 3, Route-wide assessment.
- 14.2.15 HS2 Ltd is committed to working with its suppliers to build a skilled workforce that promotes further economic growth across the UK.

Preston Station historic asset

- 14.2.16 Volume 4 of the ES describes the works required at Preston Station and reports the environmental assessment of the Proposed Scheme in this location. Additional information on the historic environment is provided in Volume 5 of the ES.
- 14.2.17 No significant effects are predicted for the historic environment in relation to works at Preston Station, however relevant baseline data has been included in Volume 5 of the ES to

provide baseline reporting and an assessment of the non-significant effect. This approach has been adopted due to the Grade II listed status of Preston Station.

Carlisle Station

Consultation issues

- 14.2.18 Consultees raised a number of issues in regard to Carlisle Station, including:
- use of station as a proposed stopping point and upgrades required on existing tracks in surrounding area;
 - impacts on current users of the station;
 - the possibility of creating an additional through platform to increase capacity;
 - how HS2 would affect existing local and regional services, including concerns regarding reduction in existing services and in particular those that serve the key tourist destination of the Lake District; and
 - benefits to Carlisle and the wider region including wider regeneration projects.

Response to consultation issues

Works required to upgrade tracks

- 14.2.19 Volume 4 of the ES includes a summary of the improvements, alterations and adaptations at existing off-route stations that will be served by HS2 trains.
- 14.2.20 The Proposed Scheme in the Carlisle Station area will comprise works to the existing Carlisle Station. These works will include the extension of two existing platforms, infilling of a platform, and construction of a new platform, in order to accommodate HS2 services to call at Carlisle Station.
- 14.2.21 Modifications will also be required to the track layout, signalling, overhead line equipment systems (see Volume 4, Off-route effects Map Book, Map CT-06-803, A5 to I5). These works will take one year and six months to complete, commencing in 2026.

Impacts on current users

- 14.2.22 Volume 4 (Section 5) of the ES provides an assessment of the changes in passenger numbers at existing off-route stations, including Carlisle, associated with the Proposed Scheme.
- 14.2.23 The introduction of HS2 services calling at Carlisle Station is expected to result in increased passenger demand entering and leaving the station. It is forecast that by 2046, passenger demand at Carlisle Station will increase by approximately 20%, equivalent to 1,682 additional passengers per day, as a result of the Western Leg Proposed Scheme in combination with Phase One and Phase 2a.

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- 14.2.24 Volume 4 of the ES identifies the predicted environmental effects from the forecasted increase in passenger use, including impacts on Traffic and transport. This assessment has predicted that in 2046 the Proposed Scheme in combination will generate 69 additional vehicular trips in the morning peak hour and 66 additional trips in the evening peak hour at Carlisle Station.
- 14.2.25 There may be an increase in parking demand and use of drop-off facilities as a result of a combination of increased passenger demand and operational staff with the potential for insufficient car parking available for all users. The station owner/operator and the local highways authorities may need to give consideration as to any measures to address any shortfall in parking. HS2 Ltd will continue to engage with stakeholders including Transport for the North and local authorities around the Proposed Scheme at Carlisle station.

Benefits to Carlisle and the region

- 14.2.26 It is anticipated that there will be up to three HS2 trains per hour arriving from the south (London and Birmingham) and up to five trains from the north (Glasgow and Edinburgh) passing through Carlisle Station. All of these HS2 trains will serve Carlisle Station.
- 14.2.27 It is anticipated that, in addition to the proposed HS2 trains, the current level of service will continue to be provided through Carlisle Station.
- 14.2.28 Direct construction employment could lead to opportunities for local businesses to supply the Proposed Scheme or to benefit from expenditure of construction workers. The likely economic and employment impacts, including employment opportunities, during construction and operation of the Proposed Scheme in the Carlisle Station area have been assessed and are outlined in Volume 4 of the ES.
- 14.2.29 Direct operational employment created by the Proposed Scheme could also lead to indirect employment opportunities for local businesses in terms of supplying the project or benefiting from expenditure of directly employed workers on goods and services. Operational employment will be created at locations along the route including stations, train crew facilities and infrastructure/maintenance depots.
- 14.2.30 In addition, the anticipated increased footfall at and around stations is likely to generate demand for new retail and office floorspace, and generate wider employment opportunities during the operational phase. This is also likely to encourage investment in their surrounding areas as businesses seek to capture transport user benefits and footfall.
- 14.2.31 The impact of construction and operational employment has been assessed as part of Volume 3, Route-wide assessment.
- 14.2.32 HS2 Ltd is committed to working with its suppliers to build a skilled workforce that promotes further economic growth across the UK.

Carstairs Station

Consultation issues

- 14.2.33 Consultees raised a number of issues with regard to Carstairs Station, including:
- the impact on local woodlands including Whitemoss Wood due to expansion of platforms in Carstairs Station;
 - upgrade required on existing tracks in surrounding area; and
 - implications for existing train services due to current speed restrictions within the station.

Response to consultation issues

- 14.2.34 The proposed works at Carstairs Station, as set out in the working draft ES, no longer form part of the Proposed Scheme, and therefore, there are no proposed upgrades required to the station, tracks or junctions.

14.3 Off-route depots

- 14.3.1 For the Western Leg Proposed Scheme, HS2 trains serving the north of England and Scotland will need overnight stabling and some depot facilities in the event that it is operationally impracticable for them to be returned to the proposed HS2 rolling stock depot at Crewe.
- 14.3.2 For the working draft ES and consultation, limited information was available as the design and optioneering work to identify a suitable depot location was at an early stage. Based on the stage of design and environmental assessment at working draft ES, it was expected that off-route stabling and depot facilities would be required between Carlisle, Glasgow and Edinburgh. These expected off-route works were presented at a high level within the working draft ES to gain feedback from stakeholders.

Consultation issues

- 14.3.3 Consultees raised a number of issues relating to potential impacts in the Carlisle, Glasgow and Edinburgh areas, including:
- the lack of detail due to vast nature of area chosen, further detail on overall environmental impact required;
 - accommodating existing conventional railway schedules and routes;
 - lack of enhancements being proposed at Glasgow Station;
 - potential impacts on local businesses in Glasgow during construction; and
 - request for upgrade to existing tracks in Edinburgh and surrounding area.

Response to consultation issues

- 14.3.4 The Western Leg Proposed Scheme has evolved since the 2018 Consultations Scheme as set out in the working draft ES. The proposed introduction of a new train stabling facility at Annandale was included in the Western Leg Route Refinement Consultation held between October and December 2020 with opportunity for the public to express views on these works. The works associated with the Proposed Scheme in the Annandale area (between Gretna Green and Kirkpatrick-Fleming) are described in Volume 4 (Section 6) of the ES.
- 14.3.5 The Western Leg Proposed Scheme now makes provision for a new depot for up to 28 HS2 trains in the area of Annandale.

Environmental Impact – Annandale

- 14.3.6 To support efficient operation of HS2, additional train stabling and additional light maintenance facilities are required in the area between Carlisle, Glasgow and Edinburgh. During the site selection process, brownfield sites were initially considered. However due to environmental constraints, such as those associated with historical landfill sites, all brownfield options were discounted.
- 14.3.7 A number of greenfield sites were then considered. Annandale was found to be the most suitable in operational, cost and environmental terms. The environmental impacts likely to occur as a result of construction and/or operation of the Annandale depot are set out in Volume 4, Off-route works.

Operational employment

- 14.3.8 Operational employment will be created at locations along the route including stations, train crew facilities and infrastructure/maintenance depots. The likely economic and employment impacts, including operational employment in the Annandale Station area have been assessed and are outlined in Volume 4 of the ES. Within the Annandale area there will be a depot creating 170 HS2-related jobs. These employment opportunities will be accessible to residents within the locality.
- 14.3.9 Direct operational employment created by the Proposed Scheme could also lead to indirect employment opportunities for local businesses in terms of supplying the project or benefiting from expenditure of directly employed workers on goods and services.

Carlisle area

- 14.3.10 As explained above, a depot location has been confirmed at Annandale. The proposed location is approximately 16km (10 miles) north of Carlisle and within the administrative area of Dumfries and Galloway Council.

Glasgow area

- 14.3.11 The Annandale depot will be supported by the Polmadie Depot in Glasgow, use of which has previously been identified and assessed at Phase One. No additional works are expected to be required at Polmadie that will give rise to new or different likely significant effects to those reported in the Phase One ES⁸⁸.
- 14.3.12 The Western Leg Proposed Scheme allows for HS2 services to destinations including Glasgow and Edinburgh. No works are required at Glasgow Central Station to accommodate these services.

Edinburgh area

- 14.3.13 Volume 4 of the ES sets out that whilst the Western Leg Proposed Scheme allows for HS2 services to Edinburgh, no physical works are required to Edinburgh Waverley Station to accommodate these services. Edinburgh Waverley Station will continue to service existing conventional rail schedules and routes.

⁸⁸ High Speed Two Ltd (2013), *HS2 Phase One London-West Midlands Environmental Statement, Volume 4 Off-route effects*. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/259489/Volume_4_Off-route_effects.pdf.

15 Consultation issues relating to the draft CoCP and its implementation

15.1 Introduction

- 15.1.1 The draft CoCP for the Western Leg Proposed Scheme is based upon the same principles adopted in the CoCP for Phase One and Phase 2a. This includes key principles and commitments that were agreed with stakeholders during the passage of the Phase One and Phase 2a hybrid Bills through Parliament. Consultation on the draft CoCP for Phase 2b was therefore, undertaken in the context of this established framework.
- 15.1.2 This section provides a summary of the key route-wide issues raised by stakeholders that were related to the Western Leg Proposed Scheme or related to the route-wide approach undertaken and how these have been used to inform the updated draft CoCP for the Western Leg Proposed Scheme, accompanying the ES. The key issues raised by consultees include:
- engagement with stakeholders;
 - duration of construction works and working hours;
 - management of construction compounds;
 - construction routes and management of construction movements;
 - maintaining access;
 - management of the construction workforce;
 - management of noise, dust and lighting from construction activities; and
 - management of agriculture and soil resources during construction.
- 15.1.3 The remainder of this section addresses these issues and further information can be found in the HS2 Phase 2b Western Leg Information Paper D3: Code of construction practice³⁰.

15.2 Engagement with stakeholders

Consultation issues

- 15.2.1 Consultees emphasised the need for proactive engagement with local authorities, communities, businesses, landowners and farmers, amongst others, by contractors responsible for construction works. Consultees noted the importance of careful scheduling works associated with the Western Leg Proposed Scheme to avoid other planned construction works locally and to minimise any cumulative impacts to local communities. Consultees sought assurance that coordination with local authorities would take place to

ensure local measures were adopted and specific local needs reflected in construction practices.

Response to consultation issues

- 15.2.2 The draft CoCP includes a commitment to engage with key stakeholders in advance of construction works. The nominated undertaker will establish up-front engagement through dedicated community liaison officers and local helplines. Ongoing engagement will update stakeholders on the progress of work against the planned programme.
- 15.2.3 The requirements of the CoCP will apply to the whole of the Proposed Scheme and will be supplemented by a LEMP for each relevant local authority area. The LEMP will set out how the project will adapt and deliver the required environmental and community protection measures within each relevant local authority area and will be developed by the nominated undertaker and/or its contractors through engagement with the local communities, local authorities and other stakeholders.

15.3 Duration of construction works and working hours

Consultation issues

- 15.3.1 Consultees raised concerns regarding the anticipated length of the construction period and clarification was sought regarding the proposed duration of construction and construction working hours.
- 15.3.2 Specific concern was raised with regard to the duration of tunnelling works proposed in Manchester. Consultees were concerned that tunnelling activities undertaken on a 24/7 basis would cause disruption to local residents and communities, particularly with regard to noise.
- 15.3.3 Consultees also raised concerns that contractors would fail to keep to core working hours, and the knock-on impact this would have on nearby residents.

Response to consultation issues

- 15.3.4 An indicative programme of construction activities for the Western Leg Proposed Scheme is set out for each community area in Section 2 of the relevant Volume 2 Community Area reports. Based on the current indicative construction programme, for the Manchester tunnel, the main works for the construction is due to commence in 2025 and continue for a period of approximately seven years.
- 15.3.5 It is anticipated that most construction activities will be undertaken during core working hours. To ensure safe working and to maintain the safe operation of existing roads and railways, as well as enabling the shortest possible construction period for tunnelling, there

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will be occasions when night-time, weekend and 24 hour working will be required.

Tunnelling and directly associated activities (such as removal of excavated material, supply of materials and maintenance of tunnelling equipment) will be carried out on a 24-hour day, seven days a week basis. Activities outside core working hours that could disturb people will be kept to a reasonably practicable minimum.

- 15.3.6 Guidance on site-specific variations to core hours and/or additional hours likely to be required will be included within the LEMP, which will be prepared for each local authority area, following deposit of the hybrid Bill. The LEMP will be produced with input from the relevant local authority and statutory bodies.
- 15.3.7 The nominated undertaker and its contractors will ensure that local residents, businesses, and other parties affected by the proposed construction works are informed in advance of the works taking place.
- 15.3.8 The HS2 Phase 2b Western Leg Information Paper D5: Working hours⁸⁹ outlines the working hours for construction of the Proposed Scheme, including core working hours, start-up and close-down periods, and additional working hours that will be required.
- 15.3.9 Core working hours for the construction of the Proposed Scheme will be from 08.00 to 18.00 on weekdays (excluding bank holidays) and from 08:00 to 13:00 on Saturdays. The nominated undertaker will require that its contractors adhere to these core working hours for each site as far as reasonably practicable or unless otherwise permitted under Section 61 of the Control of Pollution Act 1974.
- 15.3.10 The Secretary of State will establish a set of controls known as Environmental Minimum Requirements (EMR), that establish the environmental and sustainability commitments to be observed in the construction of the Proposed Scheme. These EMR's will contain commitments prepared within the CoCP around management of working hours.
- 15.3.11 As described in the HS2 Phase 2b Western Leg Information paper E1: Controls of Environmental Impacts⁹⁰, any nominated undertaker will be contractually bound to comply with the controls set out in the hybrid Bill as well as the commitments within the EMR.

15.4 Management of construction compounds

Consultation issues

- 15.4.1 Consultees, in particular, individual consultees, raised issues with regard to the management of construction compounds. These included how compounds were proposed to be managed, whether their operation would impact local residents and livestock, and the security of the compounds. General concerns regarding impacts of construction compounds

⁸⁹ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper D5: Working hours*.

⁹⁰ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E1: Control of environmental impacts*.

to nearby residents and communities were also raised, these included comments on visual intrusion, dust and noise.

Response to consultation issues

- 15.4.2 The nominated undertaker will apply and comply with the requirements of the CoCP to ensure the safe operation of compounds and to reduce the effect of construction sites on local residents, the local environment and livestock, where these are near to the site. All construction compounds and worksites will be fenced off and access will only be through controlled points and the size of compounds will be based on best practice to enable safe operation. The nominated undertaker will also have to comply with the EMR, which will sit alongside the environmental controls contained in the hybrid Bill (see HS2 Phase 2b Western Leg Information Paper E1: Control of environmental impacts⁹⁰).
- 15.4.3 Contractors will prepare and operate an EMS certified to BS EN ISO 14001, which is appropriate to the scale and nature of the construction works as part of the LEMP, to be prepared in accordance with the CoCP. These will include any specific measures relevant to the local community and any assurances and undertakings given during the passage of the hybrid Bill.
- 15.4.4 The LEMP will set out how the nominated undertaker will deliver the required environmental and community protection measures within each community area, including measures to manage visual intrusion, dust and noise.

15.5 Construction routes and management of construction movements

Consultation issues

- 15.5.1 Consultees raised issues with regard to the selection and appropriateness of construction routes in specific locations, as set out in the scheme presented in the working draft ES. Commentary on these issues has been provided in sections 6 to 13 of this report.
- 15.5.2 Other issues were raised by local authorities, parish councils, action groups and individuals, including:
- the suitability of roads for construction vehicles and the safety of other road users on construction routes;
 - volumes of construction traffic and use of internal site haul routes by contractors during the works and how these will be used to mitigate impact on local and strategic road network; and
 - forward communication of planned closures and preventing simultaneous closure of adjoining roads within local communities.

Response to consultation issues

- 15.5.3 Construction routes have been identified on the basis of their suitability for construction traffic and their proximity and accessibility to locations where work will be undertaken. Further information around the Traffic and Transport assessment and choice of routes for construction traffic is included in Section 4.20 of this report.
- 15.5.4 Engagement has been undertaken with local highways authorities to identify these routes and assess the impacts of construction traffic on the local and strategic road network. This assessment is set out in Volume 5 of the ES and details of construction routes within each community area are also set out in Volume 2 and accompanying Volume 2 CT-05 Map Books.
- 15.5.5 The health and safety of all road users is of the utmost priority and the measures set out in the draft CoCP will be employed to reduce risks to road users and mitigate impacts on local communities and residents along public roads. This includes measures such as:
- engagement with vulnerable road users (pedestrians, motorcyclists, cyclists, equestrians), to provide for road safety for users of all modes of transport for the public and construction staff during traffic management works and temporary traffic control measures;
 - contractor implementation of driver training programmes relevant to their specific environment (e.g. to protect pedestrians and non-motorised traffic); and
 - vehicle safety measures including signage, mirrors, prevention of under-running and use of technology to remove blind spots according to vehicle size.
- 15.5.6 Other measures such as traffic management plans, use of internal site haul routes and workplace travel plans will be employed across the route, including around sensitive receptors, such as schools and churches.
- 15.5.7 The draft CoCP includes provisions relating to construction activity near schools including, where reasonably practicable, the avoidance of HGV operating adjacent to schools during drop off and pick up periods.
- 15.5.8 Further information is provided in HS2 Phase 2b Western Leg Information Papers: D3 Code of construction practice³⁰; E4 Highways and traffic during construction: legislative provisions⁹¹; E3 Management of traffic during construction⁹²; E5 Roads and public right of way⁴⁰; and E8 Vehicle flow management and safety requirements during construction⁹³.

⁹¹ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E4: Highways and traffic during construction: legislative provisions*.

⁹² High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E3: Management of traffic during construction*.

⁹³ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E8: Vehicle flow management and safety requirements during construction*.

- 15.5.9 The nominated undertaker will be responsible for ongoing engagement with the local community and stakeholders around any proposed closures of local roads and PRow, and advance notification of proposed works will be communicated.

15.6 Maintaining access

Consultation issues

- 15.6.1 Consultees raised concerns regarding access during construction, specifically access routes for agricultural holdings and access to commercial enterprises. They sought assurance that provisions to maintain access, particularly for businesses, would be provided so as not to disrupt business operation.
- 15.6.2 Concerns were also raised around ensuring PRow access is maintained.

Response to consultation issues

- 15.6.3 The HS2 Phase 2b Western Leg Information Paper D10: Maintaining access to residential and commercial property during construction⁸⁵ sets out the proposed measures to ensure temporary disruption to access is kept to a minimum.
- 15.6.4 Where access to a commercial property is expected to be temporarily affected, the nominated undertaker would be expected to ensure that reasonable pedestrian access is maintained, including consideration of disabled access. If vehicular access is impacted, the nominated undertaker will be expected to implement traffic management plans to ensure that disruption is kept to a minimum. Signs will be displayed to notify highway users that businesses remain open to prevent loss of visitors.
- 15.6.5 For agricultural holdings, access provision will be dealt with on a case-by-case basis. Accommodation overbridges, at grade crossing or underbridges will be included in the design to provide permanent access as appropriate, as far as reasonably practicable the new means of access will be provided before the existing access is removed. Where this is not able to be provided, temporary means of access will be provided.
- 15.6.6 Private means of access can vary, and therefore, there is no standard approach for dealing with private access to individual properties, and each location will be dealt with on a case-by-case basis. Possible works that might be taken to ensure this, including measures for instances of shared use, are outlined in HS2 Phase 2b Western Leg Information Paper E6: Private means of access⁹⁴. Detailed standards to be adopted will be discussed with affected landowner(s) as part of compensation arrangements.
- 15.6.7 Commitments to the maintenance of PRow, including diversions, affected by the Western Leg Proposed Scheme have been made, which will include reasonable adjustments to maintain or achieve inclusive access. Inclusive access (including for people with reduced

⁹⁴ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E6: Private means of access*.

mobility) will also be maintained to services and buildings where they have been temporarily disrupted during the work, as far as is reasonably practicable.

- 15.6.8 Where the normal means of access has to be diverted or closed, alternative safe routes for persons with restricted mobility will be identified, taking into account existing hazards and obstructions such as pavement kerbs and street lighting standards.
- 15.6.9 Regular communication with all impacted landowners or tenants will take place throughout the construction period to ensure access disruption is kept to a minimum.

15.7 Management of construction workforce

Consultation issues

- 15.7.1 Consultees raised issues about the impacts of the construction workforce on local communities, specifically addressing issues around the scale, accommodation and activities of the workforce. Concerns raised centred on construction workforce housing and knock-on pressure and impact to existing community and community services.

Response to consultation issues

- 15.7.2 Construction worker impacts on community resources are considered in Volume 5 of the ES. The assessment takes into account the number of workers, the type and location of accommodation, working hours, facilities provided on construction compounds, experience from other similar large projects, such as High Speed One and Crossrail, and the measures contained in the draft CoCP.
- 15.7.3 The nominated undertaker and its contractors will be responsible for recruitment and management of the workforce including behaviour on site. Engagement will be undertaken with local authorities and relevant local stakeholders to communicate proposals regarding workforce numbers and their proposed accommodation. The nominated undertaker will provide helplines in case members of the public need to communicate any issues regarding workforce behaviour. Further information is provided in the HS2 Phase 2b Western Leg Information Paper D9: Worksite security⁹⁵.

⁹⁵ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper D9: Worksite security*.

15.8 Management of noise, air quality and lighting from construction activities

Consultation issues

- 15.8.1 Consultees raised issues about potential noise, dust and light pollution caused by construction works. Of particular concern was the impact of light pollution associated with night-time works.
- 15.8.2 Consultees raised concern regarding worsening air quality, including dust from construction activities and air pollution as a result of construction vehicle movements. Further information on potential impacts of dust, particularly on sensitive natural receptors, and measures to mitigate impacts, was sought by consultees.
- 15.8.3 Consultees raised concerns concerning potential health and wellbeing impacts, including to quality of life, for nearby residents as a result of noise disruption, dust and light pollution.

Response to consultation issues

- 15.8.4 The effects of noise and vibration from construction sites will be controlled by introducing management and monitoring processes to ensure that BPM are planned and employed to reduce noise and vibration during construction. As part of the lead contractors' EMS, a noise and vibration management plan will be prepared and will set out these processes.
- 15.8.5 The nominated undertaker will require its contractors to control and limit dust, air pollution, odour and exhaust emissions during the construction works as far as reasonably practicable and in accordance with BPM.
- 15.8.6 As described in the HS2 Phase 2b Western Leg Information paper E1: Controls of Environmental Impacts, any nominated undertaker will be contractually bound to comply with the controls set out in the hybrid Bill and the EMR, including measures set out in the CoCP to manage and monitor noise and vibration from construction activities.
- 15.8.7 Considerations for site lighting will be set out in general requirements as part of the LEMP where sensitive receptors would be identified and local control measures implemented. The potential effects of this lighting are assessed in Section 11 of the relevant Volume 2 Community Area reports.
- 15.8.8 Lighting will also be designed, positioned and directed so as not to unnecessarily intrude on adjacent buildings, ecological receptors, structures used by protected species and other land uses to prevent unnecessary disturbance, interference with local residents, railway operations, passing motorists, or the navigation lights for air or water traffic. This provision will apply particularly to sites where night working will be required. In addition, at construction sites where potentially significant impacts are identified, the lead contractor will develop and implement lighting controls as part of their EMS. The draft CoCP provides more information.

- 15.8.9 The HS2 Phase 2b Western Leg Information Paper E13: Control of construction noise and vibration⁹⁶ outlines measures that will be put in place to control the effects of noise and vibration that might otherwise arise from the construction of the Proposed Scheme.

15.9 Management of agriculture and soil resources during construction

Consultation issues

- 15.9.1 Consultees raised issues about the management of soils resources, including soil forming materials that may be imported for use during construction and/or development works.

Response to consultation issues

- 15.9.2 Controls will be implemented to mitigate potential avoidable impacts on soils, farms, and farm-based businesses, including maintaining access.
- 15.9.3 The latest versions of the British Standard documents listed within the draft CoCP will be adopted. Any imported soils will be required to be suitable for use, as per the CL:AIRE Development Industry Code of Practice. This will require appropriate testing and risk assessments to be carried out.
- 15.9.4 The nominated undertaker will put in place an agricultural liaison officer who will be available during the construction of the Western Leg Proposed Scheme on agricultural land to ensure liaison is maintained with affected landowners, occupiers and agents, as appropriate.
- 15.9.5 The HS2 Phase 2b Western Leg Information Paper E19: Soil handling for land restoration⁹⁷ considers the handling of natural soils affected by the construction of the Proposed Scheme, which are identified to be conserved and reinstated for agriculture, landscape planting and ecology land uses.

⁹⁶ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E13: Control of construction noise and vibration*.

⁹⁷ High Speed Two Ltd (2022), *Phase 2b Western Leg Information Paper E19: Soil handling for land restoration*.

16 Concluding comments

16.1 Ongoing engagement

- 16.1.1 Ongoing engagement with stakeholders and communities affected by the Proposed Scheme will continue to be undertaken by HS2 Ltd. This will include meetings with local authorities and wider stakeholders and focussed engagement with those stakeholders most affected by construction and operation of the railway. Feedback from all engagement will be used to inform further opportunities for mitigation.

Phase 2b Planning forum

- 16.1.2 The Phase 2b planning forum will be the main mechanism for discussion on planning matters between HS2 Ltd and the local planning authorities affected by the Proposed Scheme. It will focus on matters of route-wide interest.
- 16.1.3 The Phase 2b planning forum and its sub-groups commenced in summer 2021, prior to the hybrid Bill submission and will continue during the passage of the hybrid Bill through Parliament and beyond. It focusses on matters associated with powers contained in the hybrid Bill.

National Environment Forum

- 16.1.4 The National Environment Forum is attended by members of key statutory organisations to represent the interests of local people and wider society in respect to specific environmental issues. The forum includes representatives of government departments and relevant statutory authorities such as Historic England, Natural England, Forestry Commission and the Environment Agency.
- 16.1.5 The forum meets quarterly and provides the opportunity for HS2 Ltd to give updates to forum members and for forum members to provide advice on environmental policy, including project-wide mitigation strategies and principles. Bilateral meetings are also conducted with stakeholders on specific issues on a case by case basis.

16.2 Parliamentary consultation and petitioning

- 16.2.1 In accordance with Parliamentary Standing Orders, Parliament will consult on the ES following deposit of the hybrid bill and Consultees will have at least 56 days (eight weeks) to respond to the consultation following the deposit of the hybrid Bill documents in Parliament and the first publication of the necessary newspaper notices that follows. Parliamentary officials will appoint an independent assessor who will summarise responses and provide a report to Parliament before Second Reading of the hybrid Bill.

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- 16.2.2 There will also be a petitioning period. This petitioning period will provide an opportunity for individuals or organisations specially and directly affected by the Proposed Scheme to petition against the hybrid Bill. More information on who may petition against the Bill, and how to do so, is available on Parliament's website (<http://www.parliament.uk>).

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