EKFB Working in partnership with HS2

Chilterns Area of Outstanding Natural Beauty (AONB) – Key Environmentally Sensitive Worksite Management Plan

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1 Introduction

1.1 Background

1.1.1 The HS2 Environmental Memorandum identifies key worksites along the Phase One route that are environmentally sensitive. These sites are considered particularly environmentally sensitive in relation to the following environmental topics: nature conservation, terrestrial ecology, water resources, geomorphology, recreation and amenity, landscape, public open space, and agricultural land. The criteria for their selection is set out in the HS2 Environmental Memorandum.

1.1.2 The key environmentally sensitive worksites across Phase One of HS2, from south to north, are:

- Colne Valley;
- Chilterns Area of Outstanding Natural Beauty (AONB);
- Bernwood Forest;
- Radstone and Helmdon Disused Railway; and,
- Berkswell Marsh.

1.1.3 The management plans for these key environmentally sensitive worksites (KESWMPs) have been prepared and published prior to the commencement of works which may affect them. The preparation and publication of these plans is, therefore, determined by the Phase One construction programme. These plans will be reviewed and updated as HS2 Contractors develop their designs and programme.

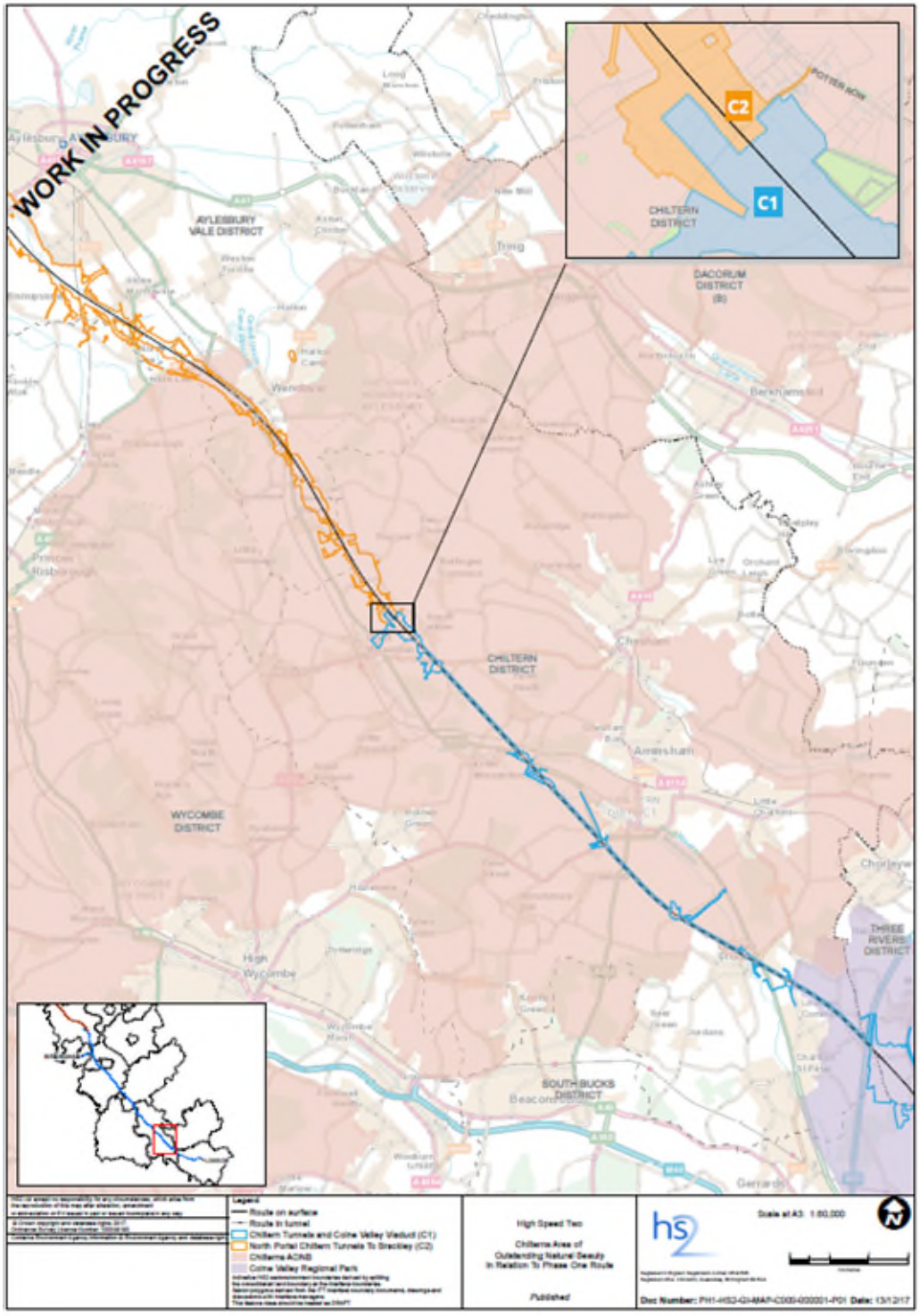
1.1.4 This management plan is for the Chilterns AONB.

1.2 The Chilterns AONB in the Context of HS2

1.2.1 The Chilterns AONB stretches from the River Thames in Oxfordshire to Hitchin in Hertfordshire, covering approximately 833km^2 in area. The AONB is nationally protected and was designated in 1965, under the National Parks and Access to the Countryside Act 1949, for its outstanding natural beauty. All relevant Authorities must have regard to the purpose of conserving and enhancing its natural beauty when performing their functions, as required under Countryside and Rights of Way Act 2000.

1.2.2 The Phase One HS2 route is in a tunnel through the Chilterns AONB from Chalfont St Giles to South Heath; the HS2 route then passes overland through the AONB from South Heath to just north of Wendover. A map of the Chiltern AONB in relation to the Phase One route is shown below:

Figure 1: Site Location



1.2.3 The Chilterns AONB falls within the scope of three Environmental Statement (ES) Community Forum Area (CFA) Boundaries: CFA 8 Chalfonts and Amersham; CFA 9 Central Chilterns and CFA 10 Dunsmore, Wendover and Halton. These documents

provide detail of the assessment of the route, outline of the work and sensitive receptors.

1.2.4 The Chilterns AONB falls within the Buckinghamshire area. It is identified in the HS2 Environmental Memorandum as being a key environmentally sensitive worksite in relation to the following key environmental topic areas:

- Nature conservation and terrestrial and aquatic ecology.
- Water resources and flood risk.
- Recreation and amenity impacts and public open space.
- Landscape and visual; and,
- Agricultural land.

1.3 Purpose of the Management Plan

1.3.1 The purpose of this KESWMP is to:

- Identify future works potentially affecting the Chilterns AONB undertaken by Contractors and third parties in relation to HS2.
- Focus on mitigation, compensation and monitoring requirements and opportunities for enhancement in relation to specific environmental topics; and
- Identify synergies between different stakeholder organisations in terms of opportunities.

1.3.2 This KESWMP has been prepared to satisfy the commitments set out within the HS2 Environmental Memorandum and to support the Local Environmental Management Plan (LEMP) for Buckinghamshire Council. This management plan is part of a suite of documents which identify environmental issues, controls, and opportunities in relation to the Chilterns AONB including:

- The Environmental Minimum Requirements, which contains the Code of Construction Practice (CoCP) and the HS2 Environmental Memorandum.
- Schedule 17 controls under the HS2 Act 2017 (the Act). KESWMP's will support Schedule 17 submissions and Town and Country Planning Applications within the Chilterns AONB and where appropriate, heritage applications under Schedule 18, 19 and 20.
- HS2 design policy. This management plan supports the Detailed Design Principles developed by the Chilterns AONB review group as set out in the HS2 Chilterns Integration and Enhancement Plan, Part 1 (November 2017).
- Ecology Site Management Plans (ESMP). The site-specific ESMPs provide the maintenance and management requirements for ecological mitigation sites;

three of which are proposed within the AONB: Park Hill, Bury Farm and Chalfont St Peter (located 500m from the AONB boundary).

- Protective provisions. The Act also contains provisions which give protection to bodies affected by the scheme. These include Highway Authorities, Utility undertakers, the Environment Agency, the Canal and Rivers Trust, and harbour and airport authorities. Typically, these provisions enable HS2 Contractors to undertake works affecting their infrastructure but require approval of the details to be obtained. Paragraph 12 of Schedule 31, Part 1 of the Act requires the nominated undertaker not to deposit soil or material, or store any plant, or erect scaffolding or other structures, in or over a Highway without the consent of the Highway Authority.
- Legally binding consenting and licensing process. HS2 Limited will be submitting licenses and consents in accordance with the Schedules of the Act; and,
- The Environmental Management Systems implemented by HS2 Contractors (as defined in the CoCP) including contract level and site level environmental management plans.

1.3.3 There is a commitment in the document The Chilterns AONB Management Plan 2019-2024: A Framework for Action, (http://www.chilternsaonb.org/conservation-board/management-plan.html) to: conserve and enhance the natural beauty; increase understanding and enjoyment of the area; foster social and economic well-being; preserve the natural beauty; and increase visitors' understanding and enjoyment of the landscape. HS2 and its Contractors support these principles and aim to seek opportunities for shared delivery.

1.4 Process of developing the management plan

1.4.1 On 16 November 2016 contracts were awarded to three Enabling Works Contractors (EWC) working across Phase One of HS2. The EWC contracts ran until October 2022, with the principle responsibility of mitigating the ecological constraints and vegetation. Main Works Civils Contractors (MWCC) took over with an overlap between April 2020 and October 2022. The MWCC are completing the structural requirements of the railway including the tunnels, viaducts and cuttings ahead of the rail systems contractor due to take over around 2027.

1.4.2 EKFB are a joint venture between Eiffage, Ferrovial, Kier and BAM. Fusion was a joint venture between Morgan Sindall Infrastructure Services, BAM Nuttall Ltd and Ferrovial Agroman who were the EWC for Area Central of the Phase One route.

1.4.3 The approximate boundaries of the Area Central sectors relevant to the AONB are shown on drawing reference: PH1-HS2-GI-MAP-C000-000001. This drawing is shown above as part of paragraph 1.2.2 (Figure 1).

1.4.4 The EWC undertook a range of survey and investigation works which commenced in early 2017. The EWC also carried out some construction work including the provision of early ecological mitigation sites and tree planting, utilities diversions and road works. Fusion produced the original KESWMP as they were the first Contractor to carry out works within the vicinity of the Chilterns AONB but this Plan provides more up-to-date information.

1.4.5 On 17 July 2017 contracts were awarded for HS2's Main Works Civils Contractors (MWCC), with a Notice to Proceed issued in April 2020. The MWCC covering the Chiltern AONB area was originally EK, a joint venture between Eiffage and Kier but which is now EKFB which is a joint venture between Eiffage, Kier, Ferrovial Construction and BAM Nuttall (for sectors C2 and C3) and ALIGN (for sector C1). ALIGN is a joint venture between Sir Robert McAlpine, Bouygues TP, and Volker Fitzpatrick (for sector C1).

1.4.6 **EKFB started ground investigation within the Chiltern AONB 2018.** ALIGN started work in the Chilterns AONB at the Chalfont St Giles vent shaft site, in 2020. ALIGN undertook ground investigation (GI) works throughout the summer of 2019 and this included sites through the AONB on the line of the Chiltern Tunnel. This had included pump tests at the proposed shaft locations in 2019-2020. The GI is supported by a temporary compound at the Chalfont St. Peter shaft location. This is outside of the AONB designation.

1.4.7 ALIGN are responsible for the delivery of the Chilterns Tunnel and the 5no. Tunnel Shafts. The ALIGN sites that are within or within proximity of the AONB are:

- Chalfont St Peter Vent Shaft (outside of AONB)
- Chalfont St Giles Vent Shaft
- Amersham Vent Shaft
- Little Missenden Vent Shaft
- Chesham Road Intervention Shaft
- Chiltern Tunnel North Portal
- 16km Chiltern Tunnel (13km within AONB)

Main works construction is underway at all of the ALIGN sites.

1.4.8 The MWCC are continuing to develop the detailed design and the programme for the main civils construction works as the scheme progresses. This management plan is based on current timescales.

1.4.9 EKFB will be responsible for reviewing and updating this KESWMP as of 2019 in line with the scheme design and construction works programme. This management plan is a 'live document' and will be reviewed at least every 6 months and updated accordingly or whenever there is a significant change to works proposed in line with the revision of the Local Environmental Management Plans (LEMPs).

1.4.10 All HS2 Contractors are working collaboratively, along with relevant third parties such as utilities companies, in relation to works within the Chiltern AONB, such as National Grid.

1.5 Consultation

1.5.1 National Environment Forum (NEF) members and relevant Planning Authorities will be consulted on the KESWMP following requirements within the HS2 Environmental Memorandum. In addition, the Chiltern AONB Review Group and the Chilterns Conservation Board will be consulted on this plan.

1.5.2 Copies of the updated plan will be made available for consultees by e-mail following revision. Comments from the consultees will be collated for consideration of further updates and amendments. Comments and discussions from attendance by HS2 and its Contractors at the Chiltern AONB Review Group Panel will also be considered for updates and amendments.

1.5.3 Following the Environmental Memorandum commitments, the management plan will be submitted with relevant Schedule 17 submissions to local Planning Authorities and, where appropriate, heritage applications. A link to the HS2 Ltd website area containing the LEMP and KESWMP will be provided for Schedule 17 submissions.

1.5.4 HS2 Contractors will work closely with the Chilterns AONB Review Group, communicating and consulting as appropriate on works within the area. The Review Group provides recommendations on design and mitigation proposals for their section of the HS2 route. Regular representation at the AONB Review Group by the HS2 Contractor leading on production and updates of the KESMP is beneficial to all parties to identify areas of concern, possible mitigation and compensation planting or alternatives that can be incorporated into design.

2 Overview of upcoming works within the Chilterns AONB

2.1 General

2.1.1 Fusion undertook a range of survey and investigation works within the vicinity of the Chiltern AONB which commenced in early 2017 and 2018 and was completed in 2022. Works include:

Environmental surveys such as ecological surveys, groundwater monitoring and surveys to support hydrological modelling. Monitoring plans and groundwater impacts are currently under review with the relevant regulators and further information will be made available on conclusion of these discussions. There will also be surveys to identify Invasive Non-Native Species, such as Japanese knotweed, to support plans for future treatment and control; and,

- Engineering surveys, including soil surveys.
- Construction of ecological mitigation sites.
- Design and construction of advanced planting sites.
- Haul road and minor road works.
- Utility diversions; and,
- Archaeological investigations.

2.1.2 Further Surveys will be carried out by EKFB and ALIGN as required throughout the main works construction.

2.2 Enabling works

2.2.1 The first construction works by the EWC in the AONB was the creation of the Bury Farm ecological mitigation site, at South Heath, in mid-2018. The Bury Farm ecological mitigation site will provide suitable habitat for Great Crested Newts and Reptiles as well as compensation to replace loss of grassland and woodland in the AONB. Bury Farm ecological mitigation site is the result of an Undertaking and Assurance and is not shown on ES plans. The site contains woodland, scrub and hedgerow planting and will include artificial bat roosts. The site forms part of the creation of a mosaic of grassland and wetland habitat to the west of the new high-speed railway to compensate for similar habitat lost.

2.2.2 Park Hill ecological mitigation site, at South Heath, is also in the AONB and construction was completed in May 2018. The site has similar objectives as Bury

Farm ecological mitigation site though this site will also include a bat barn to mitigate for the loss of a bat roost at Park Hill Manor House. The new roost will be constructed and completed prior to the commencement of the demolition works. The location of the Park Hill ecological habitat creation site is shown in Supplementary Environmental Statement (SES) and Additional Provision (AP) 4 maps (CFA9 Volume 2 Map Books CT-06 033).

2.2.3 Chalfont St Peter mitigation site is located 500m from the AONB and information on this can be found within the Environmental Statement (CFA8 Volume 2 Map Books CT-06 024). Construction of the mitigation site was completed in mid-2018. There is ongoing maintenance works which includes grass cutting and pond maintenance.

2.2.4 Planting of both Park Farm, Bury Farm and Chalfont St Peter ecological mitigation sites will contribute to HS2's aim of "no net loss" in relation to biodiversity.

2.2.5 Advance landscape planting by EWC commenced in late 2020. The designs for these planting sites have not been finalised; they will take account of the Detailed Design Principles developed by the Chilterns AONB review group as set out in the HS2 Chilterns Integration and Enhancement Plan, Part 1 (November 2017). In the Chiltern AONB the proposed advanced landscape planting sites are:

- Jones Hill Wood – planting outside Wendover Dean to allow for compensation for loss of ancient woodland and connectivity between fragmented woodland. The Jones Hill Wood planting site will also act as an ancient woodland soil's receptor site from the ancient woodland to be affected by MWCC works at Jones Hill Wood.

2.2.6 The MWCC will undertake work on the following in regard to advance planting;

- Leather Lane – planting along the lane adjacent to the embankments of proposed overbridges to integrate the linear alignment into the landscape;
- Leather Lane – planting adjacent to the Park Hill ecological mitigation site to diminish the impacts of the re-aligned Leather Lane

2.2.7 A utility connection at South Heath was completed in February 2019. An additional utility diversion (400kV diversion) was completed in September 2019. This work was carried out by National Grid Electricity Transmission (NGET) at the north and south of Wendover and Great Missenden and involved the construction of temporary towers, the installation of new towers and commissioning the line. The temporary and existing towers were then be removed at diversion location.

2.2.8 Ecological mitigation, vegetation clearance and archaeological investigation work was undertaken prior to utility diversion works.

2.2.9 The MWCC commenced with utility diversions along the Chiltern AONB in 2020, this includes the provision of mains water and electricity. There were 21 cables (9 fibre and 12 copper) for BT Openreach that ran in a duct network through the centre of the Amersham Shaft site. In October of 2020 ALIGN installed 400m of new ducting and Chambers. This was done in two routes. One runs down the middle of Whieldon lane and the other has been put under a new footpath on the side of Whieldon Lane. In Jan/Feb of 2021 Openreach pulled in new cables and jointed them into the network so that the old system could be removed. Affinity Water has a 150mm water main that ran through the centre of the Amersham Vent Shaft Site. In December 2020 and January 2021, a 280m long section of water main was diverted into a new footpath that runs around the side of Whieldon lane. The utility diversion works is ongoing, part of which will require a temporary weekend road closure on the A413 dual carriageway.

2.2.10 The EWC widened Bottom House Farm Lane and have constructed a haul road which will connect with the A413. This has been completed and will remain in-situ through the duration of shaft construction by ALIGN.

2.2.11 Archaeological investigations including geophysical (non-intrusive) surveys and trial trenching commenced in early 2018 at several sites in the AONB. The geophysical surveys were completed February 2019 of the site along the AONB. Trial trenching is ongoing within the AONB along the HS2 route however, works have moved from the evaluation Trial Trenching phase to the mitigation Archaeological Recording phase. The mitigation works are targeted based on the results of the evaluation trenches and aim to investigate archaeological remains in those areas. It is typical that mitigation is the final phase of archaeological investigation with only some instances requiring further work in the form of Construction Integrated Recording monitoring.

2.2.12 The evaluation trenches at Grimm's Ditch monument are continuing with some areas of Archaeological Recording being undertaken concurrently in the surrounding landscape. Fusion-JV are working closely with HS2, Historic England and EKFB to coordinate the Schedule 19 procedure required for the works on the Scheduled Monument. Once the evaluation trenches on the monument are complete it is likely that the second phase of mitigation will be required given the highly sensitive nature of the site.

2.2.13 Vegetation clearance and species translocation by the EWC commenced in the Chiltern AONB in 2020, and vegetation clearance will continue as part of EKFB works programme.

2.2.14 There have been no in-combination impacts or multiple consenting process impacts identified from the EWC scope of work prior to MWCC mobilising on site. There have been no other development projects identified which are considered to lead to in-combination impacts on the Chiltern AONB with the proposed HS2 works.

2.2.15 There are other survey works being carried out by the MWCC such as monitoring of GCN populations across a number of Amphibian Metapopulations (AMPs).

2.2.16 The following sections focus on the purpose of this KESWMP in relation to the technical topics identified in section 1.2.

2.3 Ground Investigation

2.3.1 ALIGN have completed its main GI phase of work and is now into main works construction. Any proposals for boreholes and pump testing are discussed with Affinity Water and the Environment Agency.

2.3.2 The GI works carried out by EKFB are completed using a number of methods depending on what is appropriate including rotary and cable percussive boreholes up to 40m deep, and trial pits (1m wide, 5m long and 4m deep). The locations of each point are also assessed against potential for ecology and archaeology with walkovers using a licensed Ecological Clerk of Works (ECoW) and watching briefs undertaken where required.

2.4 Main works

2.4.1 ALIGN is responsible for construction of the Chilterns Tunnel, shafts and North Portal within the AONB.

2.4.2 The work being undertaken includes tunnel boring, cross passage construction, diaphragm wall construction, shaft excavation, secant piling, and head house excavation and construction.

2.4.3 ALIGN have produced Environmental Management Plans for each of its worksites. Risk assessments are undertaken and ecological surveys conducted as required.

2.5 Third Party (Utilities)

2.5.1 There are 118 utility works recognised within the Chiltern AONB. All of which will be undertaken by a utility contractor or by MWCC. The works include examples such as communication connections, sewer connections, low pressure mains and high-pressure gas mains. The work has been identified in various locations ranging from fields and footpaths to access tracks and roads. EKFB is carrying out utility trial holes across the Chiltern AONB with an eco-check carried prior to the works starting and ECoW attendance on site.

3 Topic areas

3.1 Nature Conversation, Terrestrial Ecology

Mitigation, Compensation and Monitoring Requirements

3.1.1 The Park Hill and Bury Farm ecological mitigation sites are mitigation for the loss of habitat due to the construction of HS2. The ecological mitigation sites have been designed with the intention of maximising the potential quality of the available habitat on each site. Both sites have a bespoke maintenance, management, and monitoring requirements to achieve the ecological objectives of that site.

3.1.2 Standard construction control measures specific to the locality have been outlined in Table 1 of the Local Environmental Management Plan Buckinghamshire Unitary Authorities (Document Ref: 1MC12-EKF-EV-PLN-C000-000011) and support the ecological mitigation as specified in the Environmental Statement (ES). EKFB will use method statements and construction management plans to ensure the environmental effects associated with construction are identified, planned for and managed in addition to those identified in the consents and licenses. EKFB and HS2 assure that these controls are being implemented through regular site visits, inspections, and audits.

3.1.3 Whilst there have been protected species identified near the ecology mitigation sites there are no identified adverse impacts on them due to the scale and timing of the EWC construction works. Planning shall reduce risk for EKFB work during construction.

3.1.4 New packages of work will be reviewed and assessed for any impacts on the nature conservation, terrestrial or aquatic ecology and appropriate mitigation and compensation requirements implemented. The translocation of protected species will be carried out in accordance with the respective licences and method statements produced by EKFB.

3.1.5 Monitoring requirements for protected and other species, and habitats, are determined through the licence application processes and through the ESMP for ecological mitigation sites. Monitoring of mitigation measures is required in the EMR's (para 6.5). EKFB will continue monitoring as required under the HS2 route-wide licence from an agreed handover point with the EWC.

3.1.6 Site-specific ESMPs will be consistent with the requirements of the Environmental Minimum Requirements Annex 4: Environmental Memorandum on management and monitoring (section 4.8). Section 4.8.6 states:

> "Monitoring of the ecology mitigation and compensation measures is necessary to measure the extent to which the ecological objectives of the proposals are being met. The approach to monitoring will vary depending upon which management option is adopted for a particular area of habitat and will be agreed on a site-specific basis. Broad generic indications of the likely durations of monitoring, maintenance, and management during the establishment period for those habitats affected by the project are set out in HS2 Information Paper E26: Indicative Periods for the Management and Monitoring of Habitats".

Opportunities for Enhancement

3.1.7 Opportunities for enhancement will be identified during design and through discussion with consultees including the AONB Review Group and local authorities.

3.1.8 The Chiltern AONB review group have two projects which commenced in summer 2019. The first project is in relation to is a landscape and Biodiversity project looking at landscape improvements along the line being delivered by Chilterns Conservation Board. The work to be ongoing for the next 5 years.

3.1.9 The second project the AONB review group are starting is improvements to the Ridgeway to improve accessibility and also open it up to new riding users by new paths and rights of way. This project is being led by the Ridgeway Partnership.

3.1.10 Toothwort *Lathraea spp.*, a locally scare saprophytic plant, was discovered at Amersham by ALIGN ecologists during a routine survey. The plant had not been identified during the original surveys used to inform the ES as the plant is only visible during March to May. The plant is saprophytic on roots of beech and in this case hazel. The discovery of the plant lead to redesign of the accommodation and car parking areas, so that the plant could be left undisturbed by ALIGN's work.

3.2 Water Resources and Flood Risk

Mitigation and Compensation

3.2.1 Following CoCP measures, there are no anticipated impacts within the AONB on water resources and flood risk from the construction works.

3.2.2 All design within the flood plain will incorporate a Flood Risk Assessment. The Flood Risk Zone is defined by areas located in areas of flood risk (Flood Zone 2 or Flood Zone 3) or greater than 1ha in area and where required in support of a consent and/or approval application. For HS2 works the Environment Agency grant the consent and the Local Authority are consulted.

3.2.3 The Park Hill and Bury Farm ecological mitigation sites to be constructed within the AONB are in Flood Zone 1 (fluvial flooding). The siting of the ponds has been designed outside the flood zone to prevent incursion by flood waters increasing the likelihood of introducing non-desirable species.

3.2.4 The advanced landscape planting sites and other EWC and third party works sites has been fully assessed for flood risk as part of the scheme design stage.

3.2.5 The works at Wendover consist of the construction of the Wendover Green Tunnel which is a cut and cover tunnel. Small Dean Viaduct will be built to ensure the route crosses the Aylesbury to Marylebone Railway safely and will be constructed through piling.

Monitoring Requirements

3.2.6 Monitoring requirements will be agreed as part of scheme design dependent on the locality and severity of the flood risk in discussion with HS2 Limited, the Environment Agency and the Local Authority as appropriate. The consenting process will ensure appropriate monitoring is agreed and implemented.

3.2.7 Monitoring of the sites for flood incursion will be undertaken as part of the ongoing monitoring of all the sites.

3.2.8 Ahead of the construction of the Wendover Green Tunnel surface water and ground water monitoring will be carried out in the Wendover area. In addition to this, the pump test was carried out between February to April 2021 to measure the hydrological impact in the area. Prior to these works, eco-checks were conducted to assess for ecological constraints. Ahead of the main works piling at Small Dean, a test pile will be carried out.

Opportunities for Enhancement

3.2.9 Enhancement opportunities have been considered within the design and construction process and include such opportunities as additional swales for the habitat mitigation sites and placement of reptile banks and hibernacula outside the floodplain or areas at risk.

3.2.10 Opportunities for further enhancement will be identified through consultation with consultees including the AONB Review Group and Lead Local Authorities Forum (LLAF) will continue to identify opportunities to reduce areas traditionally known to flood throughout the project.

3.3 Recreation and Amenity Impacts and Public Open Space

Mitigation and Compensation

3.3.1 Main works civils construction of HS2 within the AONB will result in the loss of woodland, ancient woodland, grassland and impacts on landscape views. These impacts will be considered in more detail when the KESWMP is updated in relation to the development of the MWCC design and programme

3.3.2 Woodland and ancient woodland loss will be minimised through the exploration of alternative options. There will be no woodland removed until it has been confirmed there are no design alternatives that are acceptable. Areas of amenity lost permanently through the scheme are being mitigated through design supported by the EWC, the MWCC and through HS2's support of the AONB Additional Projects being developed by the AONB Panel.

3.3.3 Public Rights of Way will be affected by the construction of HS2. The EWC and MWCC will work with the community and interest groups to mitigate for these disruptions through the provision of additional routes where possible linking sections of curtailed path and by enhancing PRoW with additional planting if possible. The Ridgeway National Trail and regionally promoted routes will be affected by the MWCC (Table 1). It is understood, for example, that the route of the Ridgeway will need to be realigned to coincide with the Ellesborough Road diversion, consideration will be needed as to how this will be managed to minimise impacts on users of this National Trail.

Table 1: Impacts to Public Rights of Way (PRoW) by MWCC

PRoW – reference	Reason for disruption	Duration of closure or diversion
Footpath GMI/13/3	Since the completion of the ES, the construction phase programme in this area has changed significantly, and as a result the South Heath Cutting has moved to the early stages of the construction programme. Due to this, early in the programme this area will become unsafe for the public to cross due to the large cutting, earthworks equipment and the safety-critical nature of the working area. As a result of this, it has been deemed neither reasonable nor practicable to keep GMI/13/3 open during the construction phase on safety grounds. There is no reasonable or safe diversion route.	The closure is estimated to be approximately 54 months, until Summer 2025
Footpath GMI/12/1	Footpath GMI/12/1 is proposed to be closed during the construction phase, with a diversion onto GMI/2/1 and Potter Row. In the ES, GMI/12/1 was assumed to have a negligible diversion to the south of its existing alignment for the duration of the construction phase. Due to programme changes, early in the programme this area will become unsafe for the public to cross due to the large cutting, earthworks equipment and the safety-critical nature of the working area. As a result of this, it has been deemed neither reasonable nor practicable to keep GMI/12/1 open during the construction phase on safety grounds.	It is estimated the closure and diversion will be approximately 66 months, until Autumn 2026
Footpath GMI/2/1	Footpath GMI/2/1 is proposed to remain open during the construction phase. In the ES, GMI/2/1 was assumed to have a local diversion in place during the construction of GMI/2 Accommodation Overbridge. The ES reports 39 daily users of GMI/2/1. As EKFB plans to remain within the ES assumptions, it is not assumed this will create any new significant impact, in relation to both EMR compliance and community effects. Signage is proposed to be placed at the junction with GMI/12/1 and GMI/2/1, and at the junction of GMI/12/1 and Potter Row, and GMI/2/1 and Potter Row, to divert the public along GMI/2/1 during the construction phase.	During the construction programme, there may be short term closure(s), the closure will be kept to less than 28 days.
Footpath TLE/2 and WEN/38/1	Footpaths TLE/2 and WEN/38/1 are proposed to be closed during the construction phase. Since the completion of the ES, the construction phase and programme has changed significantly, and as a result, earthworks are due to commence in this area before the permanent structure has been completed. As a result of this, the area will become unsafe to allow vulnerable road users and members of the public to	It is estimated this closure will be in place for approximately 66 months, between April 2021 and Autumn 2026

PRoW – reference	Reason for disruption	Duration of closure or diversion
	cross the line of route at this location. It has therefore been deemed neither reasonable nor practicable to allow crossing at Footpath TLE/2. It is proposed signage be placed on the A413 at its junction with WEN/38/1, and at the junction of Footpath TLE/2/2 and King's Lane. The exact location of any signage will be subject to all necessary consents, and the exact closure points will be discussed as part of any pre-applications with the Local Highways Authority, though EKFB has powers under the Act to close within Act Limits. Due to the location of this crossing, there are no reasonable nor practicable diversion routes that can be implemented for TLE/2. Any vehicular traffic that uses this route can be diverted onto WEN/37/Bowood Lane.	
Footpath WEN/37	Footpath WEN/37 is proposed to remain open during the construction phase. In the ES, WEN/37 was named "Bowood Lane Footpath" and was assumed to be diverted by approximately 550 metres to TLE/2/2 until the construction of Bowood Lane Overbridge. Since the completion of the ES, the construction phase and programme has changed significantly, and as a result it is feasible that an at-grade crossing can be maintained close to the Bowood Lane crossing of the line of route, until the completion of Bowood Lane Overbridge. As a result, Footpath WEN/37 is to remain open on a local diversion to the north of the existing Bowood Lane crossing. This is to be controlled by traffic marshals to avoid people/plant interface and ensure safe crossing for vulnerable road users.	Short-term (< 4 weeks) closures may be required. These will be kept to a minimum and Advance Warning Notices (AWN) will be provided
Footpath WEN/36	Footpath WEN/36 is proposed to be closed for the duration of the construction programme in the Wendover Dean Viaduct area. The ES assumed a temporary diversion between viaduct piers to the east side of the line of route. 25 daily users were reported in the ES and this PRoW forms part of the Chiltern Way Trails. Due to the complexity of the viaduct construction, as well as the fact an alternative route is available, it is proposed that a reasonable diversion route can be put in place for the public to cross the line of the route in a safer location	This closure and diversion is estimated to be in place for 64 months, between May 2021 and Autumn 2026.
Footpath WEN/39	Footpath WEN/39 is proposed to be closed for the duration of the construction programme in the Wendover Dean Viaduct area. The ES assumed a temporary diversion between viaduct piers to the east side of the line of route. 6 daily users were reported	This closure and diversion is estimated to be in place for 64 months, between May

PRoW – reference	Reason for disruption	Duration of closure or diversion
	in the ES. Due to the complexity of the viaduct construction, as well as the fact an alternative route is available, it is proposed that a reasonable diversion route can be put in place for the public to cross the line of route in a safer location. It is proposed that signage is placed on the wider network to direct walkers along the diverted route, crossing the line of route at WEN/37, and joining back to the westernmost edge of the PRoW route on Durham Farm Lane. It is noted that this may be required by landowners for access, and liaison with all relevant parties will be ensured. As a result of this, it is proposed to close WEN/39/1 and WEN/40/1, with signage proposed at the junctions of the PRoW and the Highways they intersect with to the east and west of the line of route, on Chesham Lane, King's Lane and Durham Farm Lane respectively.	2021 and Autumn 2026
Bridleway WEN/57	Bridleway WEN/57 is proposed to remain open for the majority of the construction programme, with periodic short-term closures at periods of peak activity. In the ES, Bridleway WEN/57 was proposed to be diverted by approximately 2.2km during the construction phase. EKFB's proposals for Bridleway WEN/S7 provide an improvement based on the proposals set out in the ES, with a minimal local diversion route for the majority of the construction programme. During these periods, there will therefore be a benefit to the local users. During periods of peak activity in the near vicinity, it will be neither reasonable nor practicable to maintain a safe passage of the users across the construction boundary. During this period of time, It is proposed that during these periods of closure, a diversion route is implemented which may either use the crossing at Ellesborough Road, or create a separate link to the south of the tunnel excavation works. This will divert the Bridleway mostly using the existing network, bringing users back onto Small Dean Lane close to Smalldean Farm. Providing this diversion is implemented prior to any closures, it will ensure equestrian users are able to cross the line of route and access the wider Bridleway network in the area. This will ensure no significant community effects are realised and will satisfy the U&A which dictates EKFB	Temporary diversion

PRoW – reference	Reason for disruption	Duration of closure or diversion
	must maintain access for the PRoW where reasonably practicable.	
Bridleway WEN/14/4	Bridleway WEN/14/4 is proposed to remain open on its existing alignment for the beginning of the construction phase, with a diversion onto Ellesborough Road upon commencement of the Green Tunnel excavation works. In the ES, it was assumed that Bridleway WEN/14/4 would remain on its existing alignment for the duration of the construction phase. The proposed diversion route will be implemented upon commencement of the Green Tunnel excavation works and will remain in place for the duration of the construction programme. This will utilise the newly created Bacombe Lane "Link Road" to the west of the line of route, bringing the public back onto WEN/14. There may be times where short-term closures are required for safety-critical works such as tie-ins, however these will be kept to the minimum practicable duration and, in any case, are not planned to remain in place for more than 28 consecutive days.	Temporary diversion
Bridleway WEN/14/4	Bridleway WEN/14/4 is proposed to remain open on its existing alignment for the beginning of the construction phase, with a diversion onto Ellesborough Road upon commencement of the Green Tunnel excavation works. In the ES, it was assumed that Bridleway WEN/14/4 would remain on its existing alignment for the duration of the construction phase. The proposed diversion route will be implemented upon commencement of the Green Tunnel excavation works and will remain in place for the duration of the construction programme. This will utilise the newly created Bacombe Lane "Link Road" to the west of the line of route, bringing the public back onto WEN/14. There may be times where short-term closures are required for safety-critical works such as tie-ins, however these will be kept to the minimum practicable duration and, in any case, are not planned to remain in place for more than 28 consecutive days.	Temporary diversion
Footpath WEN/13A	Footpath WEN/13A is proposed to be diverted onto Ellesborough Road and the Bacombe Lane Link Road during the construction phase. In the ES, it was assumed Footpath WEN/13A would be diverted locally to suit the construction of Wendover Green Tunnel. There may be times where short-term	Temporary diversion

PRoW – reference	Reason for disruption	Duration of closure or diversion
	closures are required for safety-critical works such as tie-ins, however these will be kept to the minimum practicable duration and, in any case, are not planned to remain in place for more than 28 consecutive days.	
Footpath WEN/11/1	Footpath WEN/11/1 is proposed to be diverted onto Ellesborough Road for the duration of the construction phase. EKFB's proposal is exactly the same as what was proposed in the ES, albeit for a longer duration due to the construction programme for the Green Tunnel construction works becoming elongated. However, due to the short length of additional distance, and the relatively low usage, it is not assumed that this will create a new or adverse significant effect to either the community or to additional severance. There may be times where short-term closures are required for safety-critical works such as tie-ins, however these will be kept to the minimum practicable duration and, in any case, are not planned to remain in place for more than 28 consecutive days	It is proposed this diversion route will be in place approximately 4 years.
Footpath WEN/6	Footpath WEN/6 is proposed to be diverted along Ellesborough Road and the existing network in Wendover during the construction phase. In the ES, it was proposed that WEN/6 would be diverted onto Ellesborough Road during the construction phase.. EKFB plans to utilise the Ellesborough Road diversion route which is proposed in the ES. This will remain open for the duration of the construction phase, with only short-term closures implemented for safety critical works (less than 28 consecutive days).	Temporary diversion
Footpath WEN/55	Footpath WEN/55 is proposed to be diverted along Ellesborough Road and the existing network in Wendover during the construction phase. In the ES, it was proposed that WEN/55 would be diverted locally during the construction of Wendover Green Tunnel. EKFB plans to utilise the Ellesborough Road diversion route which is being used for other PRoW in the area. Due to the complexity of the Green Tunnel construction, it has been deemed that it would be unsafe to allow vulnerable road users to cross in the vicinity of these major earthwork's operations. As a result, this diversion route has been sought to enable passage across the line of route for the public. There may be times where short-term closures of the diversion route are required for safety-critical works such as tie-ins, however these will be kept to the	Temporary diversion – approximately 4 years.

PRoW – reference	Reason for disruption	Duration of closure or diversion
	minimum practicable duration and, in any case, are not planned to remain in place for more than 28 consecutive days.	

Opportunities for Enhancement

3.3.4 Comments received during the design period from stakeholders such as the AONB Review Group, Local Authorities, Parish councils, community groups and interest groups during design will be explored with the AONB Panel, HS2 and local authorities. Opportunities will be documented and formally assessed through the Green Corridor process.

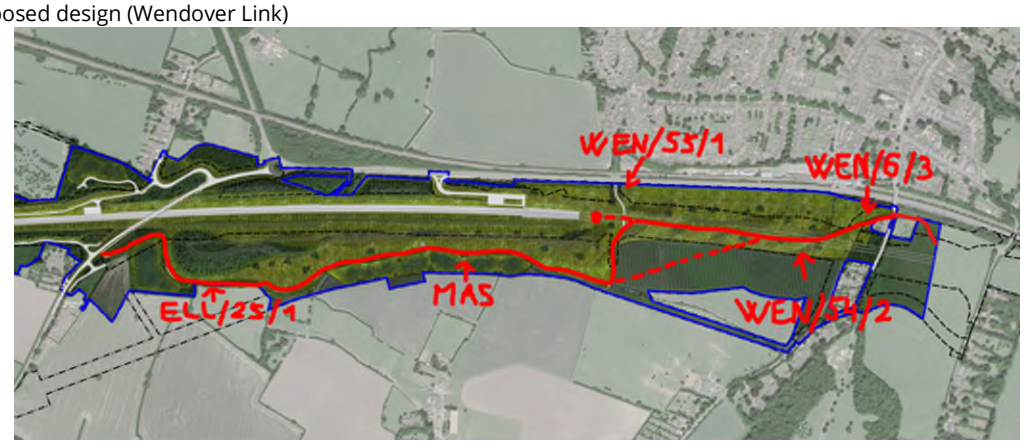
3.3.5 Interested parties can propose enhancement opportunities to the MWCC who will endeavour to work with these parties to develop and deliver the enhancements if practicable. All contractors are committed to providing community investment and the provision of PRoW and recreation and amenity improvements will be enthusiastically received to incorporate into the Contractor's suggestions.

3.3.6 Within the Chilterns AONB HS2 Chiltern Enhancement and Integration Plan, Part 1 Detail Design Principles (DDP) a new connection opportunity has been identified, which is referred to as the Wendover Link. This link will follow the HS2 route from Frith Hill near the Chilterns North Tunnel Portal at South Heath and connect with the B4009 Nash Lee Road to the north.

3.3.7 The Wendover Link will be provided through reinstatement of WEN/6/3, WEN/54/2 connecting to WEN/55/1 with an extension to an informal viewing area at the north portal, connecting to the shared HS2 Maintenance Access strip which in turn will connect with ELL/25/1 and onwards to Nash Lee Road. See the plan below which is

NOTE: Drawing for reference purposes only, NOT OFFICIAL DESIGN

Figure 2 Proposed design (Wendover Link)



3.3.8 The drainage design is subject to ongoing discussion with the EA and their consent is being sought as appropriate.

3.4 Landscape and Visual

Advanced Works contract

3.4.1 Sensitive landscape and visual receptors are outlined in the relevant LEMP and ES. Screening planting has been included within the Proposed Scheme design and is planned for sensitive landscape locations. The advance landscape planting by the EWC is designed to provide early screening to local residents, businesses and for public amenity value in advance of the MWCC works. Further consultation will be undertaken as the advance landscape planting develops. Planting will occur as part of EKFB Undertakings and Assuring's (U&A's) such as during the construction of Small Dean Viaduct.

3.4.2 The AONB Review Group is working alongside HS2 and communicating with EKFB on additional integration and enhancement measures to reduce the landscape and visual effects of the scheme within the AONB and its setting.

Monitoring Requirements

3.4.3 The advanced landscape planting will be monitored in accordance with Landscape, Maintenance, Management and Monitoring Plans which will be produced at detailed design stage for these sites by Fusion.

Opportunities for Enhancement

3.4.4 Further opportunities for enhancement will also be highlighted and developed during design, especially when designing permanent infrastructure. The views of the AONB Review Group will be included as appropriate and consultation will be local

with authorities and other interested parties. Suggestions received from any party will be considered and discussed between the MWCC and HS2 for the practicality and impacts and adopted or incorporated wherever feasible. For example, the opportunity to open up part of a woodland mitigation site was agreed by the EWC in another area but until the consent of the landowners has been agreed the idea will not be implemented.

Main Works Contract

3.4.5 The landscape planting proposals for the Chilterns AONB, north of the Chilterns Tunnel within the Community Forum Areas CFA 9 and CFA 10, are being developed to reflect the Chilterns AONB Detailed Design Principles (DDP). This is a key document agreed between HS2 and Chilterns AONB Review Group. The design principles contained within the document have been provided for the purpose that they could reasonably be applied to HS2 works in the Chilterns AONB and its setting, which aim to achieve an exemplar landscape design for the project.

3.4.6 The design of the Main Works landscape planting for the Chilterns AONB area is presently under discussion with Buckinghamshire Council (formally Chilterns District Council and Aylesbury Vale District Council) as part of the HS2 Phase 1 Schedule 17 application process. The Main Works planting has been split into four separate S17 applications, which are P1 South Heath to Wendover Dean, P2 Wendover Dean, P3 Small Dean and P4 Nash Lee. The S17 application P2 Wendover Dean was approved by Buckinghamshire Council in June 2021, which includes the Viaduct, associated landscape earthworks, track and land drainage features and security fencing. The remaining three applications are at various stages of submission. It should be noted that the planting submitted as part of the Schedule 17 application is for information only. The formal submission for getting consent from the local planning authority for the planting will be Bringing into Use post Main Works contract construction.

3.4.7 The nationally important and highly sensitive landscape components of the Chilterns AONB through which HS2 traverses introduce significant design challenges. HS2 north of the Chilterns Tunnel traverses the chalk landscape of the Upper Missenden Valley between the settlements of Great Missenden and Wendover which is characterized by four local character areas. The landscape design approach for each of the four areas is considered in turn below.

Lee and Buckland Common Farmland Undulating Valley Slopes Local Character Area (LCA)

3.4.8 In the environs and north of the Chilterns Tunnel North Portal at South Heath, HS2 emerges in a deep cutting within a landscape defined by steep topography,

established vegetation included several blocks of ancient woodland and important historic features. This landscape has a strong visual relationship with the adjacent Upper Missenden valley floor to the west, and the settlement pattern to the east.

Mitigation

3.4.9 This section of HS2 falls within the S17 P1 application which was submitted to Buckinghamshire Council in February 2022. In summary the landscape design approach seeks to integrate the engineered South Heath cutting into the landscape and to screen the ancillary features. A key part of the approach is to retain or restore the important Holloways, to provide opportunities for the establishment of Beech and Holly woodland as well as opportunities for ecology enhancement and connectivity. To achieve this the landscape planting and landscape earthworks proposals are being designed to help integrate the engineered cutting and associated infrastructure, including the tunnel portal and service building, overbridges, and highway alignments into the landscape. Opportunities to retain the existing mature vegetation is recognized as being important particularly where it is associated with heritage features, but the practicalities of doing so must be seen in the context of the large-scale construction activity that is required to build HS2. Where vegetation is lost, particularly where it is associated with a heritage feature such as a Holloway, it will need to be replaced in some form. This is done overtime either by recreating the feature lost albeit in a slightly different spatial arrangement or to introduce a new feature which provides biodiversity connectivity and helps to integrate and or screen the railway infrastructure and at the same time retains the rural character and sense of place, such as Beech and Holly woodland.

3.4.10 Lineside vegetation, i.e., vegetation that sits within the HS2 security fence, is also being proposed on the upper slopes of the engineered cutting. This planting is considered essential as it will create a natural transition between the proposed tree and shrub blocks along the cutting crest outside the security fence with the inward facing slope of the cutting. In addition, the cutting slope will be maintained so that the upper slopes will be managed to allow some natural regeneration of woody species.

3.4.11 In regard to the overbridges which span South Heath cutting the landscape design is being developed closely with the architectural design and the current plan is to install Wendover Green Tunnel to mitigate the loss of habitat in this area.

Wendover Gap LCA

3.4.12 HS2 emerges from the South Heath cutting at Wendover Dean, located on the east side of the Upper Missenden Valley. At this location HS2 cuts across a side valley on

embankment and viaduct before disappearing back into a combination of cutting and false cutting. Northwards, HS2 then re-emerges to traverse the valley floor at Small Dean on embankment and viaduct, then traverses the west side of the valley before entering the Wendover Green Tunnel at Bacombe Lane, west of Wendover. This is a landscape defined by the undulating exposed and visible side slopes of the Upper Missenden Valley and the relatively well-contained infrastructure and settlement pattern of the lower slopes and valley floor. Both the viaducts and the Wendover Green Tunnel South Portal are Key Design Elements for the Project which means that the structures and their associated landscape design, as well as the S17 application are required to go through the HS2 Independent Design Panel Review process.

Mitigation

3.4.13 This section of HS2 falls within the S17 P2 and P3 applications. The former is now approved and the latter is currently in an ongoing discussion with Buckinghamshire Council. A summary of each application is provided below:

Wendover Dean

3.4.14 The viaduct, of approximately 450m in length and up to 17m in height, is the focus of HS2 at Wendover Dean. The landscape design adopts a simple approach of reinstatement, where the key landscape components such as field boundaries and lane side hedgerows follow as closely as possible the existing spatial arrangement of the historic field pattern and holloways, thereby re-establishing biodiversity connectivity and the creation of an ecological corridor. Where new landscape components have been introduced to help integrate the associated HS2 infrastructure such as the new landform, highway, and drainage assets, they have been designed to respect the nature and open character of the landscape context. This allows the landscape to flow beneath the viaduct.

3.4.15 To the northwest of the viaduct, the outward slopes of the Rocky Lane landscape earthworks is a notable new landscape feature within the lower slopes of the valley. As such, the landform modelling has had to consider the adjacent overhead powerline towers. To blend the earthworks with the existing landform the back slopes have been steepened to a gradient steeper than 1v to 8h which restricts the land being restored to arable farmland. The landscape proposals therefore show several of the new fields on the steeper section of the earthworks as an opportunity for biodiversity enhancement through the creation of a chalk wildflower grassland sward.

Small Dean

3.4.16 The 350m long viaduct crosses the Upper Missenden valley floor at a point where it is defined by the Chilterns Railway and A413 and its associated vegetation. The viaduct crosses over both the railway and road where they are in proximity to each other and sits low in the landscape. For the most part its mass and appearance will be contained by the local landform and existing vegetation, but it will form a prominent intervention when seen from the A413 and to a point where it acts as a gateway to Wendover in one direction and the AONB in the other. The landscape approach for the viaduct is to reinstate as far as possible a wooded landscape along the A413 to help contain the road and its traffic, as well as help to integrate the viaduct approach embankments. This wooded approach is managed as coppiced woodland to maximize establishment of woodland ground flora. At the structure the landscape becomes more formalised with terracing and flint being introduced beneath it.

3.4.17 North of the Viaduct, HS2 runs parallel and in proximity to the A413 on an engineered embankment leading up to the Wendover Green Tunnel south portal. The elevated position of HS2 to the settlement of Wendover to the east requires substantial noise barriers on the embankment which form prominent features in the view from both the A413, to the east where the barrier forms the skyline feature and elevated PRoW to the western AONB side. The landscape approach for this section is to look at measures to reduce the mass and appearance of the noise barrier, which includes widening the embankment and creating a low mound at the crest. Planting in the form of shrubs, scrub and grassland is also being looked at on the embankment to overtime help reduce the overall mass and appearance of the barriers.

Wendover Foothills LCA

3.4.18 HS2 passes through much of this character area within a green tunnel, emerging at its north end in cutting in the environs of Nash Lee. This LCA is defined by its undulations, openness, and large-scale arable fields. It is also publicly accessible with a good PRoW network. The LCA also has a strong visual relationship with the adjacent Chiltern Scarp LCAs to the south, where there are elevated views from key viewpoints at Bacombe Hill and Coombe Hill (National Trust) to the green tunnel area and Nash Lee. This landscape is also important in that it acts as the transition between the chalk downlands of the Chilterns and the low-lying clay vale of Aylesbury, and the changes between the two are experienced in the elevated views across this area.

Mitigation

3.4.19 North of Ellesborough Road the roof of the Wendover Green Tunnel sits above ground level, creating a false earthwork and ridgeline that runs parallel to the A413 to the east. Where HS2 emerges at the north portal, it sits in cutting with adjacent landscape earthworks. The design of the earthworks over the tunnel and adjacent to the cutting to the north is essential to integrate HS2 into the open landscape and to screen it, particularly in the elevated views to the southwest, within the adjacent Chiltern Scarp LCA. To aid integration of the tunnel landform, the earthworks modelling provides opportunities to restore some of the land back to agricultural use. This area is also seen as being important for wider biodiversity connectivity and public amenity.

3.4.20 The planting associated with this area is also very important as it needs to reflect the change in features and elements within this transitional landscape as well has help to integrate the north tunnel portal and service building and look to provide opportunities for recreational and ecology benefit. The planting therefore reflects a vegetation transition from a chalk downland yew / birch scrub and wildflower grassland over the tunnel and in the environs of the north portal to an oak / birch woodland in the environs of Nash Lee.

3.5 Agriculture

Mitigation and Compensation

3.5.1 Minimising the loss of any agricultural land, particularly the Best and Most Versatile agricultural land, i.e. grades 1, 2, 3a, as well as mitigation and compensation for any loss of Best and Most Versatile agricultural land will be principally within the MWCC scope.

3.5.2 The EWC work programme is not affecting high quality agricultural land; small junction improvements, habitat mitigation sites – generally sited on grazing land in the AONB. The areas of agricultural land to be lost or adversely affected are outlined in the relevant LEMPs and ES as are local control measures. The proposed scoping matrix accompanying additional revisions of this KESWMP will identify cross topic opportunities and mitigation requirements in more detail.

Monitoring Requirements

3.5.3 A Soil Resources Plan (SRP) has been prepared by the HS2 Contractors on sites where topsoil and subsoil are being stripped and returned to agriculture.

3.5.4 The SRP will identify the type and volume of soils affected and the reuse potential within the footprint of the works or suitable donor site for land restoration. For agricultural land the SRP will include a target specification for restoration.

3.5.5 Soil scientist have been employed by EKFB and soil surveys have undertaken by EWC.

Opportunities for Enhancement

3.5.6 Further opportunities for enhancement will also be highlighted and developed during design, especially when designing permanent infrastructure. The views of the AONB Review Group will be included as appropriate and consultation will be local authorities and other interested parties.

4 Summary

4.1.1 This document addresses the impacts associated with the Chilterns AONB. The recreation, nature conservation and terrestrial and aquatic ecology, water resources and flood risk and landscape and visual impacts have been assessed and opportunities for enhancement within the AONB area will be identified in future.

4.1.2 In-combination adverse impacts and the need for multiple consenting requirements during the EWC scope of works were avoided within the AONB through planning and communication with other EWC Contractors and third parties. Each consent has been reviewed, together with and the Environmental Statement and HS2 undertakings and assurances but with widely spaced and disparate requirements the holistic nature of the consenting requirements is being assessed and will be addressed through the incorporation of a scoping matrix integrating topics and cross cutting themes and opportunities.

4.1.3 MWCC to date have carried out utility trial holes across the Chilterns AONB and are now progressing with main works construction. De-vegetation works are being carried out ahead of the main works earthworks and the construction of the internal site access and haul roads. Demolition has been carried out at Durham Farm, and is due to happen at Road Barn Farm and Mulberry Park Hill. A test pile is to be carried out in Small Dean. The Wendover pump test has finished, and water monitoring continues in Wendover.

4.1.4 The EKFB main scope of works includes 2 No. launched viaducts, 8 No.overbridges, 3 No. underbridges, 11 No. large scale culverts (including micro-bored tunnels), 1.4km of cut and cover tunnels, bulk excavation and numerous road realignments and

utility diversions. Other works required to be carried out in the early stages include surveys of Hampden pond to assess whether the current assets can be incorporated into the scheme design, pump tests to understand how the works will affect springs in the local areas, ground investigation works throughout the entire section, both boreholes and trial pits, construction of a cement stabilised chalk embankment and installation of traffic monitoring loops. EKFB will produce the detailed design and construction.

4.1.5 The ALIGN main scope of works includes a 3.4km viaduct, 16km twin-bored tunnel and associated portals, and five shafts handling both intervention and tunnel ventilation facilities. Within the AONB works include approximately 13km of tunnel, North Portal construction and 4 no shafts.

4.1.6 The KESWMP will be reviewed and revised as appropriate and on a six-monthly basis by HS2 and its Contractors.