Central Chilterns Communities' response to the Environmental Statement and associated documents

Master Draft 18.2.14

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1.0 Introduction

1.1 This response to the Environmental Statement (ES) has been prepared by representatives of Community Forum 9 (CF9), including action groups, representatives of the community, local elected councilors and private individuals so that Parliament is informed of the public's view of the Bill's Environmental impact.

1.2 This consultation response and **our answers to each question** are without prejudice to our contention that the consultation and the process of which it is a part are deeply flawed. Without limitation, significant impacts have been ignored or inadequately assessed; impacts of the scheme are minimised, unsupported assumptions and factual errors have been made and conclusions drawn, and the volume and difficulty of navigating the consultation documents and the limited time allowed, even though extended, are unfair and prejudicial to an informed response.

1.3 All representatives of this community submitting this response are resolute in their fundamental objection to the proposal before Parliament for the building of the High Speed Rail (HS2) on the grounds that:

- it has not been shown to be in the national interest compared to investment into regional transport needs such as set out in the 51M alternative
- the west coast mainline from Euston is far from reaching capacity; the ten most crowded rail services are those of the Great Western. HS2 will not provide sufficient capacity to meet long term demand for rail transport over the network, one of the Government's key objectives
- the estimated projections of passengers are overstated, just as those for HS1 were proved
- HS2 does not form part of a national transport strategy, or even a national rail strategy
- there has been inadequate consideration of alternatives, especially upgrading the existing west coast mainline at 3 key pinch points
- no proper environmental impact assessment has been carried out prior to making decisions about the preferred route
- the business case for HS2 is fundamentally flawed with 44% of the benefit in the benefit cost ratio coming from the absurd assumption that people do not work on trains

1.4 The response to the ES is set to address the questions listed below:

- non-technical summary including matters of National importance identified
- volume 1 matters affecting the proposed scheme
- key issues affecting Community Forum Area 9 (CFA9) within it and adjacent CFA areas 8 and 10 e.g. traffic flows
- route wide issues especially the separate section addressing the Chilterns AONB and the national importance thereof
- items involving Volume 5, maps and Appendices and particularly the draft Code of Construction Practice (CoCP)

1.5 We have also added a response to the Health and Wellbeing document. This is not part of the consultation but CFA9 feel most strongly that it should be. Just as the ES significantly underplays the environmental damage, the Health and Wellbeing

significantly underplays the existing and potential health impacts of HS2 and this should be brought to the attention of Parliament. We also include a rationale why CFA9 has argued consistently for the longest possible tunnel through the AONB.

1.6 The following section is taken from the Hybrid Bill. It details the extent of the works necessary for the 10.8 kms of surface route compared to the tunneled section. The ES segments this information. This disguises the overall impact of the work. The work schedule and the maps show that this work will be to create a continuous linear construction site throughout the heart of the AONB, causing unparalleled damage to this designated landscape.

Detail of the work schedule as outlined in the Hybrid Bill for CFA9

London Borough of Hillingdon, County of Buckinghamshire, District of South Bucks, Parish of Denham, District of Chiltern, Parishes of Chalfont St. Peter, Chalfont St. Giles, Amersham, Coleshill and Little Missenden, County of Hertfordshire, District of Three Rivers

The following work affects the first 9.2 km tunneled section of the AONB

Work No. 2/1 - A railway (19.27 kilometres in length), partly on viaduct and partly in tunnel, commencing by a junction with Work No. 1/61 at its termination, continuing north-westwards and terminating at a point 530 metres north of the junction of footpath LMI/17/2 with Footpath LMI/17/1;

Work No. 2/1 includes viaducts over Newyears Green Bourne, Harefield No.2 Lake, the Grand Union Canal, Savay Lake, Moorhill Road, Kroda Lake, Long Lake, the River Colne and the A412 Denham Way (North Orbital Road) and shafts at Chalfont St. Peter, Chalfont St. Giles, Amersham and Little Missenden.

In contrast the following work affects the next 10.8 km of surface route in the AONB

Parish of Little Missenden

Work No. 2/13 - An accommodation access road being a diversion of a farm track commencing on that farm track at a point 146 metres north of Mantle's Farm and terminating at the junction of that track with Hyde Heath Road;

Work No. 2/13A - An accommodation access road commencing by a junction with Work No. 2/13 at a point 54 metres north of its commencement and terminating on footpath LMI/17/2 at a point 90 metres north-east of its junction with footpath LMI/17/1.

County of Buckinghamshire, District of Chiltern, Parishes of Little Missenden, Great Missenden and The Lee.

Work No. 2/14 - A railway (8.3 kilometres in length) partly in tunnel and partly on viaduct commencing by a junction with Work No. 2/ 1, at its termination, continuing north-westwards, and terminating at a point 240 metres north-west of the roundabout joining the A413 London Road with Small Dean Lane;

Work No. 2/14 includes a viaduct over the A413 London Road, the Marylebone to Aylesbury Line and Small Dean Lane.

Parish of Great Missenden—

Work No. 2/15 - An accommodation access road, commencing on Hyde Lane at its junction with footpath GMI/27/1 and terminating at a point 12 metres east of the junction of footpaths GMI/27/1 and GMI/26/1 with footpath GMI/23/6;

Work No. 2/15 includes a bridge over Work No. 2/14;

Work No. 2/15A - An accommodation access road commencing by a junction with Work No. 2/15 at a point 176 metres west of the junction of footpaths GMI/27/1 and GMI/26/1 with footpath GMI/ 23/6 and terminating at a point 64 metres north of its commencement;

Work No. 2/16 - A realignment of Hyde Lane commencing on that road at a point 10 metres north of its junction with footpath GMI/27/1 and terminating on that road at a point 270 metres south-west of its junction with Chesham Road;

Work No. 2/16 includes a bridge over Work No. 2/14;

Work No. 2/17 - A diversion of Chesham Road, commencing at a point 180 metres west of the junction of that road with Kings Lane and terminating at a point 130 metres north-east of that junction;

Work No. 2/17A - A diversion of King's Lane, commencing on King's Lane at a point 410 metres north of the junction of that road with Chesham Road and terminating by a junction with Work No. 2/17 at a point 124 metres north-east of the junction of that road with Chesham Road;

Work No. 2/17B - A diversion of Chesham Road, commencing on Chesham Road at a point 112 metres west of the junction of that road with Hyde Lane and terminating by a junction with Work No. 2/17 at its junction with the termination of Work No. 2/17A;

Work No. 2/18 - A footbridge over Work No. 2/14, being a diversion of footpath GMI/12/1, commencing on that footpath at a point 378 metres south-west of the junction of that footpath with Potter Row and terminating at a point 168 metres south-west of that junction;

Work No. 2/18A - A realignment of Frith Hill commencing on that road at a point 350 metres south-west of its junction with Kings Lane and Potter Row and terminating on that road at a point 132 metres northeast of its commencement;

Work No. 2/18B - An accommodation access road over Work No. 2/14, commencing at a point 460 metres west of the junction of Frith Hill with Potter Row, and terminating at a point 370 metres north-west of that junction;

Work No. 2/19 - An accommodation access road, commencing on the access road to Havenfield Lodge, at a point 618 metres south-west of the junction of that road with Potter Row and terminating on that road at a point 137 metres south-west of that junction;

Work No. 2/ 19 includes a bridge over Work No. 2/14.

Parishes of Great Missenden and The Lee

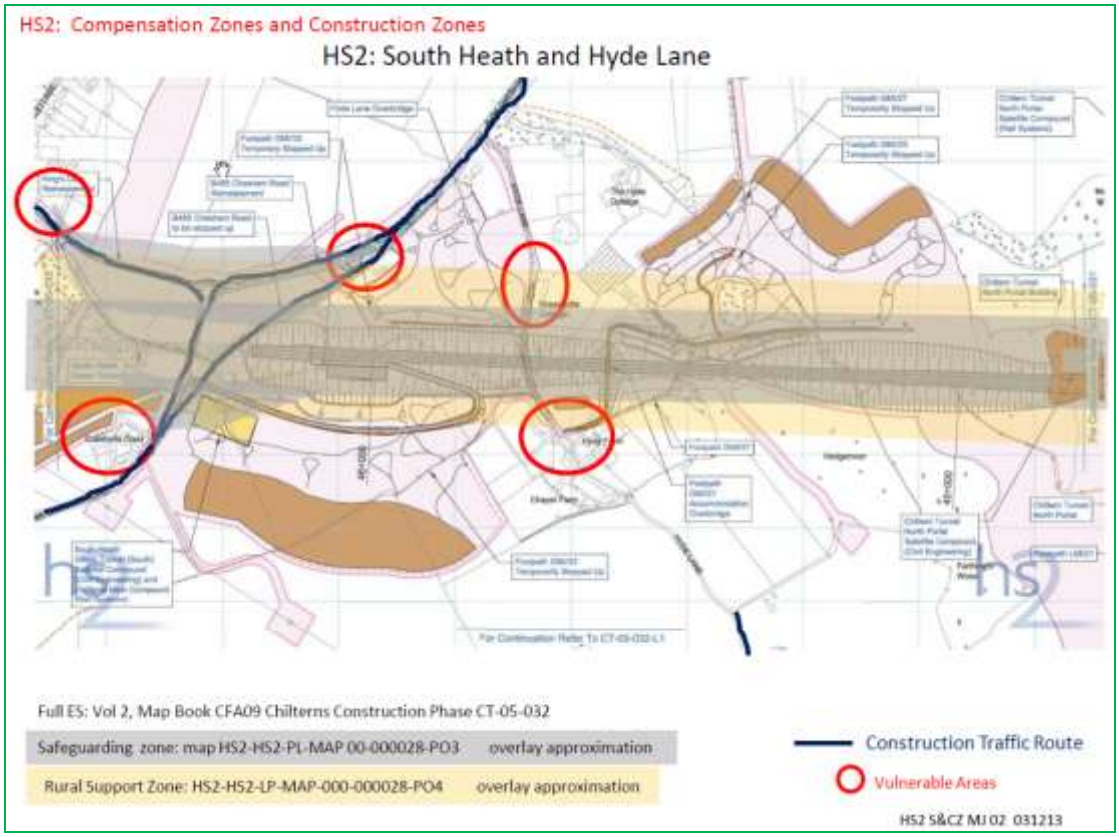
Work No. 2/20 - A diversion of Leather Lane commencing on that road at a point 720 metres west of the junction of that road with King's Lane and Potter Row and terminating on that road at a point 116 metres west of that junction;

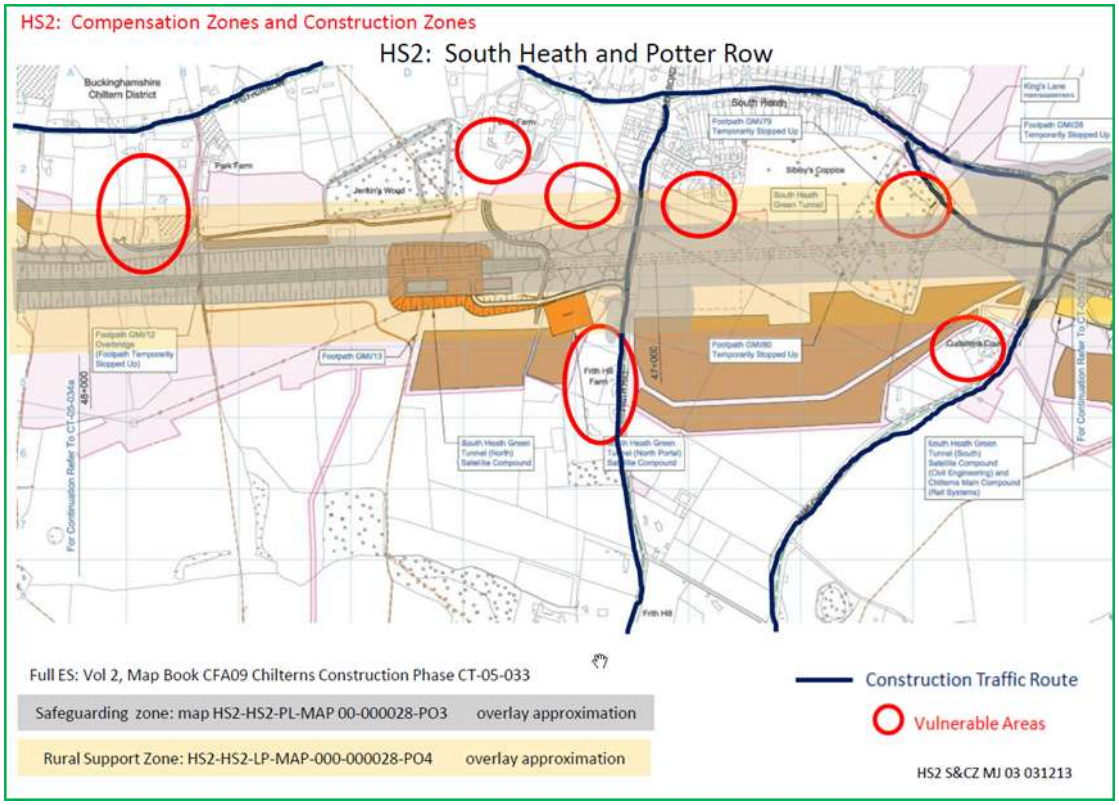
Work No. 2/20 includes a bridge over Work No. 2/14.

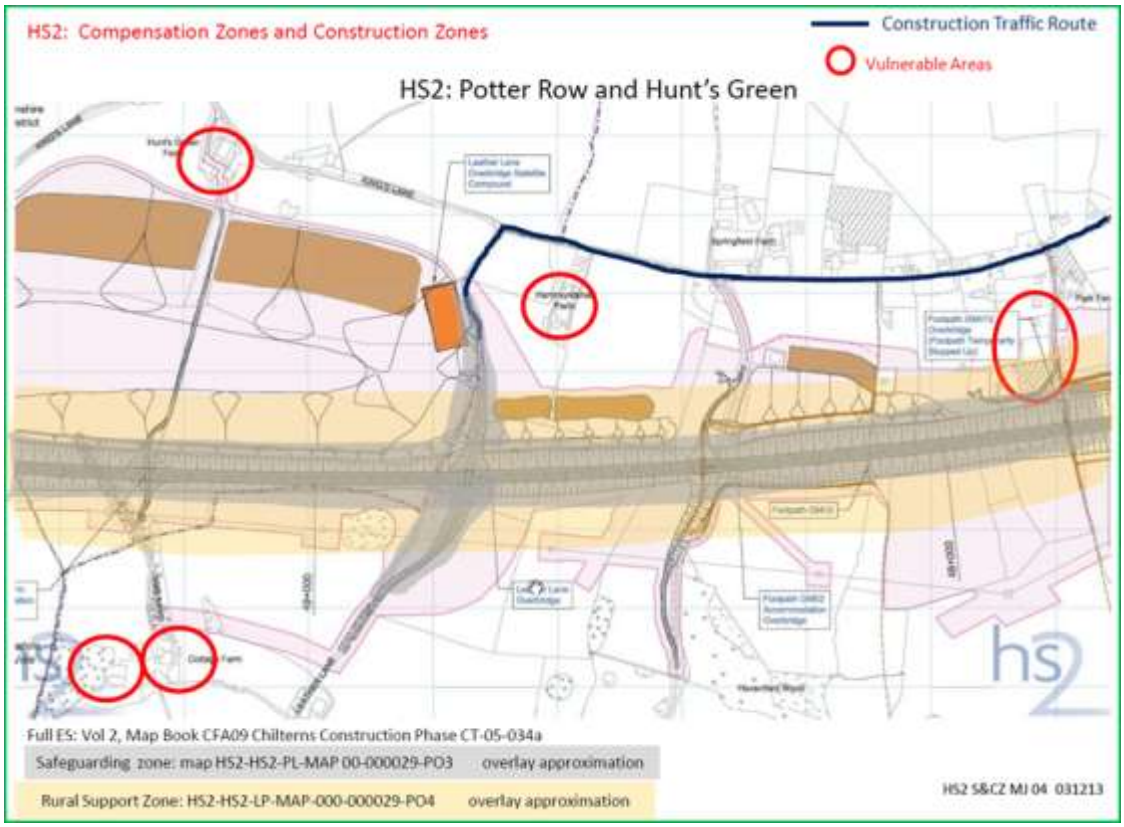
Parish of The Lee

Work No. 2/21 - An accommodation access road, being a realignment of a track to Cottage Farm, commencing on that track at a point 665 metres south-west of the junction of that road with King's Lane and terminating on that track at a point 159 metres south-west of that junction;

Work No. 2/21 includes a bridge over Work No. 2/14.







1.7 **The maps and work show a continuous 10.2 km construction site sited in the heart of the AONB.**

1.8 It should therefore be self-evident why CFA9 have consistently argued that the only acceptable solution to avoid significant and permanent adverse environmental impacts is for the route to be in a bored tunnel for the entire length as it passes under the Chilterns AONB. This mitigation measure would conserve the AONB as envisaged initially by National Parks and Access to the Countryside Act 1949 and subsequently by the Countryside and Rights of Way Act 2000.

1.9 **The longest possible tunnel option would very significantly reduce the damaging environmental impact of the line**. Explicitly these are:

- Minimal disruption to local communities and road users
- No Loss of ancient woodland or protected hedgerows
- No dumping of spoil in the Chilterns
- No loss or severance of farmland
- No need to close or divert roads
- No need to close or divert Rights of Way
- Significant reduction in Noise issues
- No impact of wildlife and ecology
- No need for settling ponds etc.
- Limiting the damage to the reputation of the Chilterns for visitors and tourism
- Elimination of property blight and associated adverse effects on health and wellbeing of stress, anxiety, depression, insomnia

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2.0 Non-Technical Summary (NTS)

Question 1. Please let us know your comments on the non-technical summary.

Our comments are:

2.1 The non-technical summary is a key document. It is likely to be the document that is referred to initially and may be, for many, the only document that is looked at. This is especially true given the short timescale to respond to the ES. Therefore it carries a significant responsibility. A member of the public has every right to expect, albeit it in summary form, that the picture of the impact**, particularly the total environmental impact** of the proposed scheme is accurate. This it fails to do. It consistently seeks to minimise the impact of the scheme.

2.2 The non-technical summary effectively either dismisses the impact of HS2 or, where it recognises impact, it seeks to downplay and minimise the effect. The description of the project is essentially engineering based and any serious attempt to reduce the environmental impact appears to have been lost to the expediency of cost. Indeed the ES is more of an engineering statement than an environmental statement.

2.3 This is not surprising given that it has been prepared by 'a group of independent engineering consultants on behalf of Hs2 Ltd' The two consultants listed, Arup and URS respectively are described as being 'engineering, design, planning, project management and consultancy' and 'engineering construction and technical services'. They are not independent.

2.4 The non-technical summary should have included reference to the outcome of the consultation on the draft ES.

2.5 Whilst the language is more muted than the draft environmental statement, nevertheless spin, rhetoric and assertion and lack of evidence remain. Nowhere are the terms of reference to the authors included within ES documents. The technical summary reads as if it is a government propaganda document. The lack of disclosure of the terms of reference means that there is no credible independence in the production and this further erodes confidence in the independence of its assessments.

2.6 Volume 1 of the draft ES (an equivalent summary document) asserted that *'there is a compelling case for delivering a step-change in the capacity and performance of Britain's inter-city rail network to support economic growth over the coming decades'*. The draft ES failed to make that case. However, this was the key objective. HS2 was an *'engine for growth',* designed to *'heal the north south divide.'*

2.7 Albeit abbreviated, (and expanded in other volumes in the ES) the objectives as set out in non-technical summary 2.1 are noticeably very different, namely *'sufficient capacity to meet long term demand, improve connectivity by delivering better journey times and improve resilience and reliability over the network'*. The consultation of the draft ES was based on fundamentally different key objectives from the ones presented in the non-technical summary. The problems that HS2 is solving and the objectives that it is designed to meet are subject to constant change. It not only stretches credulity but further undermines any confidence in the rigour of original analysis when the objectives are subject to constant shift or variance in emphasis.

2.8 The key overcrowding on the WCML is in the first 50 or so miles out of London i.e. commuter traffic. There is no exploration of the impact of investment in advanced signaling on the west-coast main line and the potential to increase the number of train paths. Nor is there any exploration of seeking to increase 'classic' train speeds. It is unclear how trains travelling at 225 mph will increase resilience and reliability *'across the network'*. This is hyperbole and does not stand up to analysis.

2.9 There is no exploration of the impact of the near doubling of capacity – hardly a step change – that HS2 will produce. There is no explanation why the government has shifted from the *'predict **manage** and provide principles'* but reverted to *'predict and provide'*. HS2 effectively has diverted the focus away from the underlying challenges that the Eddington and McNulty reports raised. For example, the government has not considered: unit costs; capacity as measured by train utilisation rather than train paths; fares that are 30% higher than European fares but levels of subsidy the same as pre-privatisation; fragmentation; or value for money to name but a few of the issues.

2.10 A factor in the rejection of the conventional rail-based alternatives to the London to West-Midlands high-speed line is the disruption to existing rail users. The very real disruption to communities by designing and building a high speed link has been totally discounted. Arguing that one scenario will cause disruption as a factor for rejection whilst ignoring the massive impact of construction on communities is disingenuous in the extreme.

2.11 The environmental impact and associated costs to communities along the proposed line are not quantified and assessed and the benefits of upgrading existing lines with regard to the environment not made. '*The published business case for HS2 is based on a combination of real costs and revenue together with a range of notional costs including a valuation of the time saved by running trains at a faster speed than classic rail or HS1. The case has not so far included the evaluation of non-market effects sometimes referred to as economic externalities. This is the value of natural systems to society which are largely unregistered by the free market or for which a market does not exist. For example, costs have not been included for the reduced asset value arising from uncompensated property blight or the loss of trade for affected businesses. Similarly the business case does not include any indirect costs such as loss of tourist trade to the Chilterns due to reputational damage, inconvenience to local people, disruption to local transport services and provision of utilities, and the value of the landscape and cultural heritage*.'[1] The time savings for the business rail traveller are fundamental to the economic case whereas the loss of time for the business traveller stuck in her car because of the traffic chaos caused by HS2 is ignored. Voodoo economics indeed.

2.12 The impact on communities is minimised. The cumulative impacts are not assessed, yet within a linear project are key considerations. The very design of the ES, in its segmentation and short period of consultation, guarantees that no reader will gain an over-view of cumulative impact on the environment.

2.13 A number of examples are provided to illustrate the misrepresentation of the impact of the project. They are based on matters of concern for CFA9 but no doubt similar examples can be drawn from all along the proposed route.

1 Chiltern Conservation Board (CCB)-Peter Brett Non Market Effects of the Proposed Scheme 2013)

2.14 Section 9.2 outlines and attempts to minimise the impact of the proposed scheme on the Chilterns AONB. It acknowledges that it is a designated landscape. It fails to point out that it is afforded the highest possible national designation; Category V. Category V is also the same category in which the UK's National Parks and French Regional Nature Parks are placed. It fails to point out the resultant government responsibilities as defined by the CROW Act and the national planning and policy framework (NPPF).

2.15 Hs2 Ltd have consistently given the impression during the community engagement that they regard the AONB as being in some form of lower league, a somewhat third rate National Park and any incursion into it regrettable but relatively insignificant. This is reflected in the monetary value placed on the landscape; the original valuation in 2012 was some 60 times greater. Originally the landscape was rated at the highest non-urban value. Currently ¾ of the scheme is now valued at the lowest possible land value[2].

2.16 The environmental evaluation and cost to society that Hs2 Ltd have undertaken is not fit for purpose, particularly but not exclusively when applied to a designated landscape. It fails to give due weight to consideration of the environment *'as a functioning system and that provides the essential services that underpin economic, social and personal well-being'* and the four steps in the process *of valuing non-market impacts.*[3]

2.17 In addition, the NTS fails to explicitly state the *'exceptional circumstances'* to justify development within such a designated area as identified in NNPF. (Expanding the network in response to anticipated growth, overstated in HS1 cannot be described as 'exceptional'.)

2.18 The judgement that, overall the special characteristics of the Chilterns AONB will *'not be significantly altered' is* misleading to the point of mendacity. Development is in direct breach of recognised standards, policy and legislation and as such, using the definition of impacts set out in Volume 1 paragraph 7.3.2, its impact will have a high/major effect.

2.19 The NTS states that approximately 3km² of the landscape will be altered. The Chiltern Conservation Board, (CCB) which manages, preserves and enhances the AONB, estimates that the overall effect on the landscape would be 55km² in construction and 45km² during operation. The NTS further states that less that 0.5% of the AONB will be altered. This is a blatant attempt at minimisation of impact and certainly this line of thinking is unlikely to be applied to any asset which has a direct, tangible monetary value. A Van Gogh painting with a 0.5% hole cut out it is hardly likely to be assessed as *'not being significantly altered'*.

2.20 Further, it demonstrates a complete lack of understanding of the centrality and uniqueness of the Misbourne valley and ridges within the AONB. It is no answer to say that: '*the effects will be limited to the Misbourne Valley, with the wider AONB essentially free from significant effects.'* The AONB is the sum of its diverse parts and

[2] (Chiltern Conservation Board (CCB)-Peter Brett Non Market Effects of the Proposed Scheme 2013)

[3] Treasury Green Book – supplementary Green Book

national designation applies to all of its parts. In fact the proposed mitigation and changes to the landform only exacerbate the damage being caused.

2.21 The NPPF requires the developer, Hs2 Ltd, to provide an assessment of how the need can be met in other ways. There is no mention of various tunnel options proposed by the community and their rejection on cost grounds. Nor is their mention of the important aspect of CROW Act 2000 to the reference in section 85(1) to the 'General duty of public bodies etc.', which includes the Secretary of State for Transport, requiring *'a relevant authority shall have regard to the purpose of conserving and enhancing the natural beauty of the area on outstanding natural beauty'.* These are serious and misleading omissions**.**

2.22 The second example is drawn from section 7.4 Community overview. This acknowledges a number of communities will be significantly affected by the construction of the project. The length of the list is designed to reassure the reader of the minimal impact. It identifies South Heath as one of these communities. It is very clear that these communities will be at an epicentre of the earthquake of linear construction and indeed the railway's operation. The reality of the impact on these communities is totally ignored.

2.23 In the case of South Heath some sense of the level of disruption begins to emerge in 8.9 but even this section completely understates the disruption that will be caused by construction and construction traffic. It is only turning to Volume 2 CFA9 that the full extent of the impact emerges. Life will become intolerable for the construction and fitting out periods. Lorry movements will effectively paralyse the village, disrupting daily life and severely affecting those trying to get to work and school. The impact of emergency services, deliveries and business has been ignored.

2.24 What the summary fails to point out is that the impact will spread far wider than these named communities. The ongoing 'aftershock' will spread out far from the designated route. Hs2 Ltd has a myopic view of the project, except when discussing '*wider benefits*'.

2.25 The local effects are not confined to one community as the NTS suggests. The extent is far wider as Hs2 Ltd knows but refuse to acknowledge. Hyde Heath, Potter's Row, The Lee, Ballinger, Wendover and Great and Little Missenden, Prestwood and Little Kingshill will all be very significantly affected. The impact of the construction will spread far wider than the immediate route, all along the line. The NTS fails to make this clear.

2.26 The NTS makes extensive use of the word 'temporary'. According to Volume 1, features are either 'temporary' or 'permanent'. This is may be a neat redefinition of the word, which the OED describes as 'lasting only for a limited period' but the use of the word in this way is in **itself a minimisation of impact.** Road closures, diversion construction traffic on village roads will become a way of life for a three and a half year during the construction period and a two and a half year during the fitting out period. Six years is hardly temporary.

2.27 The third example draws on Traffic and Transport in the NTS. Three paragraphs extol the benefits that HS2 will bring for inter-urban travellers. It fails to mention that the Acton and Northolt Line will no longer connect to the GWML. In fact it is proposed to

terminate it over 1km away. Nowhere in the ES is there a reason given for the removal of this connection and of the dis-benefits that result.

2.28 The fourth paragraph refers to the draft CoCP including mitigation and the measures that will be taken to reduce and manage traffic impacts during construction. It acknowledges the increased congestion, journey times and the necessity to close, realign or divert certain roads and public rights of way. All very bland and uninformative but misrepresentation provided with a veneer of reasonableness.

2.29 The paragraph effectively dismisses the significant problems that the proposed scheme will cause throughout the road network. It fails to consider the linear nature of the project and its impact along its length on local road transport.

2.30 Turning to 8.9 and equivalent sections in 8.8 and 8.10 the full potential of local traffic chaos becomes apparent. The NTS states that the A413 will experience congestion and delays in CFA10 at several junction (including B4009), CFA9 the same at junctions with A413 and B485 (in fact they are same junction) but further down the construction traffic route in CFA8 at the first junctions at Amersham it is stated there will be intermittent delays, even though there would be more sites and cumulatively increasing additional construction traffic. The impact on the Chilterns crematorium is not assessed nor is the impact on emergency services. The cumulative traffic effect will be greatest at the junction of the A355 and the A413 that has been totally omitted.

2.31 Paragraph 7.4 describes '*the sensitive laying out of construction sites*'. Cudsden Court, on the B485 near Great Missenden backs onto a high spoil heap and it is proposed to place a construction camp opposite. It is not credible to describe this siting as 'sensitive'. Again a matter raised and dismissed within the community forum.

2.32 The socio-economics summary refers to the creation of approximately 14,600 full time construction jobs and a further 5,460 for suppliers and through the money that workers will spend in the area. It fails to point out the minimum 12,700 jobs that will not be created because in proposed specific developments halted by HS2. It also disregards the many jobs that will be lost and businesses destroyed by the construction and operation of HS2.

- To summarise: The NTS is a very important document – particularly given the very limited timescale of the consultation process. It is the document to which the majority of readers will turn to first
- It fails to provide a balanced picture- it has been prepared by engineers, to undisclosed terms of reference and **so extols the benefits and ignores or minimises the environmental impact of the proposed scheme**
- **It is, therefore, not fit for purpose as it fails to provide a summary of the significant residual effects on the environment**. It reads as a government propaganda prospectus for HS2

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Volume 1 Introduction to the ES and the Proposed Scheme

Please let us know your comments on Volume 1: Introduction to the ES and Proposed Scheme.

Our comments are:

3.1 Volume 1 provides details of the generic permanent features of the proposed scheme and generalised construction process. The problem of course is that they give no site-specific information. This makes it impossible to comment on or respond to. In particular, there is no information on how the specifics of the design will be tailored fit into the landscape. There is no detailing of the Secretary of State's claim of high design standards. De-contextualised pictures of generic viaducts and bridges are merely illustrations, they add little to the site-specific impact of the railway. The strong impression is that engineering demands, along with cost and time constraints could result in unsympathetic off-the-shelf, pre-fabricated provision of permanent features in the AONB.

3.2 Any design process is one that moves through a series of stages of ongoing refinement and detailing. A common answer from Hs2 Ltd to a specific question was it was *'too early in the process but it would be included in the final ES"*, yet the final ES fails to provide any answer. Therefore there will be no chance to comment on the location-specific design of the permanent features.

3.3 Section 8 lists examples of many important local issues raised at the community forum at which Hs2 Ltd stated these would be addressed in the ES but, these have not been answered so the important environmental issues have not been discussed but ignored. This is in direct conflict with paragraph 3.2.9, namely: '*to consider local issues and discuss possible ways to avoid or mitigate the potential impacts'* Furthermore, paragraph 2.2.10 is factually incorrect in stating that bi-monthly meetings were held as in 2013 only two meetings were held in nine months.

3.4 The process has been exacerbated by the fact that all the design parameters seem to have been established by engineering requirements and finance. The sustainability policy, (April 2013) about which Volume 1 makes a great play, was established late in the consideration of route when the design parameters were already well established. Although a series of sustainable design aims were established from the Appraisal of Sustainability (AoS), these values have not been consistently articulated.

3.5 Environmental values have not applied to the project. If these values had been established and the community had confidence that these overarching principles understood *'such as minimise impacts' (to the environment)* and *'deliver enhancements as far as is practicable'* then the community might have been re-assured about the final detail of the design. The current design proposals confirm that an Appraisal Policy dated April 2013, is merely a box ticking exercise.

3.6 Core environmental values have been ignored from the start. As a result community 'engagement' was very much limited to informing the community of the latest engineering requirement. Indeed, the environmental spokesperson was noticeably absent from later meetings.

3.7 The route planning has reached the parliamentary design stage. Further detailed design work is planned and the design will evolve as part of the parliamentary process. This is reflected in the scheme's inherent flexibility reflected in the principal undertaker's significant powers of deviation. The Hybrid Bill Schedule 1 1.2 states that: *'in constructing or maintaining any of the scheduled works the undertaker can*

deviate: laterally upwards not exceeding three metres and vertically downwards to any extent and laterally to any extent within the limits of deviation for that work shown' and Volume 1 - 1.4.4 states, only the undertaker has to *'use reasonable endeavours to adopt measures to reduce adverse environmental effects reported in the ES, provided that this does not add unreasonable cost or delay to the construction and operation of the proposed scheme'.*

3.8 These are **very considerable powers**. Potentially, the powers of deviation will make significant differences to the impact of the scheme, for example, where the scheme has already raised the track height to the detriment of the landscape. It would appear that the undertaker defines what is *reasonable;* there is no guarantee that *adverse effects* reported in the ES will be reduced. On this basis, it would seem that the description of the mitigation is at best only proposed mitigation.

3.9 The detailing of the Hybrid Bill procedure in Section 1.2 does not clarify lines of accountability post consent, should it be given, and the appointment of the principal undertaker. The Secretary of State establishes Environmental Minimum Requirements (EMRs). The nominated undertaker will be required to comply with the EMRs. There is no description of the lines of accountability of the nominated undertaker to comply with EMRs as the requirements sit alongside the provisions of the Bill and do not form part of it. This accountability, not only for the undertaker, but for Parliament must be included within the Hybrid Bill. Parliament cannot devolve their ultimate responsibility but must remain accountable throughout the lifetime of the project.

3.10 Section 2 provides the background to the government's decision to promote very high speed rail. It sets out the government's position in its 2012 Command Paper. This section, resorts to assertion and makes statements that have been legitimately questioned and remain unanswered.

3.11 Neither Hs2 Ltd nor the government has made a clear case for HS2 economically or in railway terms. The link between growth and high speed rail, its ability to 'heal' the north south divide is unproven (and indeed, lest we forget, was exactly the argument used for the construction of the M1) yet as with so many of the other assertions is presented as fact.

> *Equally, more often than not, transport is unlikely to be the answer to regenerating an area or region. Whilst transport can play an important role in facilitating productivity growth, transport infrastructure alone does not create economic potential. In particular,* ***it is widely accepted that the positive effects of transport investment, and its magnitude, are conditional on certain external pre-conditions complementing any transport provision, namely: stable macroeconomic conditions; the availability of skilled labour; and a favourable environment for business investment to drive output growth.*** (Eddington report 2006)

These vital pre-conditions have been ignored.

3.12 Few statistics are provided as evidence of the asserted growth in passenger numbers and those that are supplied do not inspire confidence that they represent the current trend given their dates and the carefully worded description of what these represent. Key objectives of the draft ES focused on HS2 as an *'engine for growth'*. Yet, again there has been a shift in emphasis of HS2's key objectives. It is no wonder that HS2 is viewed with such cynicism given that the reasons for it change and arguments for pursuing it continue to be based on dubious evidence and obfuscation. As, the ES points out (Volume 1 paragraph 2.4.4) this is potentially the biggest infrastructure project in Europe in one of its smallest land masses. The

corollary is of course that is therefore also likely to be the single most environmentally damaging project in Europe. The environmental impact of the scheme is seriously and consistently underplayed and minimised throughout the documentation.

3.13 The milestones chosen in the development of the project are selective. The Eddington and McNulty reports are ignored. The government has just announced that it has taken on National Rail's £30 billion debt. The Mcnulty report provided major challenges, for example, with regard to value for money – all have been disregarded.

3.14 The section on greenhouse gas emissions is inadequate. Its conclusion that '*the proposed scheme has taken climate change impacts and risks into account when forming its approach to adaptation and resilience'* is jargon and meaningless. Hs2Ltd's own analysis of mode transfer, from car to rail was less than 5%. The largest number of projected passengers for Hs2 Ltd is from transfer from 'classic 'onto very high speed rail and a high proportion of passengers are leisure based. There is no mention of managing demand so that trains are actually full. The passenger-carbon-cost per mile is significantly higher on a half empty train. Hs2 Ltd's assessment that HS2 will be 'carbon neutral' is unsubstantiated and has been robustly challenged.

3.15 There is no exploration of the power demands of HS2 in the ES. The subject of electrical power consumption is only included in Volume 1 5.17, where the hierarchy of electrical supply stations from the National Grid is described. The amount of power required to support the full HS2 network will need a small-to-medium-sized power station to be constructed, or the equivalent amount of energy to be imported. This is currently a concern for national energy security. A number of older power stations are scheduled for closure and concerns regarding future energy supply for the UK identified with the real possibility of a danger of 'blackouts'.

3.16 The cost of traction power is estimated by the DfT at £6 billion over the period 2026-2092 and assumes that electricity costs will remain constant. This should be added to the project cost for budgetary purposes. Most of the power consumed by the trains will finish up as heat, contributing to global warming. The ES deals with the subject of atmospheric emissions in terms of greenhouse gases, but does not deal with the heating of the atmosphere. It is misleading to say that these are purely operational matters and so are outside the scope of the ES, because they threaten the viability and sustainability of the whole project.

3.17 The sections on consultation are descriptive and, in part, factually incorrect. There is no assessment of the quality of this engagement. The sole concern has been to allow Hs2 Ltd to claim that the engagement process is the largest undertaken in the UK as notified by Hs2 Ltd in their response to the Woodland Trust. The statement that the engagement has had a major influence on HS2, especially local impacts, is fundamentally flawed and wholly unjustified.

3.18 The Community Forums' main purpose was to inform the community about the scheme, how it affected the local area, consider local issues, discusses possible ways to mitigate and identify community benefits, this Hs2 Ltd have failed to do. They have not brought forward their proposals for protecting the landscape of the AONB in line with their responsibility under the CROW act.

3.19 Representatives from along the line met with MPs to discuss the many failings of the engagement process on the 13th September 2012. Hs2 Ltd responded to the criticisms from MPs saying that it would review the Community Forum process in November 2012. No perceptible change took place, the number of meetings reduced and to say that they were held on a bi-monthly basis is factually incorrect. (Only two were held for CFA9 in 2013).

3.20 Further the critical view of the engagement was reinforced by votes of no confidence and declaration of the inadequacies of the process from all along the line. Volume 1 refers to community '*engagement*' rather than the '*consultation*' as it was stated in 2012 paragraphs 3.2.1 and 3.2.2. Community engagement was always a one-way process and a tick box exercise designed to allow Hs2 Ltd to make the very claim it has about the extent of the 'engagement'. As the ES is a report prepared for Hs2 Ltd (frontispiece page 2) it defies belief how the statements about community engagement throughout the ES can be accurate as they are the view of Hs2 Ltd and do not reflect reality of discussions as minuted.

3.21 Paragraph 3.2.13 discusses the consultation on the draft ES, detailed in Volume 5 Appendix CT-008-000; key common features of local responses, were the inadequacy of the draft ES and given the time-scale between the draft and final ES, the marginal influence any response was likely to make on the project or, indeed, the final ES. Paragraph 3.2.14 states that a summary of the changes resulting from the consultation are provided in an appropriate Appendix to Volume 5 however, Volume 5 confirms that the consultation on the draft ES was mainly designed to identify weaknesses in the drafting rather than make any meaningful contribution to questions of route or mitigation. The conclusions are as follows:

> *'During the 56 day (8 week) consultation period 20,944 responses were received in relation to the draft ES and draft CoCP. A great deal of consideration has been given to the comments received and to how these could be addressed; whether through the ES, the draft CoCP or through design development.*
>
> *For engineering, environmental or cost reasons it has not been possible to take on board all comments raised. However, the consultation process provided a robust analysis of the content of the draft ES and draft CoCP and helped to confirm findings and identify areas which required further justification or information. Responses received have influenced the drafting of the ES and led in part to changes to the ES and to the design of the Proposed Scheme. The ES now reflects the results of the analysis of consultation responses.*
>
> *Where a change would be of proven benefit to local communities, the environment and/or the Proposed Scheme these have, where reasonably practicable, been incorporated.'*

But

3.22 These conclusions ignore Dialogue by Design's, (The firm who collated the draft ES responses for Hs2 Ltd) executive summary of the responses which states: *'the overall comments contain expressions of concern and dissatisfaction, the quality and completeness made, the accuracy of the data, the mitigation being insufficient to counteract the impact and the visual blight to the Chilterns AONB'.* These conclusions have been totally ignored in the ES. This is not surprising since this report was published only two months before the issue of the ES.

3.23 The description of the route is **misleading** to the casual reader**.** Paragraph 4.2.15 states that the route passes beneath the Chilterns AONB, thus implying that the AONB is tunnelled along its entire length.

3.24 Hs2 Ltd, the DfT and the government have given tacit support to the many myths promulgated about the tunnel. Whatever faux concerns have been retrofitted, the prime motivator for the revised scheme, tunnelling through 48% of the AONB, detailed in January 2012 was engineering and cost based. These factors were the drivers of the revisions as they are in all aspects of the proposed scheme. The original pre-2012 route carved through the source protection zone was a major threat to the aquifer and that **saving** was £300 million. This is roughly Hs2 Ltd's costing of extending the bored tunnel towards Wendover.

3.25 The decision on the route drives the railway through the centre and widest possible point of the Chilterns AONB. The Misbourne valley is one of the last relatively unspoilt areas and has special and unique features. The route does not follow the valley but runs along the northern ridge/plateau where tranquillity is high. If the proposed scheme goes ahead, it effectively nullifies the concept of a Grade V protected landscape and makes the CROW act and associated legal protection meaningless. If the proposal goes ahead in its current design it effectively paves the way for development in all National Parks.

3.26 Paragraph 6.4 concerning advanced works is cross referenced in CFA09 2.3.7. It is too vague to comment on the appropriateness or otherwise of these works. It is clear from section 6.4 and other sections that the necessary surveys have not been undertaken and hence environmental impact not assessed. Indeed a whole series of further detailed site-specific environmental surveys have still to be carried out, indicative of a rushed and incomplete approach. There is nothing about the suitability of roads for construction traffic. This is of great importance of those communities, as local roads will be used with a huge negative impact on the life of residents.

3.27 Paragraph 6.10 Highways (roads) and public rights of way does not describe advanced works in relation to construction traffic routes and is cross referenced to Volume 2 CFA09 2.3.17 -18, again there is no description of the work required to bring small local (village) roads up to the standard to carry large volumes of construction traffic.

3.28 Section 6 sets out the construction of the proposed scheme and the reliance on the draft CoCP. It notes that the statutory undertakings, imposed by current environmental legislation and environmental controls imposed by the Hybrid Bill, (except when they are dis-applied) will be followed and are therefore not included within the draft CoCP. This does not give confidence that environmental consideration will be applied.

3.29 The conclusion is that the CoCP will be finalised by the principal undertaker and not the parliamentary process. The CoCP is based on the Olympic legacy document. Unlike that document, however, the strict lines of accountability are removed. Volume 1 fails to clarify the principle undertaker's accountability. It defines what the undertaker is likely to expect of the contractors but not what is expected of the principal undertaker. The principal undertaker's accountability to Parliament is undefined. If Parliament makes the decision to proceed with HS2 then it too must remain accountable for that decision throughout the life of the project.

3.30 If the draft CoCP is to have any realistic effect on operation and especially proposed mitigation then it has to be part of the Hybrid Bill. Most of section six is set in the future tense so that comment is difficult and indeed meaningless given that it is only

the '*general requirements'* set out in the CoCP (rather than the requirements) that will apply to the whole of the proposed scheme.

3.31 The role of local authorities' control over the undertaker remains invisible. The Hybrid Bill must make it clear where local authorities have power to exert control over the principal undertaker regarding the manner in which the work is to be carried out and in the proposed environmental mitigation.

3.32 Paragraphs 6.3.19 outline the construction hours. Effectively these are increased to 12 hours per day for various reasons. The tranquil, protected nature of an area of national importance the Chilterns AONB is ignored.

3.33 Another serious weakness of the ES is that it fails to detail the principal undertaker's responsibilities during the post-construction phase to ensure some of the very basic assumptions on which the scope and methodology report bases its judgements. For example, proposed mitigation involves extensive tree planting and judgements are made with reference to landscape based on these trees flourishing. This will only happen if the plantations are regularly managed over the next twenty years or so and then continually managed on a periodic basis. The Hybrid Bill must make clear the responsibility for this very long term commitment.

3.34 The agriculture judgements are based on the assumption that temporary land will re-assume its former role. There is no mention of the principal undertaker's responsibility in this regard in the medium-term post-construction and during operation.

3.35 The maps are littered with small parcels of left-over land. The responsibility for these is left undefined. There is an inbuilt assumption that they will be offered back and accepted. Uneconomic parcels of land are more likely to be left to become derelict or be designated brown-field-sites. Given the Secretary of State's powers described in Clause 47 of the Hybrid Bill to *acquire land compulsorily for the purpose of providing 'opportunity for regeneration or development'* and, given that this clause does not seem to provide exceptions for green belt or designated landscapes, it would seem that development of these parcels of land are a possibility leading to patchy, ribbon development along the line.

3.36 Paragraph 7.1.4 states that baseline studies have comprised a desk-top approach. This has resulted in factual errors in the ES leading to unsubstantiated conclusions. For example, evidence was provided of the impact of the line on businesses in Great Missenden. This has not been included. In addition the ES fails to identify some local schools as *'notable features'* which raise serious safety concerns.

3.37 Paragraph 7.3.3 defines impacts as either *'temporary'* or *'permanent',* a neat semantic trick which applies a gloss to impact assessment and belies people's and communities' long-term experience.

3.38 Paragraph 7.3.3 is also seriously misleading because it applies conflated assumptions about the benefits derived from consideration of phase 1 **and** phase 2. There are no regional socio-economic benefits in the area north of Old Oak common and south of Birmingham. The local modal shift from car to rail between these two points will be associated with the Chiltern line. As the journey time from e.g. High Wycombe to Birmingham, is faster via the Chiltern Line than via HS2, there will be no transfer and

thus no *'released capacity'*, unless direct access to Old Oak Common interchange is provided. There will be no reduction in aircraft movements because there are no direct flights from Birmingham to London. There will be no benefit to passenger access to and from stations and interchanges between these destinations. The paragraph further seriously misleads because it does not detail the dis-benefits of the phase 1 route.

3.39 The classification criteria to describe environmental impact give insufficient weight to national/international recognised landscapes.

3.40 Section 8 describes the scope and methodology approach. Paragraph 8.2.7 makes questionable assumptions; that land required for temporary purposes will be restored to its pre-existing quality. Given the compaction resulting from haul roads and heavy plant, this is an optimistic assumption. The first sentence of Paragraph 8.2.8 make no sense but the overall import is that ancient woodland and other woodland soil will be translocated successfully. This is unproven. It does assume a worst case scenario in respect of soil used for environmental mitigation, though hazards the possibility that it may well be managed on a *'low input basis by agricultural interests'*. It assumes that severed land will continue to be used; an assumption that is fundamentally flawed.

3.41 The scope for assessing community impact (8.3) includes: land use; real or perceived isolation of residential or community properties; changes in amenity from such effects from air quality, noise, views or construction traffic. The methodology is largely qualitative, relying on professional judgement. At a local level it does not include the intangible but significant loss of amenity derived from living in or visiting the AONB. At the other end of this spectrum it does not include the socio-economic impact resulting from loss of asset value or tourism both of which are largely determined and derived from the AONB. The impact on health and wellbeing is ignored.

3.42 The section on cultural heritage (8.4) makes the assumption that opportunities for the preservation of archaeological assets in situ have not, unless explicitly identified in the ES, been considered. It is unclear how the ES can include identification of undiscovered archaeological assets. The context of a discovery is of fundamental importance and may be as important as the actual artefact. Surveys are incomplete and the section refers to the Heritage memorandum. This too is written in the future tense and describes what will happen making comment impossible. It does dis-apply the project from primary legislation surrounding listed buildings and ancient monuments. It makes the assumption that LiDAR data does not encompass the entire proposed scheme and planting to screen heritage assets will not be fully effective until maturity. Given these conditions and assumptions it is difficult to comment. The proposed scheme should fund archaeologists with power to halt construction work.

3.43 The ecology section (8.5) makes the assumption in coming to its judgements that the operator will ensure provision for on-going management of all mitigation and compensatory habitat creation and will continue to monitor both habitats and species in order to ensure that predictions of effects are accurate. There is no mention of legislative or contractual accountability. Without this accountability, the assumptions are worthless. Nor is there an identified strategy to redress failed habitats should the predictions prove to be incorrect.

3.44 The assumptions made for successful business relocations are based on London Development Agency figures based on the London Olympics. To apply these statistics to rural areas is misleading.

3.45 **The absence of the impact on Tourism from the scoping report for this section is startling in its omission**. There are 55 million visitors a year to the AONB bringing in £471.6 million of expenditure associated with leisure visits to Chilterns and sustaining an estimated 12,000 FTE jobs. There is no assessment of loss of reputational value.

3.46 The socio-economic impact of loss of agricultural land is not assessed except where the loss is such that it means the business will fold.

3.47 There is no exploration of loss of personal value. The section concentrates on a narrow view of the socio-economics, that of the labour market. There is no quantification of loss of equity due to falling house prices because of property blight, or of the associated ill-health already experienced. This too is a major omission.

3.48 Section 9 describes the approach to mitigation and reproduces the mitigation hierarchy. Locally, there is no indication that the first two steps have been adopted: namely the requirements to implement measures to *avoid* or *prevent*, or *reduce* the effects of the project; '*offset'*, is the only proposed means of mitigation, applied inappropriately and with no regard for the environment. The mitigation of further tunnelling has been ignored.

3.49 The description of the landscape mitigation as described in 9.10 lacks credibility when applied to a protected landscape. Design of earthworks may achieve visual screening but requires re-sculpting of the existing landscape. There is little evidence of protection of existing vegetation including that of ancient woodlands. The specific design of new bridges and viaducts is not yet specified. '*The design and setting of new operational infrastructure* 'is a meaningless phrase and therefore comment is impossible. The access roads, (not mentioned) various types of ponds, gantries all add to a cumulative clutter of urbanised, alien features, even before including noise fence barriers and security fencing. More roads were built in the vicinity of HS1 than the length of the line.

3.50 Section 9.10.6 states that the operator will maintain landscaped areas within the rail corridor. There is no confirmation whether this is a temporary or permanent contractual arrangement. It is therefore a meaningless statement. There is a suggestion that there will be a tree-free zone either side of the railway. It is difficult to see how these features will be *'landscaped'* when the straight line of the railway is visually reinforced by the artificial, unnatural treeless zone.

3.51 Section 10 gives a brief over-view of strategic and route-wide alternatives. In doing so it is apparent that HS2Ltd has not examined ways of managing demand. It has adopted an approach of predict and provide discredited by Eddington. The effect of price structure on demand growth has not been modelled.

3.52 As noted earlier, the objectives and the problem that HS2 purports to solve have been subject to constant change. The solution is presented and justifications for the

project are retrofitted to it. The government has not taken a systematic approach by identifying with precision what the problem was e.g. *healing the north south divide* and then considering a range of solutions, including managing travel demand and non-transport related interventions, such as heavy investment in ultra-fast broadband. The government has not adopted this approach.

3.53 The result is that much of the relevant sections of Volume 1 have the same assertions as the AOS. The arguments are no more developed or underpinned by evidence. The comparator to alternatives is always HS2. There is no exploration of high speed as against very high speed rail which would allow a very different design concept and increased flexibility through sensitive locations.

3.54 The statement in 10.3.6 that *'though the proposed scheme is a discrete project that can be justified on its own merits, it has been conceived as part of a long-term strategy for a network of high speed lines connecting major conurbations'* causes concern. No strategy for a network of high speed lines beyond HS 2 has been announced or debated. The ES should be focused solely on the impact of Phase 1 London to West Midlands.

3.55 There is an element of duplicity. It is apparent from the ES that Hs2 Ltd has conflated the benefits of phase 1 **and** phase 2 to justify Phase 1. The very circularity of the argument is deeply worrying because **if** phase 1 goes ahead having relied on these benefits, it adds very significant weight to the development of phase 2.

3.56 Paragraph 10.3.26 outlines the government's approach to the 51M and other upgrade options. The benefits of these options are listed. It concedes that the appraisals showed strong BCR, significantly lower capital costs and less environmental impact. Nevertheless the conclusion is that the package of upgrades would not: '*address demand, capacity and crowding in the long term*.'

3.57 Claims for long-term demand growth are unsupported. The government remains coy when discussing capacity. Maximising train utilisation is not considered, nor over-capacity. To forecast HS2 train loading of little over half and for classic trains at a third by 2043 eschews any value for money argument. The discussion has always focused on 'classic' or very high speed. Advanced signaling to increase train path has not been considered.

3.58 The comparator is always the 'do nothing' strategy. HS2 is an inter-urban solution. It certainly does not provide a quick solution to tackle the overcrowding in the 50 or so miles out of London.

3.59 The inherent arrogance of the government's stance is reflected in the quotation from Decisions and Next Steps (2012): '*…create years of delay and disruption for passengers and freight services*.' There is no account taken by the years of delay, vast environmental damage, and loss of personal equity, business, heritage, amenity, health and wellbeing that the construction and operation will cause along the route. There would be no business or transport case if these assets had a direct value attached to them. As it is, the voodoo economics associated with HS2 only reflects that the government and Hs2 Ltd's purport to know the cost of everything but reveal that they know the value of nothing.

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4.0 Volume 3 Route Wide Effects

Question 3. Please let us know your comments on Volume 3 Route-wide effects.

Our comments are:

The Chilterns Area of Outstanding Natural Beauty

4.1 Paragraph 1.3.1 states that the effects reported in this volume are those considered to be appropriately assessed at a geographical scale greater than presented within the Volume 2 CFA reports including *'an assessment of the effects on the special landscape qualities of the Chilterns AONB.'* The Chilterns AONB is the only AONB in the phase 1 route and as such is even more deserving of attention. As it is the only one it can be granted that protection (i.e. a tunnel) without a precedent being set for areas that are not AONB.

4.2 The protected status of the AONB is stated. It fails to distinguish the specific differences between the Chilterns AONB and other AONBs. Nor does it note that the Chilterns AONB is **internationally** recognised as graded V protected landscape – the same level of protection as National Parks and, indeed, French national parks. Paragraph 2.1.3 refers to the National Planning Policy Framework. Rather than quoting directly from the NPPF it provides an inaccurate summary, designed to minimise the import of the NPPF statement.

…which outlines that great weight should be given to conserving landscape and scenic beauty in AONB, with the conservation of wildlife and cultural heritage being important considerations. The NPPF goes on to state that planning permission should be refused for major developments within the AONB except in exceptional circumstances, where a demonstrable need in the public interest must be presented.

4.3 The actual wording is:

Great weight should be given to conserving landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, ***which have the highest status of protection in relation to landscape and scenic beauty.***

4.4 Further, the summary deliberately omits three additional assessments that are required.

Planning permission should be refused for major developments in these designated areas except in exceptional circumstances and where it can be demonstrated they are in the public interest. Consideration of such applications should include an assessment of:

- *the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy;*
- *the cost of, and scope for, developing elsewhere outside the designated area, or meeting the need for it in some other way; and*
- *any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.*

4.5 Providing an inaccurate summary ensures that the three tests are omitted in the section that specifically purports to deal with the AONB. It is to this Volume that AONB stakeholders will turn. Each requirement of the NPPF should have been given specific assessment in this section. The effect of the current design, if enacted is that the NPPF framework counts for nothing. All national parks and designated, protected areas are therefore at risk of development with subsequent loss of

national assets and natural capital.

4.6 The *'exceptional circumstances'* required are not defined. Enhancement of the railway network because of anticipated growth in passenger numbers cannot be described as *'exceptional''*.

4.7 Hs2 Ltd and the DFT have consistently failed to demonstrate that the route selected to traverse through the AONB is in the public interest. The characterisation of the ES as being an engineering rather than an environmental statement is accurate. The ES demonstrably does **not** give great weight to the requirement to conserving landscape and scenic beauty. Indeed the obvious manner this could be achieved by tunnelling through the AONB is dismissed on cost grounds alone and ignores any environmental or non-market values. There is no impact assessment on the local economy, or recreational opportunities. There are no sections which deal with the cost of, and scope for, developing elsewhere outside the designated area. Nor is there exploration of meeting the need for it in some other way.

4.8 The onus for carrying out the NPPF assessment lies with the developer. Thus the onus therefore has always been on Hs2 Ltd to specifically explore and report on its approach to these assessments as they specifically apply to the AONB. It has not done so. Neither in its route selection, nor community engagement, draft ES and this Volume 3 has Hs2 Ltd accepted any responsibility for taking the initiative regarding its role as developer and thus the NPPF assessments. This has been the source of the anger and frustration within the community engagement.

4.9 It has fallen to the community to make proposals in the absence of schemes brought forward by Hs2 Ltd. Hs2 Ltd have then assumed the role of judge, rejecting the proposals on cost grounds at the expense of environmental considerations. Thus a hierarchy of technically feasible, fully-costed tunnel options proposed by the community have been summarily dismissed on the basis of costs and the decision obfuscated by the refusal to provide costing details to allow challenge to the basis for that judgement.

4.10 The fact that Hs2 Ltd actually contemplated siting the maintenance loop within the AONB and identifies it as a location for *'sustainable placement'* accurately reflects the status with which Hs2 Ltd regards the AONB and the supremacy of engineering solutions over conservation of landscape and beauty.

4.11 Hs2 Ltd does not regard the AONB or the Misbourne Valley, as deserving a unique status. The proposals for mitigation that Hs2 Ltd has come up with are inadequate. The characterisation that the DfT's approach to planning – drawing a line on the map and considering the impact later is all too accurate. The fact that HS2Ltd has failed to assume its responsibilities to carry out the required assessments reflects an arrogant approach. The omission of these assessments is so fundamental that that it renders the description of the impact of the proposed scheme on the Chilterns AONB as incomplete and inadequate.

4.12 The Draft ES attempted to minimise the impact of the proposed scheme on the AONB by listing already existing unwelcome features as justification for introducing even more alien features into the landscape. Remnants of this approach remain. Why else specifically mention the overhead power lines between Aylesbury/Beaconsfield and Whipsnade? The valley floor is described as featuring an existing road and rail

corridor connecting the settlements in the Aylesbury Vale to the *'south east of England''*. HS2Ltd. has consistently exaggerated the status of the A413. It is not part of the strategic road network but a local A-road. The Chiltern railway is essentially a commuter line with a half-hourly service. *'Connecting Aylesbury Vale to the south east of England''* is hyperbole, designed to exaggerate the importance of the *'corridor'*. In fact this strategy somewhat backfires, in that it makes the relatively undeveloped Misbourne valley even more unique.

4.13 There are inaccuracies. The M1 does not pass through the AONB. Furthermore the M40 and the west-coast-main-line cross the AONB at very significantly narrower points. The A41, crosses the AONB at the same narrowest point as the west coast mainline. To suggest that tranquillity in the Misbourne valley is affected by the M25 is incorrect. The M25 crosses the Chess valley for one mile within the AONB. This error leads to an illogical conclusion about the level of tranquillity of the AONB near the proposed scheme.

4.14 The Misbourne valley is the highest and longest of the five valleys which pierce the Chilterns and also the least urbanised. It is therefore unique.

4.15 The value of this landscape is not only confined to its outward appearance. There is a rich variety of archaeology, much of which predates the medieval period. Early maps of the Chequers estate show a field pattern in the sides of the Misbourne valley that has altered relatively little over the years. When taken together the valley forms a powerful attraction for residents and non-residents. This is demonstrated by the substantial number of national and international tourists visiting the Chilterns AONB in general and the Misbourne Valley in particular.

4.16 Given that the AONB is assessed as meriting the highest level of protection, the motives for re-assessing the local landscape are both transparent and inappropriate. Regardless of Hs2 Ltd's assessment, it remains a nationally protected landscape.

4.17 It is also obvious that the AONB is the sum of its parts. It is the richness and diversity of its parts that make up the AONB's whole. The Misbourne Valley is in the AONB. It is therefore subject to the highest level of protection as afforded to the AONB. It is totally inappropriate, to pick out the valley for development and to suggest that, overall, the AONB is unaffected by its despoliation. Planning legislation, of any kind, does not permit a 'pick and mix' approach. If a proposed development falls within scope of the planning restrictions then it has to comply.

4.18 It is also totally inappropriate to suggest that because there are some unwelcome features, such as over-flying by aircraft, it is any less important than other areas within the AONB and therefore ripe for development. This, the report sets out consistently so to do. In the process it seriously attempts to mislead the reader about the scheme's impact.

4.19 Paragraph 2.3.12 detailing historic settlements (para 2.3.12) in the valley bottom factually omits two important historic settlements that have conservation areas, Little and Great Missenden. The result is that the effect on them of the proposed scheme on the environment (para 2.5.19) must therefore have been arrived at incorrectly.

4.20 In addition, the assessment scope and the landscape baseline set out in the ES include

many fundamental errors describing the AONB. These have a material impact on the temporary and permanent effects on the AONB that is described as being of National value in paragraph 2.3.22. Paragraph 2.3.16 incorrectly states that for the most part the scheme lies within a wide valley setting. The 9.4 km. tunnel emerges within ancient woodland on the northern ridge and the route follows the ridge for the remaining 10.6 km where, incidentally, the report acknowledges tranquillity is at its highest.

4.21 Hs2 Ltd's use of the word *temporary* is deliberately misleading. A construction period of three to six years cannot, in the normal use of the word be described as temporary.

4.22 Paragraph para 2.5.14 states that ancient woodland is an irreplaceable national resource and its loss is a significant adverse effect. There is no reference to the fact that this damage is likely to be increased if the remaining ancient woodland, even after the translocation of spoils and linkage of ancient woodland fragments, fail to survive the significant damage caused by the scheme. The loss is claimed to be 31% for Mantles Wood, 31% for Sibley's Coppice, 33% of Hedgemoor Wood and 57% of Jones Hill wood. There is no risk assessment of the percentage of remaining woods that will survive if exposed as a result of the scheme.

4.23 Paragraph 2.5.19 emphasises that the impact of the vehicular movements will be limited to the Misbourne Valley and will not be perceived over the wider AONB. This ignores the fact that the construction routes leave the valley to access the motorway network.

4.24 Paragraphs 2.5.27 and 2.5.28 are misleading in that they downplay the impact. The conclusion that the changes to the character and appearance of the landscape will be temporary and limited in the vicinity of the Misbourne valley, ignores the fact that the proposed scheme crosses the centre of the AONB and is not tunnelled for over 10 km (para 2.4.2). This is more than the routes taken by the M40 and the west coast mainline. Nevertheless Volume 3 judges that the magnitude of the change to the AONB to be medium and *with the high sensitivity of the AONB will result in a moderate adverse effect during construction*. This is totally misleading as the impact will be very high.

4.25 The judgement is a perverse application of the criteria of the scoping report. The magnitude of change must be **high** given the introduction of elements that markedly alter the tranquillity of the character area which Volume 3 agrees is highly sensitive.

4.26 Further the report fails to acknowledge the addition of new, highly visible and incongruous elements. In addition, and crucially, Volume 3 **fails to assess and give weight to the cumulative impact of construction along the Misbourne Valley**. The judgement is deliberately misleading and incorrect. The construction phase will have a major adverse impact on the AONB.

4.27 Paragraph 2.6.3 lists the permanent features that result from the scheme. These include new engineered landforms, two viaducts 12 meters in height with associated infrastructure, noise fence barriers, severance of land, new highway infrastructure, presence of overhead line equipment, the presence of high speed trains (The description of these as regular completely downplays the impact of HS2. The reality

is that trains will operate from 05:00-24:00, 36 trains per hour, along with light pollution and noise associated with maintenance at night) with noticeable loss of vegetation (ancient woodlands). In addition there are a network of balancing ponds and a sustainable placement area.

4.28 The mere presence of these alien, incongruous features would: *permanently degrade, diminish or destroy the integrity of valued characteristic features and would be judged adverse at a national or international level and would comprehensively conflict with national policies for the protection and enhancement of landscape. They would provide a major alteration to the key characteristics of the view from across the valley and along the length of the ridge*. (Scoping and methodology report –criteria)

4.29 In addition, the **permanent impact of the cumulative permanent changes is not assessed.** The only conclusion is that the **permanent impact is major adverse and in perpetuity**. This in direct conflict the judgement that the magnitude of change is considered medium contained in paragraph 2.6.29.

4.30 Paragraph 2.6.15 states: By year 15 of operation, the reinstated hedgerows will have matured, reinforcing the historic field patterns present in the landscape. This is an incorrect statement. Hedgerows alter in content and appearance over hundreds of years, so reinstated hedgerows can never blend into the landscape in as little as 15 years.

4.31 Paragraphs 2.6.29 and 2.6.30 conclude that the magnitude of change will result in a moderate adverse effect during year one of operation which is considered significant. Despite the planting proposals, it states that it will still be significant after 15 years. Given the permanent features listed along with the criteria, the impact on this valley would permanently degrade the integrity of valued characteristic features including the loss of ancient woodlands and hedgerows. Ancient Woodland is irreplaceable. Nothing can mitigate for the loss of some of the nation's most important biodiversity and cultural habitats. Ancient woodland is an important national resource. Any loss or damage should be recognised as a significant national loss.

4.32 Planting more trees can never fully compensate for the loss of the nation's most complex terrestrial habitat. The implication, given in paragraph 2.6.29 that replanting will mitigate the damage after 15-20 years is based on a false premise. The impact will be major adverse.

4.33 The reference on 2.6.33 to the '*impact of the scheme on the wider AONB during Year 60 of operation will reduce such that it is not considered to be significant'* is not an applicable judgement and **totally irrelevant and misleading**.

4.34 The statement that Shardeloes RPG will be unaltered is incorrect. The Little Missenden vent shaft is directly opposite the Grade 11 listed garden. The statement also fails to assess the effect on the listed buildings in Little Missenden.

4.35 In assessing the network of public rights of way (PRoW's) (para 22.6.17) the termination of LM1/21 is unacceptable. LM1/21 must be rerouted off-road, possibly through the replanted area south of the Chilterns North portal and continue to exit in Hyde Lane near Hyde Farm. The ES seems to imply that the only function of LMI/21 is to access Mantles Wood from South Heath. It is not – this footpath is a vital

link between the footpath network around Hyde Heath and Little Missenden to the network around Great Missenden, South Heath and Ballinger. It provides the only direct off-road route from Hyde Heath to the centre of Great Missenden and the junior and senior schools. The importance of LM1/17 and LM/21 was raised at the Amersham and Chalfont's Forum on 4 March 2013.

4.36 Temporary rerouting of LM1/17, along Bullbaiter's Lane then down Chalk Lane to the railway bridge and along the forestry track beside the Chiltern Line to the footbridge, is unsatisfactory on safety grounds.

4.37 Paragraph 2.6.19 states that there is no impact on the chalk streams within the AONB and the character of the chalk stream landscape will be unaltered. There is no evidence available to support this statement as chalk streams depend on the aquifer that feeds them and the ES acknowledges the proposed scheme potentially damages significant areas of the aquifer by the tunnelling and cuttings.

Section 3 Agriculture, Forestry and Soils

4.38 Section 3 remains highly selective and fails to provide an adequate assessment of the impact of the proposed route on agriculture, forestry and soils. As with the draft ES it selective in the information it provides. Given that section 2 seeks to justify planning a route through landscape which is afforded the highest level of protection, the claim that selection of route alignment to avoid the highest quality of agricultural land lacks credibility. (paragraph 3.1.4)

4.39 Essentially this section in common with others, seeks to minimise the impact of the project. It focuses on analysis of the loss of agricultural land, which it states as 0.03% of the utilised agricultural land but does not consider the negative effects of severance on agricultural land holdings and the associated businesses. In CFA 9, impact assessment has been undertaken in ⅓of farms. Multiplied along the route then the impact of HS2 on farms could be considerably higher than indicated by solely considering loss of land.

4.40 As with many businesses, farming is particularly sensitive to economies of scale. Loss of land and fragmentation both during construction (the length of which may impose serious restrictions on certain enterprises) and operation may threaten the sustainability of a number of farm businesses. Even where arable land is contracted out, levels of rent for areas let out may be reduced and, total loss of area may impact on contracting businesses – there is a finite area of land, contractors using expensive leased machinery based on the area of land farmed, cannot simply find new contracts. Other associated businesses, e.g. those using farm buildings, may also be affected.

4.41 Paragraph 5.4.7 of Draft Environmental Statement Consultation Summary Report states: *The ES considers the physical and operational impacts and likely significant effects on individual farm holdings but does not consider any financial implications arising for individual holdings from the construction of the Proposed Scheme.* Whilst individual negotiations between farmer and Hs2 Ltd are, of course, private matters, nevertheless, it is important and otherwise deliberately misleading if the ES does not indicate the severity and degree of loss in agriculture overall in this section and

specifically in the socio-economic section. It is chop-logic to suggest that there are wider economic benefits provided by the line, if at the same time the report excludes possible wider dis-benefits.

4.42 In addition, locally the Chiltern Conservation Board's analysis of land loss to the scheme is considerably higher than Hs2 Ltd's assessment. Section 3 does not state on what basis the land loss is calculated. In the DES the proposed study area for likely significant effects on agriculture, forestry and soils was a corridor 200m wide measured from the centre of the Proposed Scheme (5.2.3). This is too narrow to take account of all direct impacts (e.g. landscape mitigation earthworks, mitigation planting, balancing ponds etc.), let alone indirect impacts arising from disruption to farm businesses. For example, locally, the mitigation planting adjacent to Jones Hill Wood extends to more than 300 m from the centre point of the line, and the large balancing pond south of Wendover Dean Farm is over 400m from the centre point.

4.43 In addition, the assessment makes a great deal of the CoCP and best practice to ensure that the land is restored to its original quality. Stripping top soil and 'temporary' storage in large heaps leading to long-term compaction, along with compaction due to haul roads and heavy plant, potential damage to drainage means that full restoration of quality is unlikely. At best full restoration is optimistic but presenting it as fact rather than aspiration is misleading. Here, as elsewhere throughout the ES the 'precautionary principle' is disregarded.

4.44 The future of parcels of severed land is not explained, nor responsibility for their management. There is the possibility that such severed land could become derelict or be designated as brown-field sites if the original owner does not want the return of unviable land. This is not explored.

4.45 It fails to address the loss of woodland apart from identifying the loss of 250 ha. and replanting of 650ha. (paragraph 3.2.7) The long term management of such plantations is not identified. There is no cumulative assessment of the loss of ancient woodland. Given that this is a national resource, and accounts for only 2% of all woodland, it is misrepresentation by omission.

4.46 The Woodland Trust's analysis of the route indicates that 21 ancient woodlands are under threat, covering 409ha. There is no assessment of remaining ancient woodland. In detailed CFA9 sections there is no analysis of what trees or species supported by these woodlands are being lost.

Section 4 Air Quality

4.47 Paragraph 4.1.1 states: that there are two sources which could affect air quality; construction activities and traffic on highway network. It goes onto acknowledge the main pollutant emitted from construction sites is dust. It acknowledges that dust can be carried a few hundred metres from construction sites. There is no mention of significant pollen release.

4.48 The statement that '*the CoCP would enable these activities to be controlled such that the effects on air quality would generally only be locally slight*' is significantly misleading. Shifting large amounts of earth will create dust. It is an inevitable consequence. It may be reduced by watering but never eliminated. For example:

- Spoil heaps are too large to be sheeted
- Dump trucks operating within the site will not be sheeted
- Even haul roads surfaced with granular material will generate dust under heavy trafficking
- Excavation and depositing of spoil in live working areas will not be on hard standing

4.49 Paragraph 4.1.3 acknowledges that changes in volume and location of traffic on the highway network will result in impacts further from the construction sites (up to tens of kilometres away). It further states that the extent of the impacts is assessed within the CFA reports. There is no cumulative assessment leading to invalid conclusions. Again the strategy of segmentation of information means that there is no overall assessment, vital in a linear project.

4.50 The lines of accountability within the CoCP with regard to air quality are weak. Relevant local authorities *will be consulted regarding the monitoring procedures to be implemented* but crucially there is no allowance for the rigour of independent monitoring and enforcement required to safeguard the local communities along the line.

Section 11 Socio Economics

4.51 Volume 3 draws on a variety of statistics. It estimates that 14,600 construction jobs will be created (paragraph 11.6.2) along with 5,480 jobs within the supply chain. There is an estimated loss of 12,700 jobs (paragraph 11.6.9) plus a further estimate of 1,445 (paragraphs 11.6.11.12 and 13) and a further 1510 jobs lost during the construction phase. Therefore the overall effect of the proposed scheme appears to be at best job neutral. Given these estimated numbers, the operational benefit (paragraph 11.7.5) of only 2,200 jobs cannot be properly justified as a *major beneficial effect* and so is not significant. It estimates that approximately 3000 jobs will be created route-wide in the operational phase. The judgement of *major beneficial* for the construction phase and *moderate beneficial* for the operational phase is optimistic, inaccurate and insignificant in national wealth-creation terms.

4.52 **This section is seriously misleading. The scoping of this report reflects an extraordinary narrow interpretation of the socio-economic impact**, focusing as it does on job creation and loss. It claims wider benefits i.e. from the supply chain but disregards wider dis-benefits. It seems that the scoping for these are restricted to only 200 metres either side of the line. This is chop-logic.

4.53 HS2Ltd. has not carried out an assessment of the scheme on the local economy as they are required so to do. Tourism in the Chilterns and along the line has not been assessed. Loss of reputational value has not been assessed. The Misbourne Valley, lying as it does in the heart of the Chilterns, attracts many of the 55 million visitors to the AONB and the local businesses are dependent to a significant extent on the tourist trade. There has been no assessment of this. There has also been no assessment on the impact of property blight. There has been no assessment of the impact on land severance and reduction in farm output and efficiency except when farmers are rendered uneconomic and forced to close. Nor has there been an assessment of the economic impact of road delays brought about by construction.

See next section.

Traffic and Transport

4.54 The section is seriously misleading and seriously downplays the impact of the scheme on road traffic. The cumulative impact of a linear project on the local roads is omitted. The section focuses on the railways and passenger experience. It fails to consider the road traffic effects of the proposed scheme. There is no indication of Hs2 Ltd's traffic plan for construction materials and waste excavated material on a route-wide basis and examination of the cumulative impact on local roads.

4.55 There is no economic assessment of the loss to the national economy due to traffic hold ups as a result of the construction along the route. This is a fundamental omission of the ES. It demonstrates that the full environmental impact of the scheme has not been considered in an objective manner.

4.56 Paragraph 13.2.1 states that continued growth is forecast for long distance rail travel to 2026 and beyond. No justification or evidence is supplied for this statement. The latest released actual figures show a decline in long distance travel. With the experience of HS1 forecasts being excessively overstated, this basis for the passenger demands are totally unrealistic, particularly as there has been no modelling of the impact of fares on growth.

4.57 There are claims for improved journey times by the new Old Oak Common (OOC) interchange, but there is no mention of the proposed closure of the Acton and Northolt Line (ANL), which currently provides direct access to OOC and could improve journey times by more than 20 minutes from South Buckinghamshire stations to HS2 destinations. Because of the positioning of the Old Oak Common Station it is almost inaccessible from the tube and over-ground networks.

Waste and material resources

4.58 Much of this section provides much technical detail about landfill capacity more suited to a technical appendix. Paragraph 14.1.3 states: '*Only if excavated material is not required or is unsuitable for the construction of the Proposed Scheme will it be considered waste.*' However, surplus excavated material, which by definition is '*excavated material not required*', is not referred to as waste.

4.59 Paragraph 14.6.10 identifies that the scheme will generate '*approximately 127,999,096 tonnes of excavated material during the period 2017 to 2025. Of which 91% … will be used to satisfy the necessary engineering and environmental mitigation earthworks quantities required on a route-wide basis.*' Paragraph 14.6.13 states that '*approximately 4,492,557 tonnes of surplus excavated material that will require off-site disposal to landfill.*'

4.60 This leaves 6,856,960 tonnes of surplus excavated material which are to be managed by sustainable placement. Sustainable placement is defined in paragraph 14.6.5 as '*the on-site placement for disposal of surplus excavated material to avoid causing environmental effects (e.g. transport) that would otherwise be associated with the off-site disposal of that material.*'

4.61 Three sites are identified. Harvil Road (Greater London with four sub-sites), Calvert and South Heath. The South Heath site, Hunts Farm, is scheduled for 1,928,002 tonnes. Using the converter of 1.5 tonnes per cubic metre, this suggests a total of 1,285,334 cubic metres. Paragraph 11.2.5 Waste and material resources assessment (WM-001-000) states: *'The construction of the Proposed Scheme within the Dunsmore, Wendover and Halton area may also be able to beneficially incorporate selected types of excess excavated material from other areas along the route.'*

4.62 Paragraph 11.2.5 states: *'Excess excavated materials are anticipated to be transported from the Stoke Mandeville and Aylesbury and the Waddesdon and Quainton areas southwards to the Dunsmore, Wendover and Halton area along the construction corridor.'*

4.63 Paragraph 2.5.23 of Volume 3 assesses the impact of this placement on the AONB. '*In particular, the construction activities associated with the Hunt's Green Farm sustainable placement area will result in the temporary severance and loss of use of approximately 37ha of agricultural land pending reinstatement for a future return to agricultural use. However, overall this represents a small proportion of the farmland and hedgerow vegetation within the AONB and, as such, the changes will be at a slight variance with this special quality.*' Again this uses the spurious argument used elsewhere that damage to a specific area does not damage the AONB as a whole. The argument makes nonsense of any planning restrictions, let alone those that apply to a designated landscape.

4.64 No criteria are given regarding the choice and how the suitability of the locations was determined. Yet again, as with so many other design features proposed within the AONB, it makes a mockery of any attempt to comply with the duty in Section 85 of the Countryside and Rights of Way Act 2000.

4.65 The concept of sustainable placement changes the landform without any historical, geological or landscape logic. It is unacceptable within the AONB.

4.66 Hunts Farm is to be epic-centre of earth moving activities. Although transport to the site is defined as being along the *'construction corridor'*, it is unclear whether that specifically means along the trace or roads running along the *'construction corridor.'* Paragraph 10.2.7 of the ALLCFAs Waste Documents for CFA 9 states: *'The balance will be taken along the trace to the sustainable placement area at Hunts Green Farm.'* The section for CFA 10 states: *'to be transported'… 'southwards to the Dunsmore, Wendover and Halton area along the construction corridor.'* The term *'construction corridor'* is undefined in the glossary. ALLCFAs paragraph 10.2.7 also states: *'Sustainable placement of inert surplus excavated material will be used where the material cannot be reused beneficially along or locally beyond the route and where it **cannot** be removed by either rail **or along the construction corridor.**'* There is a clear mismatch and deliberate ambiguity. Of concern of course is the lack of definition of *'construction corridor.'* The argument for sustainable placement rests on *'environmental factors'* of reducing road traffic. This argument only holds up if movement is along the trace. Construction corridor could include parallel roads.

4.67 The announcement of sustainable placement was made at the last CFA meeting and only loosely identified in the draft ES. The concept of sustainable placement is a late design solution to the problem of surplus excavated material. It is evidently only been loosely defined as a concept solution; there is, for example, little detail or evidence of risk assessment. In the refining of the design, the undertaker can interpret and develop the concept. There are no defined inherent design limitations or restrictions on the size of the placement in the ES and thus the use of the site is open to exponential development.

Water resources and flood risk assessment

4.68 In section 15 (para 15.4.7) no reference is made to the fact that the construction activities could give rise to a significant adverse effect on public water supplies in CF areas 6-10. Some 20% of the water supply to Affinity and so to North West London come from the aquifers in the Chiltern and Colne Valley areas. The statement that construction would only temporarily affect the public water supply is without justification and so the conclusion to volume 3 (para 15.7.1) is therefore without foundation.

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5.0 Volume 2 Community Forum Area Report for CF9 with reference to CF8 and C10 as appropriate

Please let us know your comments on Volume 2: Community Forum Area Report for CFA9 with reference to CFA8 and CFA10 as appropriate

Our comments are:

Overview of the area and description of the proposed scheme.

1. The paragraph (2.1.7) fails to include schools and other notable features and attributes of the local area. The criterion for inclusion as being a *'notable feature'* is unclear, as is the purpose of this paragraph. Full details of each village were supplied as requested following the consultation on the draft ES. The paragraph fails to identify the impact on communities further than one km from the line. Great and Little Kingshill, Prestwood, Little Missenden, Ballinger, The Lee barely qualify for a mention yet they too are likely to suffer. This is a serious misrepresentation of the impact of the scheme. It is a particular concern locally where there is a complex inter-relationship between these communities.

2. The presence of a large number of local schools raises serious considerations regarding safety. It is important therefore that Hs2 Ltd is fully aware of their presence. The Lee and Hyde Heath have First Schools and Pre-school is attached to Hyde Heath. Over 100 very young children have to cross and re-cross Weedon Hill each school day. Little Missenden has two primary schools. Little Kingshill has a combined school with nursery, infant and primary sections serving a total of 241 pupils. Prestwood has a combined school, first school and a residential EBD school. Gt Missenden has a combined school and the Gateway School. It also has a large secondary school with sixth form attached. Local pupils and students attend selective schools in Chesham, Amersham, Aylesbury and Wycombe.

3. Because of the local nature of current school intake arrangements young children and students are being ferried in coaches, cars and travel on foot and bicycle. There are key coach pick-up and drop-off points in the ridge villages. Some of these will be for individual children being, for example, dropped off along Potter Row, whilst in other places small groups of children, often very young and students will be walking or riding along village roads. In addition, taxis and mini-coaches collect and deliver vulnerable children to various local schools. Most children over seven go to Great Missenden combined school. The ES identifies adverse effects, many major, during the construction phase causing congestion and delays. Unnecessary interruption to the education of the children must be avoided at all costs.

4. At peak school times, there is intensive activity associated with school transport in one form or another. The draft ES contained a commitment for local school safety training for the proposed scheme covering construction and operation. That commitment is not evident within the ES and should be inbuilt to the process. The safety of pupils, students and parents has been totally ignored.

5. Because of its community facilities, e.g. library, doctors, shops, some of which are identified, Great Missenden/Prestwood is a natural focus for outlying communities. The purpose of paragraph 2.1.8 is unclear unless it is to minimise the importance of these communities. Although, if able, people exercise choice where they shop, (as they do in any location) nevertheless Great Missenden/Prestwood are coherent communities providing essential services. Although amenities are listed in an appendix, their omission from this section of the ES reveals a deliberate attempt to minimise the vibrancy and importance of Great Missenden/Prestwood to the surrounding communities and to the tourist industry in the AONB.

6. There is no reference to the Chilterns Conservation Board Management Plan in the list of local policies and key planning designations listed in 2.1.12. Clearly it has not been referred to in forming an assessment. The CROW Act places a duty on the 13 local authorities within the AONB, and Conservation Boards, where they exist, to produce

a plan which outlines their policies for the management of the AONB and how they will carry out their functions in relation to it. 'AONB' is tagged onto a list of key planning designations, evidently an afterthought and there is no reference to or evidence of the management plan being considered in the assessment of the impact of the project. This is a serious and fundamental omission

Description of the Proposed Scheme

The minimisation of the impact of the scheme is a consistent thread throughout the documents. Part of this process is the decision to swamp consultees with a mass of information but, given the late stage, surprisingly little detail other than generic designs.

From this point onwards, the damage to the AONB, as the route is currently designed is both irrevocable and in perpetuity. It is environmental vandalism on an epic scale.

The only possible mitigation in keeping with this designated landscape given its highest level of protection is a long tunnel throughout its length.

7. Paragraph 2.2.1 states the description of the proposed scheme '*including the main environmental mitigation measures*'. See also bullet point 3 of 2.2.4. This section just gives an outline of the proposed scheme and does not include any mitigation that is acceptable in the Chilterns AONB.

8. Paragraph 2.2.4 states: *Since the draft ES was published the following changes have been introduced to permanent features of the Proposed Scheme - realignment of B485 Chesham Road with a new roundabout junction with King's Lane; additional environmental mitigation areas have been incorporated into the Proposed Scheme.* A key feature of the Chilterns is the fact that there are few roundabouts and, as an essentially an urban feature are out of keeping with rural roads. They are also 'land hungry'. The reasons for the introduction of this permanent feature are not given. The proposed road re-alignment has the potential to create a road safety issue. The B485 in inclement winter conditions is a dangerous road. It is not a priority road for gritting. Hedgerows provide some protection but the design as shown, given that this is a high point in the Chilterns, is potentially dangerous. Finally, it is very unclear what additional mitigation has been proposed since the draft ES. It is neither detailed within the text nor apparent on the maps as supplied.

9. Paragraph 2.2.6 states: "*Depending on the surface topography in this area the tunnel depths will vary between approximately10m to 30m below ground level*" The HSE Report 453 prepared by Atkins concluded that there are potentially greater risks associated with shallow tunnelling particularly with unpredicted ground conditions. Furthermore, Atkins have informed the HSE that the main cause of tunnel collapse and associated risks as well as cost increases is almost always a result of lack of knowledge on soil conditions. Much surveying at the time of the draft ES was incomplete but was reliant, as so much else at that time, on desk-top exercises. There is naturally local concern that intrusive soil sampling to mitigate the safety risks to contractors and general public associated with shallow tunnelling in the sometimes soft ground found in the locality has yet to be undertaken.

10. Paragraph 2.2.6 states: *A strip of landscape earthworks along the access road to the Chiltern tunnel north portal, between Hyde Heath Road and Mantle's Farm, to provide visual screening for the residents of Hyde Heath*. This strip of earthworks, like so many, appeared unannounced in the maps of the draft ES. It is described as visual screening although it may have a function as a secondary sound bund designed to mitigate the noise impacts from the scheme and thus reduce potential compensation to local residents.

11. Changing the landform is not acceptable. It is really unclear how one distinguishes a strip of landscape earthworks from a sustainable placement area. Both will appear, without any historical, geological or landscape logic. Indeed, they are essentially the same. They are an engineering solution to excavated material given an afterglow of environmental concern by being described as 'landscaped'. In addition, there is neither indication of the height nor importantly, an indication of who will assume long-term responsibility for the management of this area.

12. Paragraph 2.2.6 states: a land drainage area to the west of the landscape earthworks, just east of Mantle's Farm, with an associated access track. In other ES documents, this track has been described as temporary. The term 'track' implies that it is neither reinforced nor surfaced. The function of the 'track' is unclear in this paragraph. The use of the word *associated* deliberately implies its function is related to the land drainage area.

13. In fact paragraph 2.3.34 reveals that it is to be upgraded and used to service the Chiltern tunnel north portal satellite. This has a function, amongst many, of extracting the TBM. This is a clear example, amongst many, where the segmentation of the ES and the morass of information provided are deliberately used to disguise and minimise the detail of the impact of the scheme. It will not be temporary and will require construction to allow heavy vehicles. An access road is specified connecting the tunnel portal to Hyde Heath Road (2.2.10).

14. The area to the north and west of the drainage feature contain former landfill sites. There is community concern that construction disturbance in these sites could disturb potential contaminants which could then mix with drainage water and run off the valley and into the river Misbourne. Very little detail is provided about the drainage system, expected flow rates or its design. The community forum informed HS2Ltd. of the flooding in the area, further detailing it in their DES response. There is concern that with the huge run-off, artificially channelled, heavy winter rains and extra water could endanger the embankment of the Chiltern line and/or flood the A413.

15. Paragraph 2.2.6 states; an area of grassland habitat creation, to the south of the Chiltern tunnel north portal and east of Mantle's Farm, to mitigate the loss of great crested newt habitat. English Nature in their advice document Great Crested Newt Advice Mitigation 2001, advice that terrestrial replacement habitat is broadly similar to habitat lost. This is not the case. No details of the habitat are provided, nor the steps that will be taken to create a broadly similar habitat.

Little Missenden vent shaft and auto transformer station 2.2.8-2.2.9

16. Paragraph 2.2.8 identifies key features. The Little Missenden vent shaft, which is required to provide pressure relief from the tunnels and a dedicated intervention

point and access for emergency services, will be located south of Keeper's Lane. There is no mention of the noise from this source within section 11.

17. The auto-transformer station will be approximately 45m by 25m and approximately 5m high. It is unclear why this structure is required to be this high and clearly visual impact has not been considered other than screening. Evidently the design will be generic, off-the-shelf without reference to the unique features of the area.

18. Figure 4 Schematic of construction compounds for railway installation works. The schematic on page 20 identifies autotransformers at both Little Missenden vent shaft satellite compound and South Heath green tunnel (north portal) satellite compound (see maps CFA8 CT-05-030a and CFA9 CT-05-033 respectively). These are not described elsewhere in the respective CFA reports. Surface water flooding is identified in 13.1.3 and it is unclear what protective steps are planned with the auto-transformer.

19. Volume 1 5.72 states that figure 21 shows possible examples of a headhouse in a rural location. It is of great concern that these are given only as 'possible' illustrations. It is essential that any permanent structure associated with HS2 is sympathetic to the environment most especially in the AONB. This was specifically stated in CFA9 meetings.

20. There will be provision for *below ground drainage tanks and utility connections for fire-fighting and tunnel buildings drainage*. The implications for local residents in relation to possible utility connections are unclear. Hard-standing for emergency access is within the ES a common feature at significant key points. No consultation with emergency services is listed within the details of consultation. The figure of approximately 550m^2 for this site is the same as the tunnel portal which suggests a generic allowance for emergencies.

21. This raises a further possible point that might influence the design at the tunnel portal. Paragraph 2.6.13 describes the extensive requirements of an intervention gap for emergencies. Presumably at the long tunnel portals, the possibility for waiting areas for evacuated passengers and all emergency requirements such as water supply and power for both tunnels are equally valid and the generic emergency allowance for hard standing might be considered insufficient. This opens up the possibility that if the scheme goes ahead, additional requirements will be even more crudely added to the scheme at the tunnel portal e.g. helicopter pads and additional hard-standing.

22. There will be provision for *land drainage areas on the eastern side of the vent shaft head house.* These do not feature on the plans. Flooding and ponding is frequent on the A413 in this section, indicating that the current system is working to capacity during high rainfall. Given that the total area of hard-standing is likely to be in the excess of 5000m^2 (shaft head building, hard-standing and auto-transformer add up to 2782m^2 plus an unspecified size for the construction compound) this is likely to result in considerable run-off feeding into the river. Details are sketchy. There is, for example, no mention of mitigation measures such as petrol interceptor systems to catch hydrocarbon spills. This point applies equally to the various tunnel portals.

23. The placement of a construction site for the Little Missenden Vent Shaft and Transformer, opposite the listed Walled Garden cannot in any way be described as

'sensitive'. Tall screening is an inadequate mitigation. The lives of the residents in Piper's Wood Cottages, (adjacent to the site), and Kennel Farm and Park View Cottages, (opposite the site) and the whole of Little Missenden will be severely impacted throughout by noise, dust and light pollution throughout the construction and operation. This was raised at community forums and ignored.

Chiltern tunnel north portal and Chiltern tunnel north cutting 2.2.10-2.2.11

24. Paragraph 2.2.10 states that *the Proposed Scheme will emerge from the Chiltern tunnel north portal at Mantle's Wood, north-west of Hyde Heath and will continue north-west in a cutting, up to 23m deep*. The section does not provide details of the cuttings, for example the degree of slope nor the special measures taken with regard to them. This is particularly important, given Arup's Tunnel and Route Finding Study of 2009 which stated that the soil in this location was described as "contains groundwater and will be troublesome for earthworks slope stability", "careful handling required", "slope instability problems.

25. The draft ES stated that engineering embankments and/or cuttings would be reshaped to integrate the alignment sympathetically into the character of the surrounding landscape. This statement or similar does not appear in the ES. There is no temporal assessment of when or whether the cuttings will revert to a more natural state.

26. Details of the tunnel portal are sketchy. The design of the Wendover portal, based on the photo-montage appears to be a very visible square concrete pill-box with high level gun-ports. Other artist's impressions seem to indicate that the hood is integral to the tunnel with the mouth of the tunnel leaning backwards into the slope. There is no description of the portal building or description of function.

27. There is an access road connecting the portal to Hyde Heath Road. (2.2.10). Hyde Heath Village Society has attempted a substantial amount of consultation with HS2 on this point and received no answers. This access road being taken from Hyde Heath Road is wholly inappropriate as the Hyde Heath Road is only 5.5 m wide and does not allow passing vehicles which would include 35T trucks without endangering pedestrians.

28. The ES does not identify the need to widen local roads. The main water supply for Hyde Heath is situated on the verge and is old iron pipes, susceptible to collapse under heavy loads. Hyde Heath village association have sought reassurances that the detail would be provided in the Final ES. The ES does not provide this detail. If HS2Ltd. should seek powers at a later date to rectify omissions in the ES where full details have not been supplied nor reassurances given, it would constitute a nuisance (in the legal definition) and indicate negligence by Hs2 Ltd and the author(s) of the ES.

29. No details are provided about the bridges apart from their height. Requests for green bridges were turned down on the basis if 'we do it here we will have to do it everywhere. 'Everywhere' does not have an AONB status therefore the promoter does not have a statutory duty to conserve and enhance everywhere else. Equally, with regard to endeavours, the statutory protection afforded to the AONB requires a distinction. Endeavours within the AONB should be of the highest possible standard

reflecting the 'best' rather than 'reasonable'. This is reflected within comments regarding the draft CoCP for a supplementary code of practice for the AONB.

30. Hyde Lane is treacherous in winter. The design of the gradient of the over-bridge needs to take this into account.

South Heath cutting 2.2.13 to 2.2.15

31. Paragraph 2.2.13 states *"Construction of this section will be managed from the South Heath green tunnel (south) satellite compound (civil engineering), the Chilterns main compound in CFA7 (rail systems) and the South Heath green tunnel (north portal) satellite compound (see Section 2.3)."* This makes no mention of the management of construction traffic routes (maps CT-05-032 and 05-033) and hence fails to give the full picture of the scheme.

The Central Chilterns Community Forum response to the DES stated:

The following lorry routes, which would commence at either the M25 (via the M40 and A412 Denham to Watford) and/or the M40 (via the A355 Amersham to Beaconsfield), are currently proposed to access each of the site compounds:

- The route to the Chiltern tunnel northern portal satellite site compound via the A413, the B485 Chesham Road, Hyde Heath Road and an upgraded Bull Baiters Lane. Map CT-05-032-02 does not show Bull Baiters Lane as a construction route and hence the text is incorrect. Access to the Chilterns Tunnel Portal at Mantles Wood for construction and emergency vehicles via Hyde Heath Road also seems illogical and will have a high impact on residents.
- The route to the northern satellite site compound associated with the green tunnel at South Heath via the A413 and Frith Hill (which leg?) via B485 Chesham Road and/or via the A413, B485 Chesham Road and King's Lane. Maps CT-05-32/33.
- If this implies that the South Heath leg of Frith Hill is to be used when the B485 and Kings Lane are diverted, then it may prove impossible for large lorries to turn from B485 into Frith Hill (South Heath Leg) due to the very high gradient of this turn. Winter conditions, with leaves on the road, increase the difficulty of this turn and likelihood of accidents.
- Maps CT-05-33 shows two construction traffic routes, one via Frith Hill (South Heath leg) and the second via Kings Lane. The junction of Kings Lane and The Ballinger Road is blind and as it is the point of school bus collection and drop-off for school children should not be available to construction traffic.
- Maps CT-05-33/34 Potter Row is not wide enough for two lorries. This is known because in the past two delivery trucks have blocked this road. There is no pavement and nowhere for pedestrians to escape from oncoming vehicles. i.e. no verges. The road is frequently used by walkers (between the PRoWs) horses (to access the bridle paths) and cyclists who come from miles around to enjoy the Chiltern Cycle way.
- Potter Row is a school bus route dropping off children along Potter Row. Unless there are plans to widen the road and install a pavement Potter Row is totally unsuitable for this type of construction traffic. However, any major alteration to these minor local roads will alter their character and make them inappropriate for the AONB.

There is no evidence that any action has been taken to address the above. They still stand and need to be addressed.

32. Figure 5 Indicative construction programme Pages 34-35. The second page of this table (p 35) in the on-line pdf version has no time-lines. Therefore, those who have not received the printed version are unable to understand the time required for the 'fitting out' works in area CFA9. In effect they are denied the opportunity to respond fully.

33. Paragraphs2.2.39, 2.3.51 and 2.3.64 list a number of PRoWs that will require diversion for varying periods. There is no proposal to mitigate the impact of noise dust and amenity for those seeking to access the ANOB nor is there any attempt to assess the impact on tourism and the economy of the area.

34. Paragraph 2.3.7 states '*Advance works will be required before commencing construction works*'. However whilst this work is scheduled to take place in the first ¾ of 2017, section 6.4 contains only an outline of the advance works and there is insufficient detail to understand what impact the Advance works will have on tourists, residents and businesses. It is therefore not possible to comment on the works e.g. the stated need to realign some PRoW and utilities.

35. The same paragraph also indicates that *Advance works will include utility diversions*" Hyde Heath Village Society on the local communities' behalf requested details. Hs2 Ltd informed the society that this detail would be provided in the ES. No such detail is provided.

36. In the CFA9 Volume 2 Section 12.4.19 states '*The effect on accident and safety risk is not significant as there are no locations where there are existing clusters of accidents and where there are substantial increases in traffic during construction.*'" The A413 between Great Missenden and Amersham has experienced a number of fatal and serious accidents during the last 18 months which belies this statement. We note that no detailed improvements in safety measures are proposed and ask that the provision of a separated cycle and footway on the A413, where there is no immediate alternative route between Amersham and Wendover, be included in the scheme, particularly in the light of the current spate of cycle accidents in London.

37. Little Missenden is not mentioned in the ES as being effected, Little Missenden will be severely affected by the proposed scheme by having two construction site access points one to the West and the other to the East of the village. Traffic flow will be adversely affected on the A413 impeding access to and from the village. There is an unquantified effect on the traffic flow on the A413 due to HGV movements along and across the A413 at the construction site for the Little Missenden Vent Shaft and Transformer, including four new access points from the A413.

Construction of the Proposed Scheme

38. Paragraph 2.3.1 states: *This section sets out the strategy for the construction of the Proposed Scheme.* The strategy for building the section of route in CFA9 appears to be one of guaranteeing disruption for the maximum length of time, particularly in respect of the Little Missenden vent shaft and Mantles Wood Tunnel Portal sites.

39. The information in Volumes 2 CFA7 & 8 indicates that the Chiltern Tunnel will not reach the Little Missenden vent shaft until Q3, 2021 and the Portal until Q1, 2022 whilst the site construction works will be complete in Q3 and Q2 2019 respectively. This leaves a dead period of a minimum two years.

40. Paragraph 2.3.3 states: *Key temporary construction features are illustrated on the construction Map Series CT-05 (Volume 2, CFA9 Map Book)*. The individual maps are not referenced anywhere in the document. In particular, Map CT-05-032-L1 shows an access road from the A413 to Mantles Wood and also access route from the A413 via Hyde Lane, with no mention of their purpose in the construction period. As both of these access points on the A413 are in locations with poor sight lines and on a busy single carriageway section of the A413, it is important that some measure of policing of the construction traffic using these locations is provided. Hs2 Ltd informed the CFA9 community forum that there would be no access from the A413 in this manner.

41. Paragraph 2.3.6 references the draft Code of Construction Practise. We note that the CoCP will not be finalised until the end of the Hybrid Bill process. We trust our comments will be taken into account in the revision process.
    - The management of construction traffic (draft CoCP, Section 14); and
    - the handling of construction materials (draft CoCP, Section 15).

42. The draft CoCP and in particular the above sections do not propose that rail rather than road could be used for construction traffic. We believe that this should be the preferred method in all phases of construction and should be included in the CoCP.

43. Section 12.4.25 states '*From areas to the south, including CFA8, the cumulative average construction traffic flow of approximately 20 cars/LGV per day (two-way) have been included in the assessment for this area. Any HGV traffic generated to the south will not directly access roads assessed within this area.'* This statement is in direct contradiction to Sections 2.3.27, 2.3.34, 2.3.43, 2.3.46, 2.3.56 & 2.3.59.

44. Paragraph 2.3.12 states '*main compounds will contain space for the storage of bulk materials (aggregates, structural steel and steel reinforcement)'"*. Throughout the documentation there are no risk assessments relating to public safety. Local roads were not designed for 35T or articulated vehicles and are narrow. Entering and leaving construction sites will be difficult. There is concern that contractors will utilise ad hoc solutions or unspecified engineered solutions to overcome these problems leading to further degradation of the environment. For example, radically changing the road junction at the Frith Hill South leg when, despite warnings, construction traffic is unable to make the turn. Frith Hill is a particular concern in winter- conditions made worse by excessive mud/slurry deposited by these heavy vehicles.

Construction traffic routes

45. Paragraph 2.3.17 states *"The movement of construction vehicles carrying materials, plant, other equipment and workforce (or moving empty) will take place within the construction sites, on public roads and via the rail network."* The majority of the civil engineering works are planned to occur simultaneously according to the construction programme in Figure 5, despite the statement in Section 12.4.10 that these will be staggered, so that the daily figures on cars/LGV and HGV movements

for each site which are detailed in Table 18, Section 12.4.9, will be cumulative. The A413 and the B485 will thus be subject to extreme disruptions at all hours not just peak hours.

46. Paragraph 2.3.18 states *Movements between the construction compounds and the work sites will be on designated haul roads within the site, often along the line of the railway or running parallel to it"*. Haul roads are not indicated. This statement is directly contradicted in CFA10, 2.3.21-26 which states: *The compound will be accessed via Leather Lane, Potter Row, Frith Hill, and B485 Chesham Road*. Farmers locally use escort vehicles when moving combine harvesters. No such escort is identified for heavy truck movements.

47. Paragraph 2.3.27 states: "*have an associated road head with access to/from the A413 for the storage and transfer of earthworks material route-wide"* This is situated in an accident black spot where there have been several accidents in the last few years (including fatal accidents). The conflict between joining traffic and the 70 mph road users at peak times means this road has become dangerous. Adding another access and potentially slow moving construction vehicles together with mud deposits to this location increases the dangers to road safety and needs proper policing.

48. *"install de-watering system (if required)"* Requests for information about the de-watering system we were promised would appear in the ES. No such information is provided. De-watering brings with it at its extreme a risk of tunnel collapse as well as potential for further pollution of the Misbourne and Shardeloes Lake. The safety and pollution risks should by now be quantifiable and not left as "if required." It reinforces the view that there have been insufficient detailed survey work, which considering that the route lies within a source protection zone (SPZ) appears cavalier.

49. Paragraph 2.3.30 states: *No demolitions, road, PRoW or watercourse realignments are required with works associated with this compound.* The PRoW running through Keepers Wood is situated within the confines of the construction site. There is no record of temporary obstruction of this PRoW.

50. Paragraph 2.3.38 states that: *One road realignment will be required at Hyde Lane. This will require a temporary closure and 6km diversion via the A413 and Chesham Road, for a period of nine to 12 months, with permanent reinstatement over Hyde Lane overbridge on its existing alignment*. To state as previously, such an over bridge could make this section more unsafe during winter if the gradient is increased to facilitate the over bridge.

51. Paragraph 2.3.40 states: "*Diversion of utilities and the installation of new utilities will be required"* Hs2 Ltd reported when requested that these details would be included in the ES. Details of these requirements are not included. Therefore the environmental impact of the work is unknown and no objective comment can be made.

52. *Paragraph 2.3.46 relates to: South Heath green tunnel (south) satellite compound and Chilterns main compound (rail systems).* This remains far too close to Cudsdens Court which is now shown (CT-05-033) surrounded by land potentially required during construction. The claim for *sensitive placement* of engineering compounds is meaningless in the reality. This area is used for temporary storage of excavated spoil and is too large to be sheeted. Residents will be surrounded by dust and noise. The

B485 passes Cudsdens Court and is a construction traffic route. The residents are effectively marooned and their life will be intolerable. A solution must be found by discussion with the residents of Cudsdens Court.

53. The exact road layout of the Chesham Road B485 around Cudsdens Court, Chesham Road, is also unclear as there are several overlapping route lines and what appears to be a new water ditch plus a land take and a land-drainage area entails significant changes to this group of houses not clearly mapped.

54. Paragraph 2.3.47 states: *Works in this section of the Proposed Scheme will be carried out in the following broad phases*: There is no reference to the re-building, use, repair and particularly the re-instatement of construction traffic routes to their previous condition in the list of bullet points. Construction route traffic will have a very significant impact on the residents of Hyde Heath, Hyde end, South Heath and Potter Row. Absence of detail prevents comment.

55. Paragraph 2.3.47 states *that Works in this section of the Proposed Scheme will be carried out in the following broad phases:* Details of enabling works should have been included here and at all other places where they are mentioned. Without details there is no way residents can gauge the impact on their lives. See also 2.3.60.

56. Paragraph 2.3.49 Table 2 states *amongst the homes to be demolished that 2 national grid pylons (Frith Hill and West of Jenkins Wood) are to be demolished.* It fails to inform how or where the power lines will be reinstated and as these pylons are not shown on map CT-05-033 it is unclear if the opportunity to bury them has been undertaken or missed. Power lines should be buried wherever possible. See also 2.3.52 and 2.3.62. This is an obvious opportunity to provide an enhancement to the scheme.

57. Section 2.3.50 paragraph 2 states *"temporary closure of Frith Hill and 2.6km diversion of traffic via B485 Chesham Road and King's Lane, for a period of one year and six months to two years, with permanent reinstatement on the existing alignment"*. This is unacceptable and an excessive period of disruption period for the residents of South Heath, Ballinger and Potter Row. The need for free access to Great Missenden, Chesham and Amersham was covered fully at Central Chilterns Community Forums (CCCF) and in the CCCF response to the Draft Environmental Statement.

58. Paragraph 2.3.58 refers to Volume 1 for typical tunnel portal description. Paragraph 5.6.3 states that portals may include a *'porous portal' (i.e. tapered, perforated, reinforced concrete structures, to reduce noise and air pressure effects as trains enter or exit the tunnel)*. However, Figure 19 Volume 1 (Generic illustration of a green tunnel) shows no such porous portal. To provide the necessary air pressure and consequent noise reduction it is essential that porous portals are built for all tunnels. In addition, the minimisation of visual impact should be incorporated into the design. The illustration in the Wendover photo-mintage reflects a crude concrete box.

59. Paragraph 2.3.63 states *No road realignments will be required with works associated with this compound*. This is inconsistent with the need to isolate Frith Hill whilst the green tunnel is constructed. Temporary loss of this road will have a very large impact in access to the village. The clarity and scale of Map books Volume 2 CT-06-032-R1 and CT-06-033-R1 are inadequate e.g. the road width of the realigned Chesham Road B485 and Frith Hill are unclear, as is the manner in which this new road joins the original road.

60. Paragraph 2.3.64 states: Alternative routes for three of the PRoW will be required, including:

- Footpath **GMI/13** remains open during construction until it is permanently diverted 400m to the west over Footpath GMI/12 overbridge adding an additional 750m;
- Footpath **GMI/2** remains open during construction. It will then be permanently diverted 200m to the west over Footpath GMI/2 accommodation overbridge, adding an additional 550m.

61. These diversions run parallel to the rail line just on the top of the cutting. Hs2 Ltd were specifically asked in Community Forums to ensure that footpath would not run parallel and close to the track as they would be unusable due to the excessive and frequent train noise. See also 2.5.4 where it clearly states that these concerns were raised with Hs2 Ltd

62. It is pertinent at this point to insert a commentary about PRoWs as affected by HS2. Specifically, the impact of HS2 on footpaths in the Hyde Heath area.

63. The information on which this assessment is based is largely from the Environmental Statement Volume 2/Community Forum Area Report CFA9 but also from Tables7-53 ad 7-54 in Volume 5 Appendix – Transport Assessment -TR-001-000/Country Assessment CFA9.

64. The area covered is the area south of Hyde Heath Road from Mantles Wood to the B485 Chesham Road. The only other footpath potentially affected near Hyde Heath is LMI/40 from Keepers Lane through Keepers Wood to the A413 but paragraph 2.3.30 states that no PRoW (Public Right of Way) diversion is required because of the construction of the Little Missenden vent shaft.

65. In the area covered, the footpaths affected by the construction and operation of HS2 are:

- **LMI/17** (running from Hyde Heath Road through Mantles Wood to Little Missenden Church via the railway footbridge.)
- **LMI/21** (leaving LMI/17 near Mantles Farm and running along the west edge of Mantles Wood then through the north edge of Farthings Wood and Hedgemoor to meet **GMI/23** at the stile at the east end of the Hyde Farm track.)
- **GMI/23** (running from the stile where it meets LMI/21 out to the B485 past The Hyde.)
- **GMI/27** (This footpath leaves the Hyde Heath Road near the junction with Browns Road as GMI/26 and runs down a track to exit into a field and cross GMI/23, eventually meeting the Hyde Farm track at a stile and thence to Hyde Lane at Hyde Farm.)
- **GMI/33** (from Hyde Lane at Chapel Farm to Great Missenden Church and the centre of Great Missenden. There are two branches off this footpath which lead to South Heath.
- One, **GMI/33/2**, meets the B485 by Kings Pond,
- The other, **GMI/33/4,** goes to the B485 at Annie Bailey's.)

Commentary on the plans presented in the ES for these footpaths.

66. **Footpath LMI/17**. The north section (LMI/17/2) will be closed during the construction of the Chiltern tunnel north portal compound. Paragraph 2.3.39 states that this will require a temporary alternative route for LMI/17 via Bullbaiters Lane for approximately 10 to 12 months adding on an additional 1500 metres. It will then be reinstated partly along its existing alignment, with a realignment to the south of the tunnel portal,

67. Paragraph 2.2.6 states: a permanent diversion of **LMI/17** to the east round the tunnel portal. The document does not state where the temporary alternative route goes beyond the south end of Bullbaiters Lane. Map CT-05-031 indicates that it exits on to Chalk Lane then down to the Chiltern railway bridge, then along **LMI/28** to the railway footbridge. This is confirmed in Table 7-53.

68. This alternative route is unacceptable on safety grounds, because the bottom end of Chalk Lane is narrow with blind bends. A better solution would be provision of a temporary off-road permissive path through Mantles Farm grounds to join LMI/17 at the footbridge.

69. Footpath **LMI/21** Paragraph 2.3.39 states that: *Footpath LMI/21 remains open during construction until it is closed and permanently diverted 450metres to the east over realigned LMI/17.* It is not at all clear from this statement where this diversion is intended to be.

70. Table 7-54 shows that the permanent diversion is up **LMI/17/2** then along Hyde Heath Road and the B485 to join **GMI/23/6** where it leaves the B485 to pass The Hyde. This is completely unacceptable.

71. Hyde Heath Road is a very fast straight road and potentially very dangerous for walkers. There appears to be no reason why **LMI/21** should not remain largely on its present alignment to pass through the area of new woodland habitat creation planned for the area south of the Mantles Wood portal. It could then divert southwards from its present alignment to pass through the northern edge of Farthings Wood and Hedgemoor to emerge on the present Hyde Farm track close to where footpath **GMI/27** presently joins the track. It would then follow the present route of GMI/27 to Hyde Lane.

72. The ES (Volume 5 Technical Appendices CFA9 Community Data CM-001-009 Section 2.1) state that **LMI/21** will be closed after **LMI/17** is reinstated, reducing public access to Mantles Wood. **LMI/21** is far more than just an access route to Mantles Wood. It is a vital link between the footpath network around Hyde Heath and Little Missenden and the network around Great Missenden, South Heath and Ballinger. It is essential that this off-road link remains available.

73. Footpaths **GMI/23** and **GMI/27** Paragraph 2.3.39 states that the following temporary alternative realignments will be required:
    - **GMI/23/6** to the west for approximately six to nine months adding 100metres. It will then be permanently reinstated along its existing alignment.
    - **GMI/23** for a period of approximately three to six months until it is permanently diverted 600 metres to the east via the realigned LMI/17 adding on an additional 700 metres.

- **GMI/27** via Hyde Lane for approximately six to nine months adding an additional 400 metres. It will then be permanently diverted via footpath GMI/27 accommodation overbridge, adding an additional 150 metres.

74. It is not at all clear from the maps where the temporary diversions of **GMI/23/6** and **GMI/23** are going to be, but Table 7-53 states that GMI/23/6 will be diverted to the **GMI/27** overbridge to avoid a temporary stockpile. A temporary diversion of GMI/27 via Hyde Lane will be necessary for up to 9 months while the overbridge is being built. The diversion is probably via Hyde Heath Road and the B485, but a diversion off-road could be achieved by linking **GMI/27** to **GMI//23/6** then to Hyde Lane.

75. The proposed permanent diversion of **GMI/23** is along Hyde Heath Road, the reverse of that proposed for LMI/21. It is just as nonsensical (see comments under LMI/21). A better permanent diversion for **GMI/23** would be to take it over the **GMI/27** overbridge to meet the retained, but modified, LMI/21 at Hyde Farm. From there this would provide a direct route to Mantles Wood and Hyde Heath or Little Missenden. This is a far preferable and much safer route than along Hyde Heath Road. The permanent diversion of **GMI/27** is along the newly created Hyde Farm track to the overbridge which, given the situation, is probably reasonable.

76. Footpath **GMI/33** Paragraph 2.3.39 notes a temporary alternative route for GMI/33/2 via Chesham Road and Hyde Lane for a period of three to six months adding 750 metres. It will then be permanently diverted 20 metres to the north over Hyde Lane. The permanent diversion appears to be along the access track on the north side of the cutting, and presumably, immediately adjacent to the security fence.

77. Paragraph 2.3.39 also notes Footpath **GMI/33/3** remains open during construction until it is permanently diverted 50metres to the east over Hyde Lane. The permanent diversion appears to be along the access track on the north side of the cutting.

78. Paragraph 2.3.51 notes the requirement for a temporary alternative route for **GMI/33/4** to the south for a period of six months. It will then be permanently diverted along Hyde Lane and the South Heath green tunnel south portal access track, adding an additional 400 metres. It is not stated where the temporary alternative route will be and it is not shown on the maps. Table 7-53 states that this is a possible diversion during construction of the access track.

79. There could be advantages in continuing the reinstated **GMI/33/4** through the woodland planned on the opposite side of the B485, possibly along the route of the stopped-up Kings Lane. This would link GMI/33/4 directly to the footpaths in Sibley's Coppice.

80. Paragraph 2.3.51 also notes a temporary alternative route for **GMI/33/5** to the south for a period of approximately one and a half years to two years, adding an additional 400 metres. It will then be permanently reinstated along its existing alignment. The diversion is to skirt round an area where material will be temporarily stockpiled. The reinstated alignment will be partly through a newly landscaped area and close to a land drainage pond.

81. Table 7-53 shows that **GMI/33/5** will remain open to Hyde Lane during the construction period.

Overall Comments on PRoW

82. It is clear from the ES that the HS2 planners have no understanding of the function of Public Rights of Way (PRoW) in an Area of Outstanding Natural Beauty. These are not primarily means of getting from A to B regardless; they are rather a means for exercise and recreation in a tranquil and relaxed environment, the environment being every bit as important as the paths themselves.

83. There is a greater concentration of PRoW crossing and re-crossing the proposed route of HS2 in the region between Mantles Wood and the north portal of the South Heath green tunnel than probably anywhere else along the route of HS2 through the Chilterns.

84. All of these PRoWs will be damaged to a greater or lesser degree by the urban clutter associated with the project – cuttings and embankments, security fences, access roads, artificial bunds and landscaping and, not least, noise. These are completely alien intrusions into what Parliament intended should be a protected landscape and environment.

85. The proposed re-routings of the PRoWs in this area are probably as good as can be achieved, with some notable exceptions, given the major intrusion of the railway. However no amount of re-routing or the proposed mitigations can disguise what will be a major degradation of the environment in which these footpaths will exist in future. Out will go the freedom to enjoy the scenery and peace of the area, in will come the physical and mental restrictions imposed by security fences and disruptive bursts of noise.

86. There is no doubt that the only mitigation, short of cancelling the whole HS2 project, that will work to the extent needed to give adequate and realistic protection to the AONB is an extension of the fully bored tunnel at least to beyond the north portal of the South Heath green tunnel but, far preferably, all the way through the AONB.

87. This solution would not only avoid damaging almost all of the footpaths, but would also avoid damaging the narrow lanes that are so characteristic of the Chilterns. An extended tunnel would also remove the need for road modifications and realignments, transport disruption, excavations and demolitions, and the adverse impact during the construction period on local businesses and on people living close to the construction routes. It would, in effect, minimise or eliminate the property blight which is causing uncertainty and great distress to many along the route in CFA9.

2.5 Community forum engagement

88. Paragraph 2.5.4 seeks to identify the main themes to emerge from these meetings of the Community Forum
    - *that the Proposed Scheme could have visual and noise impacts for those people who wish to enjoy the Chilterns AONB;*
    - *the forum would like the landscape of the AONB to be preserved in its current form;*
    - *potential noise impacts on areas close to the tunnel portals;*

- *that construction and operation of the Proposed Scheme may deter tourists from visiting the area which would have an effect on local economies;*
- *that construction traffic would impact upon local roads and towns;*
- *concern that road realignments would prevent access for delivery vehicles and*
- *cause severance of some communities, such as South Heath;*
- *the potential impact on Grim's Ditch;*
- *potential impacts of public rights of way (PRoW), bridleway and cycleway realignments upon people using these facilities;*
- *potential health and safety considerations arising from construction activity and realignment of roads and PRoW; and*
- *potential impacts on local habitats and wildlife.*

89. These themes are incorrect and do not summarise or include two vital key issues recorded by Hs2 Ltd and submitted by HS2Ltd. to the Community Forum in March 2013 (see paragraph 5. ? below). Furthermore the summary seeks to minimise the issues in most respects.

90. It is also clear from the foregoing that all these requests have been ignored. It is also clear that the Forum's response to the draft ES has been ignored, if read.

91. This list seriously misrepresents the Forum's views and is incorrect. The issues are in fact the following, taken from the Forum's response to the draft ES which showed the corrected emphasis in bold.

- ***That the most effective and preferred form of mitigation for this section of the route was considered to be a fully bored tunnel throughout the Chilterns AONB;*** (This is a major omitted item from the issues discussed in the forum.)
- *That the Proposed Scheme would have* ***strongly adverse visual and noise impacts f****or those people who wish to enjoy the Chilterns AONB;*
- *The forum stated that the landscape of the AONB* ***should be preserved in its current form;***
- *Potential noise impacts on areas close to the tunnel portals.* ***Noise in general was stated as an issue,*** *not just tunnel portals but also shallow cuttings.*
- *That construction and operation of the Proposed Scheme* ***would deter tourists from visiting the area****, which would have a* ***significant negative effect*** *on local economies;*
- *That construction traffic* ***would severely impact upon local roads and towns.*** *Both in terms of road diversions and construction traffic causing delays to persons going to work and school*
- *Concern that road realignments would prevent access for delivery vehicles and cause severance of some communities, such as South Heath.* ***This probably refers to deliveries to South Heath Garden Centre*** *(large Lorries with plants from Holland etc.) and is extremely important as loss of access will mean that this business and other local businesses will be unable to be financially viable and will close with significant loss of local jobs.*
- *The potential impact on Grim's Ditch. As an ancient structure this should be preserved at all cost.*
- *Potential impacts of public rights of way (PRoW), bridleway and cycleway diversions upon people using these facilities. This will have a huge negative impact on both leisure and persons going to work.*

- *Potential health and safety considerations arising from construction activity and diversion of roads and PRoW. Health and wellbeing has been ignored in this document and is dealt with in a separate section.*
- *Potential impacts on local habitats and wildlife.*

92. It should be noted that the items above do not even concur with those given by letter from a senior HS2Ltd. official to CCCF members dated March 2013 (see immediately below) which reported the extended bored tunnel proposal and lower track levels. They all differ from those in 2.5.4 (reference to the original draft ES documentation) and should have been included and acted upon. There has been no point in raising these items at Community Forum meetings. They have been ignored. Our views have not been represented. This is to the great detriment to the Chilterns AONB, its many visitors and hence the UK at large.

93. Extract from letter to Central Chilterns Community Forum dated March 2013 from the area manager. (Comments in brackets are where the letter does not capture the original request)
    - *The preference for the route to be in a bored tunnel, as set out in the detailed paper submitted by CRAG*
    - *If a fully bored tunnel were not adopted, the next preference for the route to be lowered to the extent that the pantographs cannot be seen and that road crossings can be at ground level.*
    - *In addition, the wish for cuttings with side slopes of the steepest possible gradient to minimise land take in the Chilterns.*
    - *The acceptance of the principle of complete reinstatement of Sibley's Coppice*
    - *The South Heath green tunnel being low enough to allow the covering soil to not be above the current ground level when completed.*
    - *Phasing of works during the construction of the South Heath green tunnel to ensure that neither Frith Hill nor the Chesham Road 8485 together with Kings Lane be closed at the same time*
    - *The use of tracks alongside the route to be created to avoid use of Potter Row, The Lee or Ballinger by construction vehicles.* (The request was for haul roads along the trace.)
    - *The desire for all noise barriers to be designed and tested to the highest international standard and made of absorbing and not deflective materials.* (The original request was for all permanent features to be designed to the highest international standards including noise barriers- See paragraph 5.90 below)
    - *All public footpaths to be reinstated. (to avoid trackside diversions)*
    - *The wish to ensure that access is maintained at all times for deliveries to South Heath Garden Centre and domestic heating oil to all homes.*

94. CFA9 gives no details of noise barriers as indicated on maps CT-06-032 and 033. In both of these cases the noise fence barrier (a purple line) is shown on only one side of the track. This appears to indicate that only domestic and agricultural properties within a hundred or so meters of the track are considered worthy of sound protection. It is well known that sound travels long distances and in both instances properties with in ~500m on the unprotected side of the line will be significantly disadvantaged.

95. The following is a Review of the issues the Central Chiltern Community Forum raised to which Hs2 Ltd responded: *"These will be addressed in ES"*

To provide an outline of how the AONB status of the Chilterns was taken into account when developing the design of the route. (11/9/13)

- Volume 3 Section 2.3.21 states… *"This landscape is of national value."* However the following statements exemplify the extent to which that status has not been accommodated. Volume 3 Section 2.5.4 (entire) Volume 3 Section 2.5.10 (entire)Volume 3 2.5.11 (entire)Volume 3 2.5.12 (entire)
- Indeed the lack of respect for the AONB and the lack of 'weight' attached to the design to preserve the landscape and beauty is evident throughout the documentation.

Fully Bored Tunnel under ANOB (CFs)

- The Community Forum sought, repeatedly, to have open and transparent dialogue regarding its request for a fully bored tunnel under The Chilterns ANOB. That never transpired at the CFA9 meetings. Hs2 Ltd stated that the reasoning behind the denial of the request for a fully bored tunnel would be provided in the ES.
- The justification for that denial is still not apparent in the ES documents; however, the extent to which the ANOB status has been disregarded is evident. The cost comparisons are not provided which is most significant in view of the fact that a cost saving to Hs2 Ltd of c. £300m was achieved by raising the depth of the cutting (January 2012 route)

Transport and Access

- Traffic management and access issues were raised repeatedly. Limited proposals in the ES e.g. A413 link between Aylesbury and M25, M40 (near Denham) and onwards to Central London (by A40) is heavily used am/pm rush hours. It is also essential for the emergency services. It passes through CFA8, 9 and 10 but there is only a single reference in Route Wide Effects 2.3.5 and 13.1.2 "traffic and transport assessment not yet complete."
- Paragraph 13.2.6 provides a non-exhaustive list of activities, which will impact on road users but nowhere is there indication as to how Hs2 Ltd will address these issues.
- Construction traffic will be routed on the A413 then via A355 to M40. 310 HGV trips on the A413 (in each direction, excluding the movement of spoil) are projected in addition to 835 car/ light goods movement each day. There are no measures to mitigate these issues.
- This will hugely and adversely impact many of the villages in the Chilterns and those several miles from the proposed route. Numerous cut through/ rat runs along very narrow lanes will be created as a result of the A413 main road congestion. The quality of life will be significantly diminished. Concerns about the impact of construction traffic have been wholly disregarded as evidenced by the open provision Vol.1 6.3.24. Additional Working Hours.

Socio Economic Impacts

- At CFAs participants ardently pursued questioning regarding the impact of construction on a) health and wellbeing of the local population, b) air quality, c) agricultural land, d) water quality e) noise and f) the local economy. Repeatedly participants were assured that the answers to these questions would be given in the DES and when it became apparent that the DES was only going to provide a 'snapshot' that the ES would provide us with the answers. It has not done so.
- Great Missenden is a thriving community and one of two main gateways to The Chilterns: a huge tourist attraction, therefore, a significant source of

income. Its station is a main access for commuters working in London. Many residents also run successful businesses from their homes.

- The Non-Technical Summary p. 87 Residual Effects makes light of all of the above concerns. It is disingenuous to refer to Great Missenden as a Settlement p. 86.
- The Water Resources and Flood Risk Management p. 89 omits any provision for making the public aware of the scale of the risk for water contamination or, indeed, how this high risk is to be managed.

Optimum environmental line speed

- Feed back for a response by Hs2 Ltd to Dr. Fletcher's Optimum Environmental Line Speed in the Chilterns paper was repeatedly requested – but not forthcoming.
- The statements in Volume 1 10.3.16 the only environmental improvements delivered by a lower maximum design speed would be a marginal reduction in noise impacts, which would be outweighed by a substantial reduction in economic benefits. This does not satisfy the ANOB status nor does it adequately address the concerns raised in the OELSC paper.

2.6 Route section main alternatives

96. Paragraph 2.6.6 examines the various tunnel options. Option A is the current scheme. **The extended tunnels, Options B to D, all performed well on environmental grounds** compared with Option A. Option C (extended tunnel to the North-west of Wendover) was considered to have the most potential benefits compared to other options because this would avoid direct impact to the majority of the AONB and local residents as well as on Grim's Ditch scheduled monument. It was rejected because of cost and time constraints.

97. Paragraphs 2.6.8-2.6.16 then reviews the revised options proposed by CRAG. Option B: CRAG T1 and Option C: CRAG T2. Despite the acknowledged environmental benefits (see 2.6.11) they are dismissed on cost grounds (2.6.17) without justifying the apparent cost difference.

98. Without transparency it is not possible to judge whether the cost differential are real and significant. The CRAG tunnel options B and C clearly provide protection to the environment and would ensure a reduction of noise both during construction and beyond.

99. A fully bored tunnel would result in very significant environmental advantages, namely the Chilterns Conservation Board's criteria that HS2 should not be seen, heard or felt throughout the AONB. The tunnel options would very significantly reduce the damaging environmental impact of the line. Explicitly these are:
    - Minimal disruption to local communities and road users
    - No Loss of ancient woodland or protected hedgerows
    - No dumping of spoil in the Chilterns
    - No loss or severance of farmland
    - No need to close or divert roads
    - No need to close or divert Rights of Way
    - Significant reduction in Noise issues
    - No impact of wildlife and ecology
    - No need for settling ponds etc.

- Limited damage to the reputation of the Chilterns for visitors and tourism.
- Amelioration of associated stress, anxiety and depression in affected residents

100. The longest possible tunnel through the Chilterns AONB should be adopted. Such mitigation would conserve and enhance the area of outstanding natural beauty as envisaged initially by National Parks and Access to the Countryside Act 1949 and subsequently by the Countryside and Rights of Way Act 2000.

101. Judgements by Hs2 Ltd about the cost of tunnelling do not take into account the non-market effects of the proposed scheme nor ascribe apply realistic value to the landscape lost in perpetuity. *"High Speed Rail in the Chilterns Little Missenden to Wendover: An assessment of the non-market effects of the Proposed Scheme compared to the Alternative Proposal" 28th November 2013* clearly shows that the benefits of the AONB outweigh any additional costs of extending a tunnel under the AONB.

Tunnel extension to Liberty Lane

102. Paragraphs 2.6.20 explore the two options to extend the tunnel to Liberty Lane. *Both Option A and Option B would provide effective noise mitigation for the majority of South Heath during the operation of the railway.* ***However, Option B would also reduce operational noise impacts either side of South Heath and for certain locations would result in reduced construction impacts as well. However, there would be some new local impacts under this Option due to the need to construct an additional vent shaft by Chesham Road*** *and due to the increased width and cutting depth and associated land take to the north of Leather Lane arising from the lower alignment of the route as it exits from the twin-bore tunnel portal. A large amount of additional surplus tunnel excavated material would need to be handled at the tunnel southern portal in CFA7, requiring off-site removal or local sustainable placement.*

103. Statements in bold are most misleading. Option B would considerably reduce operational noise in South Heath and remove the construction impacts completely. These are most significant and should weigh heavily in favour of this tunnel option. The extensive impact of Option A has been documented above and this paragraph total ignores this. The impact of the construction of a vent shaft by the Chesham Road is relatively minor when compared with the extreme impact of Option A. The statement in 2.6.20 fails to put this in to context.

Raising the alignment from Mantle's Wood through the green tunnel

104. 2.6.24 refers to further design modifications. The contention that reducing the depth of cuttings and then building earthworks will mitigate visual impacts is of course the reverse of the truth. All efforts should be made to alter the landscape as little as possible. Hence, deeper cuttings are necessary in the absence of a bored tunnel. These comments also apply to 2.6.25 to 2.6.26.

105. Paragraph 2.6.32 states: *'that on balance it was considered that the cost savings and reduced construction works required justified the raising of the alignment the depth of cutting immediately north of Mantle's Wood and prior to the green tunnel at South Heath by 5 metres'.* This decision fails to take into account the impact the additional noise will have on the surrounding area and the effect it will have by discouraging visitors to the area.

106. Paragraphs 2.6.27-2.6.32. It is clear that Option B puts some minor advantages in construction above any environmental considerations. The statement regarding lorry movements of spoil to Hunt's Green Farm (2.6.29) shows a total disregard for the AONB. All spoil should be removed along the trace and disposed of outside the protected area of the AONB. Yet again cost has taken precedence over protection of the environment.

107. Paragraph 2.6.33 states: *the community has raised concerns over the potential effects and has proposed a lowering of the alignment through this section.* The community has always required the line to be as low as possible to avoid both visual and noise impact and not raised as is proposed.

108. Paragraph 2.6.34 raises again the question of spoil removal and of building earth banks along the line. The statement attributed to the Chilterns Conservation Board misrepresents their view. They have stated that the train and infrastructure should not be seen or heard in the AONB. They are not in favour of reduced cutting depth and have argued consistently for the track bed to be dropped, bridges at grade and against the need for artificial cuttings; reducing the spoil generated by using retained sides and hence more effective noise attenuation.

109. The community most definitely required increased cutting depth and not unsightly earth banks alongside the track. As stated above, all spoil should be removed along the trace and deposited outside the AONB. We were specifically informed in community forums that spoil would not be removed along our local roads and that those roads identified for construction traffic would be used to move concrete and metal infrastructure for building the track.

110. Again the proposal that the alignment through the AONB has been rejected (2.6.36) is based on engineering cost rather than environmental considerations. The design as proposed will have a major adverse negative impact on both the environment and the community.

Operational speeds through the AONB

111. Paragraph 2.6.39 states: '*The Government has previously considered alternative route speeds. Any reduction in train speed would affect the journey time-savings resulting from high-speed rail. The length of the bored tunnel was extended in the Proposed Scheme, announced in January 2012, to reduce the impacts from the scheme and mitigation measures have been incorporated into the sections of the route not in tunnel. Paragraph 2.6.40 states: For these reasons a lower speed through the AONB has not been adopted.'*

112. Neither reason given for rejecting reduced operation speed is valid. The Secretary of State has now stated that speed is not the reason for building HS2 so journey time-saving is irrelevant. Lower speed, from very high to high, would increase flexibility and allow '*avoidance*' rather than '*offset*' mitigation measures. The tunnel as proposed in January 2012 does not in itself provide additional mitigation within over half of the AONB. In addition, lowering the alignment (see above 2.6.33 to 2.6.36) has considerably reduced mitigation.

Leather Lane Overbridge (CFA9, 2.3.68-72)

113. Paragraph 2.3.72 states that: *Leather Lane will be permanently realigned, 50m to the south of its current location, across the new Leather Lane overbridge.* This is discussed

further in 2.6.41-44; an option to reinstate Leather Lane to the north of its current alignment is rejected because as stated in paragraph 2.6.43 whilst Option B *would avoid the impact on the trees to the south of the existing Leather Lane it would introduce new impacts to the north of the row.*

114. However, Paragraphs 2.6.41-44 is identical to paragraphs 2.6.34-37 of the Draft ES, which was issued without reference to the '*sustainable placement area*' now proposed for the fields immediately to the North of Leather Lane. The realignment should be reconsidered in the light of this development -
    - The belt of trees to the South of Leather Lane will act as a valuable screen to the placement area on the North side
    - An increase in the embankment height is no longer a significant consideration, since the bridge will be adjacent to a 5m high placement area.
    - The Copse is ~30m from the existing road, which would permit realignment to the North side while preserving the majority of the copse.
    - The proposed works (Map CT-05-034b) extend for approximately 350m to the west of the realigned bridge. It is unclear (without a profile transverse to the line) why this should be necessary, but presumably if the realigned road was steeper, more of the old road could be retained.

115. CFA10, paragraph 2.3.21-26 states: *The compound will: be accessed via Leather Lane, Potter Row, Frith Hill, and B485 Chesham Road*. Potter Row is quite unsuitable as an access road for 230 LGV & 30 HGV movements / day. Access to Boxwood Lane is via the trace from Leather Lane, and there is an access road from Frith Hill to the trace at the South Heath Tunnel North Portal / ATS, so clearly it would be possible to access the Leather Lane compound via the trace as well.

Hyde Farm overbridge

116. Paragraph 2.6.1 describes the four options allowing access to Hyde Farm and Chapel Farm where the route of HS2 crosses Hyde Lane. Options A and B are rejected on grounds that they affect a Grade II listed building and other properties. Option C that: *Closing Hyde Lane and permanently diverting traffic via the access road to the portal of the South Heath green tunnel and onto Chesham Road. Whilst reducing the impact on listed buildings it required access to the B485 via a construction route and was hence rejected.*

117. Option D has been selected. This restricts access to Hyde Farm and neighbouring properties during the construction period (see 2.3.38 a period of 9 months to 12 months) to the unmade Hyde Lane that exits onto the A413 at Deep Mill.

118. This is an unsighted exit on a bend in the close vicinity of a railway bridge (Chilterns Railway). Not only is this exit onto the A413 a very dangerous one lane, it is unsuitable agricultural traffic and especially horse transport vehicles and hence will threaten the equestrian business of Hyde Farm. An alternative solution must be sought.

119. It should also be noted that map CT-05-032-L1 shows Hyde Lane from the A413 to Broome Farm as a construction traffic route. Not only is this lane (a farm track) totally unsuitable for HGVs but also there is no obvious reason for designating this lane for construction work. An area of land to the left of the lane just before Broome Farm is

shown as inappropriate new planting, which will not require construction traffic. This is a further example of lack of knowledge of the area and inadequate planning.

B485 Chesham Road and King's Lane junction

120. Paragraphs 2.6.64 to 2.6.67 describe the alternatives for the junction of the diverted Kings Lane and the B485. During the construction phase and the construction of the new junction at Kings Lane and Chesham Road steps must be taken to maintain road access between Great Missenden and Chesham at all times. It is a vital transport link for local residents, school catchment areas and business and for leisure.

121. Paragraph 2.6.68 concludes that: Option B *"conformed to local community preferences and provides a junction that is capable of managing the increased vehicle movements that are expected."*

122. It is unclear how community preferences were gathered. Option B sees King Lane unsympathetically diverted nearer to the village, widened with a large a lit roundabout. Residents living on Wood Lane, Kings Lane and Lappetts Lane will experience increased traffic noise from traffic on the diverted Chesham Road B485. There are no given guarantees that hedgerows and habitats will re-instated sympathetically or the new build road will be in keeping with the Chilterns AONB. Together with the proposed closure of the Frith Hill (South Heath leg) and construction traffic, an increase in passing vehicles will add to the increased levels of noise.

123. A full tunnel through the Chilterns AONB would negate the necessity to divert the Chesham Road through Middle Grove Farm with the loss of arable land, building a roundabout at the junction with Kings Lane and use Kings Lane as a haul road.

124. Paragraph 2.6.69 describes the sustainable placement area at Hunt's Green Farm. HS2Ltd.'s consistent, total disregard for a nationally protected landscape is a consistent theme throughout this report. This disregard attains its apotheosis in this decision. Much of the so-called mitigation presumes to deposit large quantities of excavated spoil adjacent to the line within the AONB. The excess is to be 'placed' at Hunts Farm. This is wholly unacceptable. It makes national landscape designations nonsensical and effectively erodes any vestiges of credibility in Hs2 Ltd's Sustainability Policy. The argument that it will reduce HGV movement on local roads is contradicted by statements that haul roads will be used along the trace. Albeit that, that statement is also contradicted elsewhere.

125. Paragraph 2.6.9 does not provide details of the amount of excavated material or further details. Its placement ensures that the prevailing wind will carry dust across both The Lee and Lee Common. This reveals that the CoCP's bland assurances that siting will take account of the prevailing wind is but of little substance. Further, given the long list of earthmoving activities in paragraph 4.4.5 does not include moving material to the sustainable placement site, and, given the optimistic assumptions about the CoCP that are used, the conclusion in Paragraph 4.4.6 that there will *'not be a significant effect'* lacks total credibility. Further, as detailed earlier in response to Volume 3, the placement area will be used for excess material from Stoke Mandeville and Quainton. Thus there will be considerable earth shifting along the *'construction corridor'* – a term which is undefined.

126. In addition, given that the design proposed scheme is only generic **and** the principal undertaker has very significant powers of deviation granted by the hybrid bill **and** the size of the placement area is only loosely defined, the potential to exploit the concept beyond that outlined in the ES is all too real. At the moment it seems to be an open-ended solution to an engineering problem.

127. There will be a construction site, along the ridge from Mantles Wood through to Hunt's Farm and beyond in CFA10 past Wendover. Although separated into different works for planning, the cumulative impact, again seriously underplayed in the ES, will be devastating. With tunnel opening at one end, sustainable placement at the other being loaded from CFA10, 11, 12 **and** a green tunnel in the middle**, it guarantees** maximum damage to the AONB and the communities of the ridge villages within CFA9.

128. The longest possible tunnel throughout the AONB is the only acceptable mitigation.

3.0 Agriculture, forestry and soils

129. Paragraph 3.2.3 sets out an assumption that agricultural land disturbed through construction of the route will be reinstated to pre-existing quality. Given compaction and long term storage this is questionable and needs to be assessed on a field by field basis. Disturbing the underlying soil can change drainage patterns and introduce a change in the chemical balance of the land e.g. when applying chalk to a previously acidic soil. Also this is subject to the CoCP being observed properly, which was not the general experience with HS1 in Kent.

130. In addition, the commitment to ensure reinstatement is qualified by the statement in the Environmental Memorandum paragraph 4.11.3. *It should be noted that whereas soils from woodland areas will also be conserved for beneficial use within the scheme, the nominated undertaker is not committed to the reinstatement of all woodland and forestry areas affected by the Proposed Scheme.*

131. Paragraph 3.3.19 identifies the risk of flooding over agricultural land in the area. It reinforces the point made earlier about manageability of cuttings and earthworks.

132. Paragraph 3.3.20 notes that prehistoric cross-ridge dykes suggest that a pattern of track ways had been established before Roman times. These ancient patterns are rare and need to be preserved for future generations. Field patterns and hedgerows have a historical dimension.

133. Paragraph 3.3.23 notes that: approximately 17% of the study area i.e. within 2km (3.2.2) of the Proposed Route is wooded, and that as the national average is 10%, which makes woodland a resource of low sensitivity. This is another attempt to minimise the impact of the route. The UK is under-forested compared with the rest of Europe. The country needs a greater density of forest to help with CO2 reduction. As such, woodland is a receptor of high sensitivity. As most of the local woodland is ancient woodland, this makes it even more sensitive as a receptor.

134. Table 5 indicates 21 holdings within the 4km wide zone, totalling 1,509ha. The base-line is limited. HS2 conducted farm impact assessment interviews with a just over a third of the holdings (38%)

135. Paragraph 3.4.6 identifies that the scheme will sever and fragment individual fields and operational units. It also points to possible damage to drainage. It states that the scheme design seeks to reduce *structural disruption*, as far a reasonably practicable although what this means in practice is unclear.

136. There is a five-year period of after care. However there are pockets of land which may not be wanted when offered back because they are uneconomic. These pockets will need long term maintenance.

137. Paragraph 3.4.8 states: 169.9ha will be needed during the construction period, of which 144.2ha will be BMV land. Only 65.8ha of this will be restored, leaving a permanent land take of BMV land of 78.4ha. The Chiltern Conservation Board put land loss as higher. They state: *It is estimated that the total area of land lost to agriculture within the Chilterns AONB north of Little Missenden will be in the region of 250 hectares. As well as the line, embankments and cuttings, this includes new structures, road realignments, drainage features and land for landscape planting. It does not include the potential 80ha need for the additional spoil to be "sustainably disposed of" in the locality which was not which will be assumed to be returned to agricultural use.*

138. Table 7 sets out the impact on the 21 holdings. Of these, the report in paragraph 3.4.16 considers that 15 holdings will suffer major/moderate or moderate effects during construction. However the ratings are suspect as for example, Elwis Field Farm, where 100% of the land is required, but this rated as a moderate adverse impact. This calls into account the whole of the assessment of impact.

139. Paragraph 3.4.17 states *no farm enterprises are particularly sensitive to noise or vibration during the construction period.* However, only 8 owners have been interviewed, and a number of the holdings have horses, which are sensitive to noise. There is also mention of impact on Chapel Farm, which lies immediately adjacent to the Proposed Route. Again the quality of analysis and opinion is called into doubt.

140. Paragraph 3.4.21 states that *BMV land is a receptor of moderate sensitivity in this study area.* What this means is that because there is a lot of BMV land in the study area, the impact of a loss is moderate. However, nationally BMV land is a receptor of high sensitivity. Using this interpretation the impact is a major adverse impact. This again demonstrates the unreasonable assumptions used in assessing the impact of the Proposed Scheme.

141. Paragraph 3.4.23 states that the report assumes that the land taken for the South Heath tunnel will be returned to agricultural use, however some of this may be used for woodland, thus increasing the amount of BMV land lost.

142. Paragraph 3.4.24 sets out the loss if woodland as 13.8ha, which is assessed as an insignificant, as there is a lot of forestry in the area. Refer to 3.3.23 above on the unrealistic assessment of the loss of woodland. In addition the woods being lost are ancient woodland, which even this ES agrees is irreplaceable.

143. Paragraph 3.2.25 Table 9 sets out an assessment of the permanent impact. Again the assessment of the impact is called into question, by the moderate adverse effect on Hyde Farm. Not only is a large part of the holding taken, the farm finishes up on the side of a 25m deep cutting with up to 36 trains per hour passing. The same applies to 94 King's Lane, Bury Farm and Mulberry Park Hill.

4.0 Air Quality

144. Paragraph 4.2.3 sets out that the degree of significance of air pollution is dependent on the number of receptors nearby. Thus less than 10 properties, within 20m of a site, heavily impacted by dust, is considered insignificant. Paragraph 4.3.6 omits leisure users from the list of receptors.

145. Emissions will be controlled by the draft CoCP and the assessment is made on the assumption that CoCP will be implemented to *reduce levels to as low a level as practicable*. This is bland reassurance given the siting of sustainable placement area, the prevailing wind direction and the amount of earth to be shifted. Although paragraph 4.3.8 states that cumulative impact has been considered, but is referring to traffic. The cumulative impact of a 10 km construction site is not considered.

146. Paragraph 4.4.6. Although admitting that there are a number of properties that will be directly impacted, the conclusion is that there will not be a significant impact is unsubstantiated.

5.0 Community

147. Paragraph 5.3.1 states that the baseline data only covers 1km from the Proposed Scheme. This severely underestimates the impact on the surrounding communities as communities in the Misbourne Valley are closely inter-connected. (See comment on paragraph 2.1.3)

148. The conclusion in paragraph 5.4.4 that there is no temporary effect on Hyde Heath and Little Missenden is seriously misleading. The construction traffic accessing the Chiltern Tunnel portal will use Hyde Heath Road. This will impact connectivity, access to the Misbourne School and Great Missenden station. Little Missenden will be impacted by the construction traffic using the A413.

149. Paragraph 5.4.11. The conclusion that there will be no temporary impacts on Hyde End is seriously misleading. The village will be heavily impacted by construction traffic accessing the Chiltern Tunnel north portal. The disruption in accessing the facilities in Great Missenden will have a severe impact. There will be likely delays to the school buses to schools in Amersham, Aylesbury, Chesham, Great Missenden and High Wycombe.

150. Paragraph 5.4.22. The opinion that the diversion of Frith Hill will be a minor adverse isolation effect is to ignore the reality, that an additional 400m will add 10 min each way to school children's walk to school.

151. Paragraph 5.4.32 identifies that there are no temporary effects on Great Missenden. There will be a significant impact on traffic on the A413. This will cause traffic to back up in Gt Missenden between 07.00 and 09.00 and again in the late afternoon affecting commuters using the station and school transport. Businesses in Great Missenden will be impacted by the loss of tourists who will be put off accessing the area because of construction. The construction has also blighted property in the area, reducing estate agents' and solicitors' profits.

Tourism

152. Nowhere in Volume 2 of the CFA Report on the central Chilterns (Area 9) is the word tourism to be found, despite Section 2.1.5 "recognising that Great Missenden Station serves as an access point to the Chilterns AONB" and in 9.3.4 acknowledging that "the landscape is of national value," and later, "this area has a high sensitivity to change".

153. The large number of footpaths, cycle and bridle ways in the area, coupled with the outstanding beauty of the landscape mean that large numbers of national and international visitors visit this area and accordingly tourism is of major importance to the local economy.

154. The tourist industry within the AONB accounts for 55 million visits per year generating in excess of £400 million. Yet the Environmental Statement is silent on so vital an issue. No attempt is made in the ES to value this or to assess the socio/economic and other impacts the construction and operation of HS2 will have. This is a startling omission and thus is seriously misleading about the impact that HS2 will have on the local economy. Particularly so as it is a defined NPFF assessment that the developer has to make. Thus in purporting to analyse the impact on CFA9 the ES fails in this very important regard. This section is thus deficient and not fit for purpose.

155. Paragraph 5.4.34 States that *"No significant temporary or permanent effects have been identified in the community assessment for Great Missenden"*. This statement is patently wrong and evidences a failure properly to assess (or to assess at all) the impact of the construction phase on tourism. The Environment statement recognises that the scale of the construction activities means that works will be visible in many locations and will have the potential to give rise to significant temporary effects which cannot be mitigated practicably. It acknowledges there will be a high magnitude of change and result in major adverse changes.

156. Great Missenden and the surrounding villages are at the heart of the Chilterns AONB. Great Missenden is identified as the principal access point to the AONB elsewhere in the ES. It is a popular centre for walkers and cyclists. The Roald Dahl Museum is located in Great Missenden. This hosts daily visits from school parties and tourists from all over the world. The retail, restaurant and Pub businesses in Great Missenden, as they do in other local villages, derive considerable trade from these visitors, alongside the business from residents of nearby communities.

157. There is no mention within the ES of compensatory community funding. It is essential that the community has responsibility for its disbursement.

6.0 Cultural heritage

158. Paragraph 6.2.2 refers to properties in the 10mm settlement contour. Elsewhere settlement has been described as insignificant.

159. Paragraph 6.2.4 states that not all areas of survey identified in the archaeological risk model were available for survey. This is another example of incomplete survey work. It suggests that work should be completed before second reading.

160. Paragraph 6.3.5/6/7 lists the non-designated archaeological remains which lie wholly

or partly in the Proposed Scheme. This risks losing three assets of high value, five of moderate value, seven hedgerows that are historically important, and a further seven considered to be of low value.

161. Paragraph 6.3.8 lists 23 historic buildings whose settings are likely to be impacted. Paragraph 6.3.9/47 give a cultural overview of this part of the route, and shows the significant loss of artefacts that there is likely to be if the proposed scheme proceeds as planned.

162. Paragraph 6.4.3/14 describes the temporary impacts on heritage assets, and gives a picture of the devastation that will be caused. It states that the area around Hyde Lane, Kings Lane and the rural agricultural context in which all are set will be altered comprehensively. *This will cause a major adverse impact and a major adverse effect to each of the assets*. High adverse impact and major adverse effect is the assessment around Woodlands Park and Cottage Farm and adverse effect on The Castle. The Granary is an important asset that should be preserved.

163. Paragraph 6.4.16/26 describes the permanent impacts on heritage assets.

164. Paragraph 6.4.27 assess the permanent impact on the setting of Grade II listed Hyde Farm and Sheepcotts Cottage as a moderate adverse effect, which has to be the understatement of the report. Both these properties will be on edge of a 25m cutting.

165. Paragraph 6.4.28/30 describe impacts on the settings of Grade II listed Cottage Farm and Woodlands Park, Grade II listed Bury Farm, Grade II listed Hammondshall Farm. All of these are 'considered' moderate adverse impacts. This is a complete under valuation of these buildings.

166. Paragraph 6.4.33/34 set out further work needed to assess the impact on heritage assets. This should be completed and consulted on before the second reading of the bill.

167. Paragraph 6.5.3 sets out the permanent impact from operation, which are considered moderate. Again this is a totally unrealistic assessment.

168. Section 6.4 purports to assess the effect during construction on Cultural Heritage yet despite using phrases such as:
The character of their setting, comprising the area around Hyde Lane, King's Lane and the rural agricultural context in which all are set will be altered comprehensively. This will cause a high adverse impact and a major adverse effect to each of these assets. 6.4.4;
and
"Hammondshall Farmhouse's setting, defined by surrounding non-designated buildings, yards and gardens in the rolling hills on the Chiltern plateau, will be comprehensively altered. This will cause a high adverse impact and a major adverse effect. 6.4.5.

It concludes however:
It is not considered that there will be any cumulative effects from temporary impacts on heritage assets within the study area.

This assessment shows total disregard for all the negative impacts of HS2. The cumulative impact on historical features of the landscape is underplayed.

7.0 Ecology

169. Paragraph 7.2.2 talks about a WFD assessment being carried out. A separate report on water impact is needed particularly regarding Colne and Misbourne valleys where there are ongoing talks with EA and Affinity. There is a risk to the water supply and negotiations with the EA and Affinity Water need to be completed and agreed mitigation determined before second reading.

170. Paragraph 7.2.4 states that there were significant areas which were not accessed for the ES. As some of these are ancient woodland, and could contain protected species, the survey should be completed before Second Reading.

171. Paragraph 7.3.3 lists designated sites. These are:

Name	Area (ha)	Designation	Location	Type of Woodland
Weedon Hill Wood, High Springs, Ostlers Wood	49.9	LWS / BAP	Adjacent to Little Missenden Vent shaft	Ancient
Mop End Lane	2.5	LWS	Adjacent to land west of Shardeloes Lake	Hedgerow
Mantles Wood	20.5	LWS / BAP	Chiltern Tunnel site	Ancient
Hedgmoor / Farthings Wood	12.9	LWS	Chiltern Tunnel site	2.6ha ancient / Woodland
Sibley's Coppice	7.5	Habitat of principal importance / BAP	South Heath Tunnel	Ancient
Rook Wood	30.9	LWS	Next to ecological compensation site	Ancient
Hyde Heath Common	5.2	BNS. Habitat of principal importance / BAP	Next to ecological compensation site	Woodland and grassland
Hyde House Wood	18.9	BNS. Habitat of principal importance / BAP	Next to ecological compensation site	Woodland
Hyde Lane Verge	0.4	BNS	Next to ecological compensation site	Hedgerow
Jenkin's Wood	3.1	Habitat of principal importance / BAP	Adjacent to Proposed Route	Irreplaceable Ancient
Havenfield Wood	2.9	Habitat of principal importance / BAP	Adjacent to Proposed Route	Irreplaceable Ancient
Woodland on Route	44.4		Impacted	
Woodland	105.3		Next to ecological compensation site	
Woodland	6.0		Adjacent to	

			Propose d Route	
Total at risk	155.7			

172. Paragraph 7.3.9 identifies that 16km of hedgerows in the land required for construction. Only 5.3km were actually inspected. All proved to be habitats of principal importance and 2.7km qualify as important hedgerows. However it states that only 2.1km of these are in the Construction land take. As over 10km of hedgerows have not been surveyed, this is not a logical conclusion. Again the surveys need to be completed before the second reading of the hybrid bill

173. Paragraph 7.3.10 indicates that 1.05ha of orchards is affected by the scheme. All of this is BAP local habitat, and 0.59ha are principal habitat.

174. Paragraph 7.3.11/12 identifies 19.3ha of grassland, but is dismissive of the quality.

175. Paragraph 7.3.13 notes that five ponds were identified on the land required for construction. Only one pond was accessed. This supported great crested newts and thus qualifies as a principal habitat. The other 4 ponds almost certainly sustain great crested newts. They are dismissed as of local/parish value. This is another example of downplaying the quality of habitat found. Surveys need to be completed before second reading.

176. Paragraph 7.3.16 Table 10 sets out a list of protected species. This includes five areas where bats have been found, including a maternal roost of pipistrelle bats, which is on the land to be acquired. Barn owls have been found along the line. These are particularly sensitive to trains. Only one breeding pair of red kites was found. The red kite is common in this area. It is not uncommon to see six or eight birds at the same time. This is evidence that the ES has been rushed.

177. The assessment provides detail by species and habitat. This misrepresents the impact. The AONB designation recognises the rich diversity of the areas' ecology. It is not simply a question of identifying the loss of ancient woodlands. It is ancient woodlands **plus** the sum of all other features which are lost. The cumulative impact on local ecology is not assessed and optimistic assumptions are made about successful transmigration of habitats and woodlands.

178. It would seem that Hs2 Ltd assume that Local Wildlife Sites are of significantly lesser importance than sites designated SSI. SSSI designation was only ever meant to provide a representative sample of high value nature conservation sites. Designation was never meant to represent all high value sites worthy of protection. As such, Local Wildlife Sites and other non-designated sites might contain habitat and species of national and even international importance.

179. No surveys have been carried out on the River Misbourne. There are trout and crayfish in the river, as well as other fish species. There is anecdotal evidence of water voles along the stretch of the river from Deep Mill Lane to Shardeloes Lake. With the tunnelling under the river north of Shardeloes Lake, there is a recognised risk that the flow of water through the aquifer could be changed, which would risk the whole habitat of the upper Misbourne. The ES should contain a complete analysis of the river environment. This should be completed before the second reading of the

hybrid bill.

180. The ES fails to address re-establishment of migration paths for badgers, deer and other animals. Paragraph 7.4.1 the realignment of Leather Lane is presented as a benefit, but ignores the fact that a number of trees and hedges will be lost. The best mitigation would be to leave well alone.

181. 7.4.3 / 20 sets out the impacts on the various woods a, habitats and species and makes devastating reading by totally disregarding the total environmental impact.

182. 7.4.21 / 34 sets out mitigation proposed. Mainly it comprises planting new trees, but does not address connectivity across the line. Paragraph 7.4.22 admits that that ancient woodland is irreplaceable. Paragraph 7.4.26 admits that it will take 50 years at least for these replaced woods to mature and does not detail long-term management plans

183. Overall the mitigation, provided by a tunnel under the Chilterns AONB to the north of Wendover would eliminate all the adverse effects identified, and substantially reduce the risk to species from translocation, loss of migration paths etc.

184. 7.5 deals with the impact of operations on ecology. Paragraph 7.5.2 / 6 sets out the serious risk of bats colliding with trains and /or disoriented by the passing noise. However the ES fails to mention the impact on bats of light from train carriages and the pantograph.

185. Paragraph 7.5.7 identifies that breeding bird densities can be reduced by noise, but dismiss the impacts of trains as they pass quickly. The assessment ignores the fact that with 18 trains per hour each way less than 2 min between each passing train, the noise will be continuous.

186. Paragraph 7.5.9 identifies that barn owls are likely to be killed by passing trains. 7.6.12 identifies putting up nesting boxes 1.5km from the line as a form of mitigation, in the hope that barn owls would find them. Better mitigation would be tunnel to north of Wendover and obviate any of these issues.

8.0 Land Quality

187. Paragraph 8.2.3 identifies access constraints so that not all sites considered to have the greatest potential for contamination have been visited, and proposes to rely on a desk top study. This is not satisfactory in an AONB. All the sites should be visited and reported on to Parliament, before the second reading of the hybrid bill

188. Paragraph 8.3.6 The White Cretaceous chalk is designated as a principal aquifer by the EA. Paragraph 8.3.7 states that the entire route will be located in a Source Protection Zone (SPZ). Paragraph 8.3.21 Table 11 sets out receptors and their sensitivity. Principal aquifers and the river Misbourne are identified as receptors with high sensitivity.

189. Paragraph 8.4.2 states that further investigations will take place to confirm the full extent of areas of contamination and as a risk assessment. These studies should be carried out and reported to Parliament before the second reading of the hybrid bill.

190. Paragraph 8.4.10 Table 12 sets out identified sites of potential contamination. However it omits the risk of tunnelling through the aquifer as a potential source of pollution.

9.0 Landscape and Visual assessment

191. Paragraph 9.2.2 describes the Zone of Theoretical Visibility (ZTV), but then excludes the temporary impacts of cranes and other large construction equipment and more importantly excludes the impacts of the overhead line equipment on the view. The former is understandable, the latter is considered to be direct obfuscation. With the raising of the line by 3m in many of the cuttings, the catenary towers will be visible as alien urban features. At night there will be a line of light flashes every few minutes as the train passes.

192. Paragraph 9.2.4 states that access was limited, and that in several areas PRoWs were inaccessible. As by definition, the latter are accessible, this statement is incorrect and demonstrates the minimal quality of the work carried out and its inadequacy. Overall the assessment is based on:

- an insufficient number of viewpoints and partial nature with none outside 1km corridor (all the likely adverse landscape impacts will not be covered by the existing viewpoints)
- too low a sensitivity being given to some receptors (e.g. many minor roads are important as scenic routes and therefore should not be recorded as 'low sensitivity'
- the benefits of mitigation being overstated;
- the exclusion of overhead structures and too many elements yet to be designed to make a proper assessment.

193. Paragraph 9.3.4 assesses the landscape as being in fair condition. This is in direct contradiction to the assessment in Volume 3. Hs2 Ltd's assessment is immaterial and the motives transparent. It is in Hs2 Ltd's best interest to minimise the impact by denigrating the existing landscape as much as possible in order to justify even worse development. An example: *The London to Aylesbury railway and the A413 run south-east to north-west through the Misbourne Valley, creating a strong linear feature within the landscape.* This is misleading, as both are relatively invisible from many public vantage points. It is the valley that creates a strong linear feature. The route follows the ridge/plateau and cuts through virgin landscape. The landscape is part of an AONB; therefore its designation is clear. At least the final conclusion was that the upper Misbourne LCA is of National Value.

194. Paragraph 9.3.5 considers the Hyde Heath North LCA as medium tranquillity. As this is quieter than the upper Misbourne, which is considered to be medium tranquillity, this by definition is a wrong appraisal. It also misses the fact that there are numerous areas of complete tranquillity.

195. Paragraphs 9.4.10 / 20 covers the temporary visual impacts on the area. The definition of 'temporary' as being not 'permanent' is challenged earlier in this response The ES concludes that these will have a major adverse effect over a period up to 7.5 years. This is unacceptable within an AONB.

196. Paragraph 9.5.2 sets out mitigation measures and sets out a view of the impact in 2026, 2041 and 2086, i.e. 60 years after the scheme opens. The current impact is of

greatest importance not that of our grandchildren.

197. Paragraph 9.5.7 / 17 set out the landscape assessment. The ES concludes that there will be a moderate adverse effect in Year 1. This is complete underestimate of the change in the landscape with deep cuttings from Mantles Wood to the south portal of the South Heath Tunnel and loss of considerable woodland. The change is considered to be a major adverse impact. Even in year 15 and year 60 there will be a substantial adverse impact, through creating a huge trench. In addition the almost constant noise of trains night and day will reduce the level of tranquillity substantially. In addition at night there will be the intrusion of light flashing from the Pantograph.

198. The ES attempts to assess the impact on individual jig-saw pieces. Landscape may be 'all the visible features of an area of land,' (OED) but conserving the concept identified in NPPF as *landscape and scenic beauty* is not addressed.

199. Scenic beauty is admittedly subjective. One's response to scenic beauty is derived from the simultaneous impressions gained from a range of stimuli. Thus red kites wheeling overhead, the freshness of the air, trees rustling, a view across the landscape relatively unaltered over the past 500 years, walking along an ancient path might be individual elements subject to analysis in Noise, Air Quality, Traffic and Transport, Landscape and Ecology sections. **There is no attempt to consider the cumulative impact on the inter-relationship of these elements**. It is incontestable that one's experience of the local countryside will be vastly different during construction and operation from what it is at present. It is the resultant whole picture that matters when the individual pieces of the jig-saw fail to fit together. **The sum total of assessments** across a range of elements, even if individually judged medium adverse, **is not medium but major adverse.**

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10.0 Socio-economics

200. Paragraph 10.4.3 states that no non-agricultural businesses have been identified, which are expected to experience significant amenity effects from the Proposed Scheme. This completely ignores the impact of the scheme on:
- People visiting the area
- Local businesses which rely on tourism, shops, restaurants, cafes and the Roald Dahl Museum.
- Local businesses providing professional services such as estate agents and solicitors
- Local businesses run from people's homes
- The adverse impact on business creation, due to traffic etc., with people choosing to set up business elsewhere
- The adverse impact of getting new employees because of the traffic disruption

201. While the impact of, for example, tourism is ignored, presumably because the scoping for the section does not allow consideration beyond a set distance from the line, the logic is not followed when identifying potential jobs or jobs supplying the construction Paragraph 10.4.6, although these will be *dependent on skill levels*

required and skill levels of local people.

202. Paragraph 10.4.16 / 18 tries to give the impression that there will be a net benefit to the area. However they have not identified the impacts set out above, or more cynically have chosen to ignore them. In addition, the tone of the language shifts, echoing government rhetoric, out of place in an ES.

203. The Chiltern Countryside Alliance 2013 survey of local businesses identified major concerns, not simply about loss of business, but of a reduction sufficient to lead to closure, in some cases with the resultant loss of jobs. This will lead to an adverse impact on the socio economic fabric of the village and surrounding communities.

204. Despite this survey being submitted as part of the Chiltern Countryside Group's response on the Draft Environmental Statement the Environment Statement conveniently concludes at 10.4.16 that *"there are no significant adverse effects arising during construction in relation to businesses directly affected by the Proposed Scheme"*. In focusing only on businesses "directly" affected the Environment Statement's conclusion is wholly misleading because ignores the effect on other businesses in the CFA9 area and thus on employment in the community.

205. The scoping for this section takes a very narrow remit. It does not take into account:
- Loss of personal equity through property blight and associated adverse health impacts
- The economic impact of traffic congestion
- Loss of reputational value and visitor decline

206. There are 57 retail outlets in Great. Missenden including pubs and restaurants, but excluding banks and non-retail businesses. All to a greater or lesser extent are dependent on visitors. Within Bucks 8.9% of jobs relate to tourism and the 55 million visitors to the AONB who play a very important part of the local tourist industry contributing £471.6 million to the Buckinghamshire economy. Visiting cyclists to the area spend on average £71 per day. In addition there are 70,000 visitors per year to the Dahl museum in Great Missenden.

207. Section 10 purports to report on the significant economic and employment effects during the construction and operation of the Proposed Scheme yet whilst acknowledging that CFA9 is at the heart of the Chiltern AONB fails to mention tourism anywhere. This is a fundamental omission.

208. H.M. Treasury's Green Book requires that all new policies, programmes and projects be subject to a comprehensive but proportionate appraisal. A key component is an appraisal of the full costs and benefits incurred by Government and society. The Environment Statement fails to satisfy this requirement in so far as it concerns CFA9.

209. Despite acknowledging that extended bored tunnel options through the Chilterns Area of Outstanding Natural Beauty (AONB) would have environmental benefits, the Environment Statement rejects these. A primary reason for the rejection of these options is cost.

210. The Green Book requires that such costs must take into account external benefits. This, the ES fails to do when comparing the extended bored tunnel options with the current proposal. One of the external benefits that are required to be assessed in

comparing the tunnel options with the current proposal is HS2's impact on the local economy. This has been ignored.

211. AONBs and the economic wellbeing of local communities are interdependent. The importance of this relationship is recognised in the Countryside and Rights of Way Act 2000 (s87) and the National Planning Policy Framework.46.

212. The AONB surface route is expected take up to 7½ years (2.3.46) to construct, including the period for fitting the rail infrastructure. The construction phase of HS2 in particular will have a deleterious socio-economic impact on communities that support the AONB. This deleterious impact is in addition to businesses that will be directly impacted by the HS2 route.

213. The Chilterns Countryside Group's (CCG survey) carried out a survey of HS2's impact on retail businesses in Great Missenden and this was submitted as part of their response to the DES. This contains evidence of HS2's potential impact on communities that support the Chilterns AONB. Great Missenden village is only 1km from the HS2 route and the communities and tourism it depends on will be adversely affected.

214. Despite the evidence to the contrary provided by the CCG Survey, the ES concludes in the several sub paragraphs of 10.4 that there will be no significant adverse effects either during the construction phase or subsequently.

215. The following paragraphs summarise key conclusion from the CCG survey:

216. The Green Book states that costs and benefits for which there is no readily available market data, various techniques can be applied to elicit values. A participatory method was used in order to assess HS2's impacts on Great Missenden retail businesses.

217. Of the total 56 retail traders that were identified in the ward, 48 (86%) responded to the survey.

218. The survey indicates that large numbers of retail businesses in Great Missenden ward did not expect to survive the HS2 construction period. The annual turnover of almost one half of Great Missenden's retail traders may be reduced to a level that would threaten the viability of their businesses.

219. Of the respondents, 46% estimated they would suffer a mean reduction of 29% in their annual turnover during construction due to HS2. Respondents' mean estimated decrease in annual turnover that would threaten the viability of their businesses was 23%.

220. In addition, a further 46% of the total respondents were not able to estimate what percentage change in annual turnover to expect during HS2 construction.

221. Given this, the survey indicates that up to 92% of businesses in Great Missenden could potentially close during construction due to HS2.

222. The high potential failure rate of businesses is supported by the fact that almost 80% of Great Missenden retail traders expect HS2 to be harmful to their businesses during

construction. In addition, almost 70% of the total respondents expect to have fewer customers during the construction period.

223. The potential failure rate must be seen in the light of the vulnerability of Great Missenden businesses to reduced visitor numbers. Great Missenden's dependency on visitors is illustrated by its relatively large number of retail businesses (56 in the ward), compared to the village's population of some 2,000.

224. The survey indicates that during operation more than half of Great Missenden retail traders expect HS2 to be harmful to their businesses. Over 40% of the respondents do not expect to have as many customers during operation as they did at HS2's launch (March 2010) due to the scheme. This prediction may be due to:
- HS2 reducing the attractiveness of the area to visitors from noise and landscape impacts.
- The potential loss of customers expected by traders during the construction period persisting during the operational phase due to changed shopping patterns.
- The potential for Great Missenden to disintegrate as an economic focus during the construction phase.
- The reluctance of potential customers to rely upon a business that may not be in existence in the foreseeable future.

225. HS2 has affected the confidence levels of traders in their businesses in Great Missenden ward. Three quarters of the respondents are less confident about the viability of their businesses during construction due to the scheme. Over one half of respondents are less confident about the viability of their businesses during operation due to HS2. The survey indicates most traders (67% of respondents) do not envisage further investment in their businesses due to the current economic climate coupled with the announced HS2 plans.

226. The results of the survey are likely to be conservative. Traders were informed in the April 2013 questionnaire that HS2 construction is expected to last at least 2½ years in the Great Missenden area. The May 2013 ES informs us that the expected duration of the construction works in the Great Missenden area itself is actually 5½ years excluding the fitting of rail infrastructure.

227. If – as the survey suggests - over 40% of businesses were to close, it is believed this would threaten the long-term viability of Great Missenden as a retail community. This is clearly an important aspect of HS2's impact on the Chilterns AONB that has not been recognised in the ES.

228. Wendover, Chesham, Amersham and possibly other communities that support the AONB are likely to also suffer economic damage. The AONB extended bored tunnel options described in the ES would minimise the economic damage to the communities supporting the AONB.

229. Damage to Great Missenden, Wendover, Amersham and Chesham, as economic foci would not only impact on community stability in these settlements, but also on the stability of the outlying communities that these larger settlements serve. H.M. Treasury's The Green Book requires that the full value of community stability is taken into consideration when considering the costs and benefits of options. This has not

been done.

230. This survey has made an assessment of HS2's effect on the retail sector. An additional allowance will need to be made for HS2's potential effect on traders selling to the public from offices, the non-retail sector and traders not operating from business premises.

231. Despite Government's recognition of the importance of the local economy to AONBs, with regard to job losses due to HS2 the ES reports only on:
- Route-wide effects.
- Effects through demolition and land-take.

232. There is no consideration in the ES of jobs lost indirectly in the Chilterns AONB due to HS2. This is surprising in the light of legislation and government policy.

233. Regarding potential job creation in the AONB due to HS2, the local jobs identified in the ES would only last during the construction period. Potential operational jobs identified in the ES would not be local.

234. Concerns have been raised that HS2 will have a deleterious economic impact on communities that support the Chilterns AONB including Great Missenden, Wendover , Amersham and Chesham. This is in addition to businesses that will be directly impacted by the HS2 route.

235. The ES has identified the significance of Wendover to local communities in its role as a centre for shopping and services. The ES fails however to portray Great Missenden village's similar role in the local area. In fact the number of retail businesses in Great Missenden and Wendover are similar (see Table below). The range of services/amenities the two centres provide are similar (primary and secondary schools, railway station, post office, library, public halls). A description of Chesham was not found in the ES.

236. The Green Book states that for costs and benefits for which there is no readily available market data, various techniques can be applied to elicit values. These may be subjective. Such subjectivity is important in assessing confidence in businesses. The guidance recognises that non-monetary methods of quantifying impacts may be used when impacts cannot be monetised.

237. The CCA survey was conducted to take note of The Green Book requirements. It was carried out with limited resources. If the results are not considered to be valid, then a survey of HS2's impact on communities that support the Chilterns AONB should have been conducted by Hs2 Ltd Without it the ES for CFA9 and that for adjoining areas is flawed.

11.0 Sound noise and vibration

A) Overview:

238. The sound of a high speed train travelling on the surface of the Chilterns AONB will be noticeable up to 2 to 3 km from the line depending on ground topography and the prevailing winds. Nearer to the proposed railway line the sound could cause annoyance and the HS2 contractors have tried to mitigate that disturbance through

the use of cuttings, green tunnels and noise barriers. However the train will still be heard and the best mitigation is to continue the bored tunnel as far as possible throughout the Chilterns AONB.

239. **B Baseline Measurements:** Volume 5 Technical Appendix CFA9| Central Chilterns Baseline (SV-0002-0009) Sound, Noise and Vibration

240. **B.1) Locations for existing baseline sound monitoring** *In some parts of this area, due to limited land access, baseline sound levels have been derived by means of extrapolation of noise levels measured in similar locations in the area*

241. For example: 3.1.8 In Hyde End, three long term measurements (unattended measurements of several days duration- typically 5 to 10 days) were undertaken around Chesham Road. These measurements were supplemented by two short-term measurements (attended measurements typically of 30 minutes duration) at two publicly accessible locations along Chesham Road.

242. One of these short-term measurement locations (CS2023) was recorded on the verge of a public road and not the recommended 3.5m from a reflecting surface (section 1.3.8 Annex B in Appendix SV-001-000). Its location does not represent a residential dwelling and the sound data collected would be distorted by the road traffic noise.

243. **Roadside locations**: Out of 43 Baseline measurement locations on maps SV-04-016 and SV-04-017 40% were roadside locations which should be reviewed and if required, repeated in a residential location using long-term unattended measurements.

244. **B.2) Validity of data:** Ambient sound measurements were carried out independently of Hs2 Ltd's contractors and although some of the data is still to be analysed, where long term locations were duplicated sound levels were within 3db of the HS2 published data.

245. **B.3) Assessments for ambient operational sound levels:** Out of the 90 sound assessments carried out in the Central Chilterns Area 76% were derived from data collected at long term unattended measurement locations. All the others were assessments i.e. baseline measurements which had corrections applied either for distance from the Proposed Scheme, or proposed screening.

246. The key to the data tables quoted in Volume 5 Technical Appendix CFA9 Central Chilterns Baseline (SV-0002-0009) Sound, Noise and Vibration states that "*Codes B, C & D were used where corrections were applied for screening, or for distance from the source or a minimum level cut-off applied.*" This accounted for 24% of the measurements which should be reviewed and repeated using long term unattended measurements as there is a degree of uncertainty in these results

247. The degree of uncertainty and qualitative assessment is further illustrated by the use of a competent qualified surveyor as stated: 1.5.49 (from Annex A SV-001-000)"*Based on the baseline data, the following is taken into account as additional evidence when assessing the significance of the effect caused by the introduction of the Proposed Scheme into an existing sound environment:*
The identification by a competent and qualified surveyor that based on their professional listening and completion of a survey record, the existing sound environment has a

'unique feature' (in terms of soundscape). The potential effect of sound from the Proposed Scheme on the unique feature is qualitatively assessed."

248. There is also a case for taking long-term sound assessments over a number of periods during the year as; for example, those taken in the spring can have the night measurements distorted by the dawn chorus.

249. **C) Methodology:** The methodology used to quantify sound emissions from the Proposed Scheme has been based on the method used for HS1 and incorporates modelling software to take into account effects of mitigation!

250. **C.1) Operational railway sound – implementation (Annex D2 SV-001-000)** 1.1.9 *In order to evaluate the potential direct impacts of sound emissions from railway rolling stock operating on the HS2 infrastructure proprietary environmental acoustic modelling software (NoiseMap) has been used. The software directly implements the HS1 method for prediction of airborne railway sound which forms the basis of the adopted prediction methodology (as detailed in the following section), and each of the source terms have been defined for the rolling stock anticipated to operate on the infrastructure of the Proposed Scheme.*

251. It continues: *A '3-dimensional model of the study area has been created, incorporating geo- referenced topographical features such as terrain contours, building outlines and other structures that might screen or reflect noise, ground cover types, source lines etc.'*

252. *'The route alignment, engineering earthworks, noise barriers and other features of the Proposed Scheme have been imported directly from models provided by the engineering design teams. The acoustic model has then been used to predict the resultant free-field sound level due to the Proposed Scheme at each of the identified assessment locations.'*

253. *'The results of the acoustic modelling have subsequently been exported to a Geographical Information System (GIS) to provide resultant free-field sound pressure levels for the Proposed Scheme at each of the identified assessment locations for each of the parameters considered within the assessment i.e. LpAeq,16hr, LpAeq,8hr and LpAFmax.'*

254. The HS1 method assumes all sound originates from 0.5m above the rail. This is incorrect. (1.1.25) and requires a further 'adjustment' to the method!

255. **Validation of HS1 method (Annex D2 SV-001-000) 1.3.1***'The HS1 airborne sound prediction method was originally validated against a large number high speed train noise measurements covering a broad range of scenarios, including propagation over flat ground up to distances of 800m from the railway, effects of screening (including reflective and absorptive barriers) and varying angles of view. The overall regression analyses gave a standard error, for the goodness of fit between predicated and measured levels of approximately 3dB (A) for SEL and LpAFmax. This means that the difference between predicted and measured sound levels is typically within ±3dB (A)."*

256. A possible error range of 6dB is high given the airborne sound impacts used in the methodology. There is little documentation in the public domain to substantiate this difference.

257. **C.2) Train Specification (Annex D2 SV-001-000) and (Appendix 6 Quantitative noise and vibration information from the ES)** 1.1.53 *'For the assessment*

*undertaken in support of the Environmental Statement, it has been assumed that HS2 trains will be specified to be **quieter** than the relevant current European Union requirements and this will include reduction of aerodynamic noise from the pantograph that would occur above 300kph (186mph) with current pantograph designs, drawing on proven technology in use in East Asia. Overall these measures would reduce noise emissions by approximately **3dB** at 360kph compared to a current European high speed train operating on **new track**. It is also assumed that the track will be specified to reduce noise, as will the maintenance regime.'*

258. It is an assumption that HS2 trains will be quieter than current EU requirements. A reduction of 3dB in maximum train pass-by sound levels arising from the design of the train is hypothetical and may not be practical and most likely unachievable.

259. In Japan the engineers working on the new Shinkansen trains are having great difficulty in attaining the revised pantograph noise targets.

260. The reference to new track is significant as '*wheel and rail roughness has contributed to European trains having a higher sound level than expected.'* It is assumed that HS2 wheel and rail roughness will be controlled by an '*appropriate maintenance regime and a low-noise track will be specified*" (section 1.1.35 Annex D2 SV-001-000).

261. Such rail milling operations will be carried out in situ at night; contributing to night-time operations and noise which have not been taken into account in the Environmental Statement.

D) Impacts of sound

D.1) General Impacts

262. *'A change of 3dB or greater has been identified as an impact however, the assessment methodology only defines an impact where the absolute sound level from the Proposed Scheme is greater or equal to 50 dB LpAeq, 23:00 – 07:00 during the daytime or 40 dB LpAeq, 07:00 – 23:00 at night.'*

263. These two tests are too restrictive i.e. 3dB and > than 50dB as 3dB at 45dB would be just as significant, if not more so.

D.2) Direct Impacts of operational noise in the Central Chilterns Area CFA09 SV-004-009

264. The operational airborne noise impacts are summarised in the following table.

Receptor	Number of impacts		
	Minor	Moder	Majo
Residential properties	0	24	3
Non-residential properties	0	0	0

265. Paragraph 4.4.2 The mitigation measures including noise insulation will reduce noise inside all dwellings, including Sheepcotts Cottage, such that it will not reach a level where it would significantly affect residents

266. Paragraph 4.4.7 states: *'The changes in noise levels are likely to affect the acoustic character of the area such that there is a perceived change in the quality of life and are*

considered to be significant when assessed on a community basis taking account of the local context as identified in Table 5.'

267. *Table 5: Direct adverse effects on residential communities and shared open areas that are considered significant on a community basis*

Significant effect number (see Map series SV-02, Table 1 and 3)	*Source of significant effect*	*Time of day*	*Location and details*
OSV09-C01	*Airborne noise increase from new train services*	*Daytime and night-time*	***Hyde End:** approximately five dwellings in the vicinity of Hyde Lane. Forecast increases in sound from the railway are likely to cause a **major adverse** effect on the acoustic character of the area around the closest properties. The effect on the acoustic character of residential areas that are located further from the railway **would be moderate.***
OSV09-C02	*Airborne noise increase from new train services*	*Daytime and night-time*	***South Heath:** approximately 10 dwellings in the vicinity of Potters Row. Forecast increases in sound from the railway are likely to cause a moderate adverse effect on the acoustic character of the area.*

D.3) Mitigation in the Central Chilterns Area CFA09

268. Noise Fence barriers – quoted in CFA09 report 2.2.10 and 2.2.14 *'Near the Chiltern tunnel north cutting at Hyde Lane, noise fence barriers approximately 3m above the top of the rail, (which is acoustically absorbent on the railway side, and which is located 5m to the side of the outer rail) and 350m long will be built at the base of the cutting and in the Potter Row area two barriers 3m high, one 180m long and the other 700m long.'*

269. Hs2 Ltd must consider the train noise to be 'major adverse' to justify such barriers. The barriers will need to be maintained as they have a design life of 40 years and whilst effective for wheel and possibly motor noise, their effectiveness is questionable to mitigate pantograph noise whose source is 4m above rail height.

E) Further noise issues.

270. **E.1) Tunnel Boom** ie the sound from pressure waves on entering and exiting a tunnel should have been taken into account both in the noise modeling exercise and on the sound contour maps SV-01-016 and SV-01-017.

271. E.2) Sleep disturbance is likely to be an issue (see below for a critique of Paragraph 11.4.13 and section on Health Impact Assessment) *see footnote below for 05.00 to 07.00 and 23.00 to 24.00* and which should be quantified further. Footnote: '*Passenger services on the Proposed Scheme would start at or after 05.00hrs and would start to run at the maximum hourly service pattern after 07.00 and up to 21.00. The number of services would then progressively decrease after 21.00 and the last service would arrive at terminal stations at 24.00.*' As a consequence there would be up to 36 passenger train movements each night (23.00 to 07.00) on the main sections of the route plus any over-night maintenance operations.

272. Operational noise mitigation Protocol: The World Health Organization (WHO) recently published the Night Noise Guidelines for Europe[4]. The new Guidelines present new evidence of the health damage of night time noise exposure and recommend threshold values that, if breached at night, would threaten health. An annual average night exposure not exceeding 40 decibel (dB) outdoor has been recommended in the Guidelines.

273. Sleepers that are exposed to night noise levels above 40dB on average throughout the year, corresponding to the sound in a quiet street, can suffer mild health effects like sleep disturbance and insomnia. Above 55dB long term average exposure, similar to the din of a normal conversation, noise can get to trigger elevated blood pressure and heart attacks.

274. The new WHO Guidelines provide evidence-based reference which can be easily adopted as limit values for the member states, allowing them to better target anti-noise measures. Hs2 Ltd. and the DfT will be in flagrant breach of their duty of care if they ignore these guidelines.

F) Construction Noise – airborne sound effects

275. **F.1) Trigger points are outlined in Vol 5 Draft Code of Construction practice section 13 page 56** 13.2.12 *'Notwithstanding the measures set out in this CoCP and any Section 61 consents, noise insulation or temporary re-housing will be offered to qualifying parties when: Noise levels are predicted or measured by the contractors to exceed the relevant trigger level defined in the draft CoCP (as between 08.00 and 18.00: 75dB for noise insulation and 85dB for temporary re-housing) at that property for at least ten days out of any period of fifteen consecutive days or alternatively 40 days in any six month period.'*

276. The noise trigger levels in the draft CoCP are too high and the duration of the qualifying time too long.

F.2) Impact of construction noise in the Central Chilterns Area CFA09 SV-003-009

277. Paragraph 4.3.12 Construction road traffic associated with the construction phases of the Proposed Scheme will generate airborne noise. The change in traffic noise level at a reference distance of 10m from the edge of the nearside carriageway resulting from the presence of construction traffic for a given road has been predicted, based

[4] Night noise guide lines for Europe. World Health Organisation (WHO), Copenhagen, Denmark, 2009. http://www.euro.who.int/__data/assets/pdf_fi le/0017/43316/E92845.pdf

upon traffic information for the Proposed Scheme. The results for the roads where potentially significant effects could arise are presented in Table 4

Table 4: Assessment of construction traffic noise levels

Road name	Link	Future baseline sound level • (dB) Daytime LpAeq,16hr 0700-23:00 free-field	Future baseline sound level + • construction Daytime LpAeq,16hr 0700-2300 free-field	Change (dB)	Significant effe
King's Lane (south of Frith Hill)	Sout	57.5	63.3	+5.8	CSV09 C02

278. Paragraph 4.4.6 states: *In this area, the direct construction noise effects on the acoustic character of the areas around the residential communities identified in Table 5 are considered to be significant*.

279. *Table 5: Likely direct significant construction noise and vibration effects on communities and associated facilities*

Significant effect	*Type of significant effect*	*Time of day*	*Location*	*Cause (construction activities)*	*Assumed duration of impact and details*
CSV09-C01	*Construction Noise*	*Daytime*	*Approximately*	*South Heath Green Tunnel Construction with typical and highest monthly noise levels of 59dB and 65 to 68dB*	*Eight months*

280. This increase in construction traffic noise is more than significant; is unacceptable and will need to be monitored.

281. Paragraph 11.2.1 / 7 set out the baseline sound as measured by HS2. This shows that the baseline is generally 45db to 50db during the day, with one relatively small area impacted by higher sound levels. It also states that a night-time the sound level will be at least 10db less. This assessment ignores the note in Volume 1 that there are

areas even greater tranquillity in the hidden valleys.

282. Paragraph 11.2.12 sounds reasonable as they are saying that they will assess against a background of 2012/13. However the real impact is the change in sound level that will take place, whether it is during construction, or with the introduction of trains.

283. Paragraph 11.2.9 states that it is likely that the majority of receptors along the proposed route are not currently subject to vibration. This is almost certainly the case.

284. Paragraph 11.3.3 states that some tunnelling support activities will take place during the evening and night-time. This will heavily impact people in Hyde Heath and Hyde End as well as the cottages along the A413 near Little Missenden. All the fine words in 11.3.6 about *Best Practicable Means* mean nothing if the working hours are not strictly controlled. 'Practicable' is defined in the dictionary as 'capable of being done,' control of working hours is certainly something that can de done. The Government needs to accept that working in an AONB means that it will take longer and cost more than working elsewhere.

285. Paragraph 11.3.22/24 assesses the impact of airborne and ground noise as not being significant except in a small part of South Heath. This assessment completely ignores the impact on properties in Hyde Lane and Hyde End from the construction traffic servicing the Chiltern Tunnel North portal, the working during the evening and at night time at the north portal, and the construction of the deep cutting from the north portal to South Heath. This represents a complete underassessment of the impact on a number of properties.

286. Paragraph 11.4.2 sets out the expected train schedule with up to 18 trains per hour each way between 07.00 and 22.00, effectively a train less than every 2 minutes. This will provide an almost constant elevated sound level. The bigger intervals before and after the peak hours will create a greater rise and fall in the noise level compared to the ambient noise, and at a time when people will be trying to sleep.

287. Paragraph 11.4.13 states that the Interim Target defined by the World Health Organisation Night Noise Guidelines for Europe is set at a lower level than those set out in the Noise Insulation (Railways and other Guided Transport Systems) Regulations 1996. However HS2 still seeks to use the levels set out in the Regulations. As the WHO target is an Interim Target, the noise levels used in assessing the impacts of HS2 need to set at a lower level than the Interim Target. e.g. 5db below. Realistically it should be set at the LNight Time Noise level set by the WHO of 40dB.

288. The European Commission has updated its advice about the health effects of noise on 24.1.14.1 Its recommendations to member states are clear and should supersede the outdated 1996 NIR guidelines in the HS2 CoCP and operational noise mitigation Protocol. See paragraphs 282-284 of this response.

289. Paragraph 11.4.14 states that ground borne vibration will be avoided or reduced through the design of the track or track bed. This needs to state <u>will be avoided</u>. The 'reduced' is another let out for the contractors and designers.

290. Paragraph 11.4.15 identifies Sheepcotts Cottage as being impacted by high noise

levels. There are other properties on Hyde Lane that are likely to be impacted.

291. Paragraph 11.4.20 Table 17 confirms the severe impact on properties in Hyde Lane.

12.0 Traffic and Transport

292. The main impact of HS2 on transport in CFA9 will be felt during the Civil Engineering phase (2018-21) followed by Rail fitout (2023-25). Due to the extended nature of the project, any resulting inconvenience cannot be dismissed as 'temporary'.

293. HS2Ltd. failed to place Traffic and Transport on the agenda for any meeting of CFA9, since the Transport Studies were incomplete. Like many other things, it was stated that the answers would be provided in ES. The documents which have been presented are unsatisfactory on several grounds.

Road Capacity.

294. Although the traffic projections for various roads have been published, these merely indicate that traffic will increase. The DfT have published a formula which relates the amount of traffic, the percentage of HGVs and the road width to road capacity – but these calculations have not been included in the ES. This may be because the projected flows exceed the calculated capacity in some cases.

295. The *"increase in traffic related severance for non-motorised users"* has been reported (Vol2 CFA9 12.4.15), but the impact on road users themselves has not. This is unacceptable.

Junction Capacity

296. Vol 5 part 6b contains junction capacity assessments for a small number of road junctions in CFAs 8,9 & 10. However, the results of the assessments for B485 and A4123 in CFA9 are ludicrously inaccurate, with predictions of queue length in 2021 far below what is observed on the average working day at present.

297. These deficiencies are analysed in detail in the submission of the Chesham Society to this consultation.

298. As a consequence, the Transport assessment in the ES is unreliable and incomplete – a fact which severely compromises the ES consultation as a whole. We take it to indicate that traffic congestion will increase considerably, but that Hs2 Ltd are unable or unwilling to provide any more specific information about the severity of the effect in different locations.

299. Paragraph 12.2.1 The assessment is inadequate. The rush hour is defined at 08.00 to 09.00 and 17.00 to 18.00 in CFA 9. As recognised in the Community analysis, many in CFA 9 commute to work. Many of the commuters use their cars either to get to a station or to drive to work. The A413 and A355 are very busy from 6.30 onwards to around 9.15. For Great Missenden the morning rush starts before 07.00 with trains running every 16min from around 6.30. These trains pick up a large number of passengers at Great Missenden. Commuters come from all around the area, north, south, east and west.

300. There is another commuter surge between 09.00 and 09.15 for the first train with reduced fares. The three schools in Gt Missenden, start receiving children from 08.15 until 9.00, with many of the children being brought by car. Because of school system in Buckinghamshire, children in CFA 9 attend secondary schools in Aylesbury, Chesham, Amersham and High Wycombe mainly by bus. Children from seven to eleven from the ridge villages attend Great Missenden Combined School.These buses are on the roads from before 08.00 and many of them are scheduled to make double journeys to and from the same location. It is essential that disruption to school transport is minimised. The construction period is not temporary for these children – it will last throughout their school life.

301. The afternoon rush hour commences around 15.00 with children being picked up from primary school. This continues through to 16.30. Commuters start to return around 17.00, arriving both by car and rail. The rush starts to decline around 19.00.

302. Paragraph 12.2.4 talks about the bus routes, but ignores the impact of school buses. Prestwood Lodge a school for children with emotional and behavioural issues draws pupils from across South Bucks arriving by bus and taxi. Paragraph 12.2.5 seeks to play down the impact, but as the baseline is so inadequate, the study certainly fails to estimate the impacts realistically.

303. Paragraph 12.3.3 talks about PRoW surveys to establish footpath use. These were carried out during a very short period. The assessment needs to be carried out over a much longer period to get a true assessment.

304. Paragraph 12.3.4 sets out the roads believed to be affected. This however fails to take account of the pressure on Gt Missenden caused by traffic issues especially on the A413.

305. Paragraph 12.4.1 sets out avoidance and mitigation methods. However many of these are not used in CFA 9. The haul route map TR-03-054 shows clearly that the haul routes will all be on local roads, with no haul roads along the line of the track although the text elsewhere contradicts this.

306. Paragraph 12.4.2 states that the draft CoCP includes measures which seek to reduce the impacts and effects of deliveries of construction materials and equipment. As the rush hour has been incorrectly defined, such measures are inappropriate and will be redundant.

307. Paragraph 12.4.3 states that a travel plan will be put in place. Again this is more of an aspiration and not a real solution. Due to the significant impact of construction traffic in CFA9 a fully developed travel plan should have been included in the ES.

308. Paragraph 12.4.9 Table 18 sets out the construction sites in CFA 9 and the traffic movements. This indicates that the B485 will have 310-400 car trips and 100-150 HGV daily morning and evening. These will all use the A413, which will also have 80-90 cars and 50-60 HGVs going to the Little Missenden vent shaft, as well as construction traffic accessing sites in CFA10.

309. Paragraph 12.4.13/15 set out the impacts on junctions. Again the assessments are optimistic because of failure to assess the rush hour properly. There is no assessment

of the need to strengthen, enhance or widen existing bridges.

310. Paragraph 12.4.20 claims there will be no impact on bus services. However as school buses were not identified and the rush hour definition is inadequate, this is a suspect conclusion. More work is needed over a longer period.

311. Paragraph 12.4.21 claims there will be no impact on access to stations resulting from the Proposed Scheme. However as the rush hour definition is inadequate, this is also a suspect conclusion. More work is needed over a longer period.

312. Paragraph 12.4.22 sets out the impact on footpaths. This fails to recognise the impact of the Proposed Scheme on visitors who come to the area to walk, cycle or horse ride.

313. Paragraph 12.4.25 on Cumulative Effects ignores the impact on A413 of construction traffic accessing sites in CFA 10 and consequent knock on effect to CFA8. The ES fails to consider likely outcomes of congested roads and subsequent dangers inherent in the development of 'rat-runs' as motorists seek alternative routes.

13.0 Water resources and flood risk

314. The river Misbourne is an important feature of CFA 9. Chalk streams are recognised as a unique global asset providing a pristine environment for wildlife with rich clean water and high quality habitat. Nationally there are 160 Chalk streams amounting to 85% of the world's chalk streams. Only a handful receives the high levels of protection that their conservation status requires. Those in the Chilterns are amongst the worst-affected by over-abstraction of groundwater.

315. Paragraph 13.1.2 describes the river Misbourne as having low flows. Currently this is due to over abstraction, as set out in Volume 5 WR-002-009 para 3.2.5. Currently the EA and Affinity are agreeing new targets to improve the flow.

316. Paragraph 13.1.3 claims to set out key environmental issues relating to water resources and flood risk. There is no evidence of any hydrology surveys being carried out. The risk of polluting the water supply through tunnelling is identified but mitigation not proposed. This effect will occur mainly in CFA8, but also carries across into CFA9. Table 5 in Volume 5 WR-002-009 fails to list the land through which the river Misbourne flows between the Link Road and Doctor's Meadow, a distance of approximately 1km, and includes Upper and Lower Pond and Missenden Abbey Park, which are all important habitats for local wildlife.

317. Table 6 in Volume 5 WR-002-009 lists two High Value receptors, the river Misbourne and all Water Bodies. In this table the report sets out the risk of pollution or high suspended solids entering the water table. There are also three ponds listed, which will be lost in construction. These are not mentioned in Volume 2 CFA9.

318. Table 7 Volume 5 WR-002-009 sets out seven impacts of construction on the principal aquifer, and seeks to assess them as insignificant. However together they represent a risk to the water quality in the aquifer. The table sets out five impacts which together potentially represent a significant risk to the Public Water Supply.

319. Paragraph 13.2.3 states that site visits were undertaken in the vicinity of the River

Misbourne in September 2013 and June 2013. Ideally these visits should have been in March or April when the river runs at its highest. The connectivity with ground water is very close in Doctors Meadow and through Little Missenden to Shardeloes Lake. Groundwater is often less than 1m down. The potential for significant impacts on the aquifer, River Misbourne and Shardeloes Lake are identified but there is no mention of options considered to avoid or mitigate these impacts.

320. Paragraph 13.4.18 states that specific monitoring to determine the potential impact to PWS (Affinity Water) and private abstractions will be undertaken. The monitoring schedule (to be agreed with the environment Agency and in consultation with Affinity Water) will include monitoring before, during and after construction until the groundwater quality has stabilised within acceptable limits. The monitoring data will be assessed and used to define appropriate mitigation, should it be required.

321. This basically says that if we find a problem we will try to mitigate it. The purpose of the ES is to assess likely impacts. It would appear from the wording and tone of this section that the impacts on the aquifer and water courses are, in reality, unknown. The best method of mitigation is avoidance.

322. Paragraph 13.4.20 states that pollutants like bentonite will be used but will be kept to the minimum. There is no control on who determines what 'minimum' means and hence this allows any level of pollution without redress.

323. Paragraph 13.4.30 talks about the impact of tunnelling etc. on groundwater. It states the impact is deemed to be insignificant. The key word here is deemed.

324. Paragraph 13.4.32 states that if fissures connected directly to the PWS, the source may need to be closed. The geology of the chalk is for the water to percolate through the aquifer in fissures. Not only is there this risk, but there is a risk of permanently diverting the flow away from the PWS.

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6.0 Health and Wellbeing

6.1 The Central Chilterns Community Forum members are very concerned that the Health Impact and Equality Impact Assessments (HIA and EIA) deposited with the HS2 Hybrid Bill are not included in the Environmental Statement (ES) documentation and therefore are not subject to public consultation.

6.2 For the majority of the HS2 Community Forum 'engagement' process, questions about how health and wellbeing would be addressed and what the scope and methodology employed would be remained unanswered. We were fobbed off with promises that it would all be dealt with - first of all in the draft ES and then in the ES. Only in June 2013 did we discover by accident that HIA and EIA documents were to be produced separately from the ES and that they would not be subject to public consultation. No satisfactory explanation has been given for this seemingly arbitrary decision.

6.3 The HIA is a flawed desk-top exercise. It is of particular concern to us, because it ignores the significant adverse effects on health and wellbeing that are already evident. It contains factual mistakes previously made in the Draft ES and already

corrected by CCCF members and it omits vital information, for example the danger to public health of potential contamination of the potable water supply. It minimises the national importance of the Chilterns AONB.

6.4 There has for some time been widespread and serious concern along the whole of the Phase One route about the noticeable deterioration in health and wellbeing among those most directly affected by the threat of HS2, whose lives, livelihoods and property values have already been blighted. The Proposed Scheme has already caused stress and anxiety.

6.5 A recent survey, conducted under the aegis of the Chilterns Conservation Board in the environs of South Heath, revealed that of 286 respondents, 87.8% reported adverse effects upon their health and wellbeing directly attributed to HS2 and 16.4% had sought medical help.

6.6 The very real pattern of anxiety, depression, insomnia, stress and despair identified affects both adults and children, with knock-on physical symptoms as well. No doubt these phenomena are also beginning to emerge along the Phase Two route.

6.7 The impact of HS2 on health and wellbeing is evidently of little concern to Hs2 Ltd No independent research has been commissioned to explore and expose the extent of adverse health effects. These should certainly have been highlighted in the ES. Instead, all we have is a complacent comment in Appendix 3 1.4.3 of the HIA, dismissing the legitimate concerns of respondents to the draft ES, which are not explored any further.

6.8 The HIA report also negates the national importance of the AONB by lumping it in with all the rural areas in the Country South Corridor; it gets a mention in its own right only once, in Appendix 3 1.2.14, which inadequately states that: the Chilterns Area of Outstanding Natural Beauty (AONB) faces considerable disruption and adverse change under HS2 proposals.

6.9 Section 5.14 onwards, in the main HIA report, details proposed mitigation for the loss of Public Open Space. Astoundingly, while the southern and northern segments of the route are covered, the anonymous authors omit the whole stretch from Camden to the West Midlands, which includes the AONB and its very positive contribution to health and wellbeing. The authors' conclusion that this stretch is completely unaffected and in no need of mitigation is either inept or mendacious.

6.10 The literature review is far from 'comprehensive', and flawed conclusions are reached, based on cherry picking of research to give the impression that the construction and operation of HS2 will produce no notable adverse effects upon health and wellbeing: e.g. at 5.5.8: it is considered that there will be no respiratory health effects arising from construction dust emissions.

6.11 This sweeping statement is based on the findings in section 4 of the ES volume 5 AQ-001-009 Appendix, which places touching faith in the mitigation measures outlined in the Draft Code of Construction Practice (CoCP) Volume 5 (CT-003-000) Section 7, which is notable for its liberal use of the phrase '*where reasonably practicable*' which inspires no such confidence in CFA9 residents.

6.12 This extensive cross-referencing is typical of both the HIA and the ES, and it is time-

consuming and frustrating to follow, particularly given the ludicrously short consultation period notwithstanding the extension to 27 Feb. 2014 and the restriction on the documents we are permitted to have (free of charge) as hard copies. In view of this ubiquitous cross-referencing, the omission of 877 pages from the memory stick and online versions of the ES has had a significant negative impact upon our ability to assess the adequacy and accuracy of the documentation.

6.13 Likewise, although 5.5.11-15 in the HIA identifies: moderate or substantial adverse temporary effects from construction traffic emissions, and Appendix 4 5.5-5.7 makes highly selective reference to research on the risks that they pose. Paragraph 5.5.16 concludes that: *The increased risk of health effects to any individual as a result of emissions associated with the Proposed Scheme will be extremely small*.

6.14 The Draft CoCP (Section 7 again) is primarily concerned with dust, and largely deals with vehicle emissions on-site. In Section 2 of the ES Volume 2 CFA9 report, reference is made to numerous local roads that will be used for access to the construction sites, but we are required to believe that only two routes qualified for assessment of likely pollution from construction traffic emissions.

6.15 The conclusions, in 4.4.8 &9 that: *The effect will not be significant* and: *There are no permanent effects anticipated to arise during the construction of the Proposed Scheme* are predictably anodyne, and not remotely credible.

6.16 These inadequately substantiated assertions typify the sloppy way in which research data are either ignored or manipulated to serve the purpose of the ES and the HIA - that is, to use smoke and mirrors to obscure the well-documented dangers to public health presented by such a project, in thinly disguised attempts to obscure the true extent of the risks posed by HS2.

6.17 The two documents also present conflicting information, indicating that the authors have either not read each other's work, or are deliberately misinterpreting or minimising the implications of statements, to do their job of justifying the project come what may.

6.18 For example, the ES Volume 2 CFA9 report states at 13.4.44&45 that: *If fissures connect the working area of the Proposed Scheme directly to the Affinity Water groundwater abstractions protected … the impact of low levels of turbidity will be major due to the high quality required to be met for potable use ,resulting in a large and significant effect…* and: *Until a management strategy is agreed with the Environment Agency in consultation with Affinity Water, a potentially significant temporary residual effect on the Affinity Water groundwater abstractions remains.*

6.19 The implication is that no-one has yet been able to resolve the problem, which has major implications for public health, yet the HIA report concludes at 1.3.9 that: *The risk to public health of groundwater contamination arising from the Proposed Scheme is considered to be negligible and therefore this determinant has been scoped out of the HIA.* The only conclusion is that Hs2 Ltd does not wish to address this potential problem preferring to ignore it.

6.20 The HIA makes confident pronouncements in relation to sleep disturbance that feed into the Vol.2 CFA reports and CoCP, for example: Elmenhorst et al [(2012), *Examining nocturnal railway noise and aircraft noise in the field: sleep, psychomotor*

performance and annoyance, Science of the total Environment, 424, pp 48-56.} This found that railway noise did not lead to prolonged sleep latencies or to impaired sleep efficiency compared to normal population values. Important reported modifying factors include the number and duration of train passbys; passby sound rise time (onset rate); distance to railway; and incidence of perceptible vibration. The results of the Elmenhorst study are considered to provide the best available objective evidence for the assessment of awakenings associated with night time train event noise.

6.21 Such assertions, however, fly in the face of more recent published research. The above deliberately ignores the conclusions of an extensively referenced paper, "Auditory and non-auditory effects of noise on human health", by Basner, Babisch, Davis, Brink, Clark, Janssen and Stansfeld, published in the Lancet online in October 2013[5], which the authors of the HIA most definitely must have been aware. Bernard Berry, who cited this review before its publication at the Institute of Acoustics meeting on 11.9.13[6], and Stephen Stansfield, one of its authors, were both independent consultants on the HS2 Ltd. Acoustic Review Panel:

6.22 'Sleep disturbance is thought to be the most deleterious non-auditory effect of environmental noise exposure because undisturbed sleep of a sufficient length is needed for daytime alertness and performance, quality of life, and health. Human beings perceive, evaluate, and react to environmental sounds, even while asleep. Maximum sound pressure levels as low as LAmax 33 dB can induce physiological reactions during sleep including autonomic, motor, and cortical arousals (eg, tachycardia, body movements, and awakenings). Whether noise will induce arousals depends not only on the number of noise events and their acoustical properties, but also on situational moderators (such as momentary sleep stage66) and individual noise susceptibility. Elderly people children, shift-workers, and people with a pre-existing sleep disorder are thought of as at-risk groups for noise induced sleep disturbance.

6.23 Repeated noise-induced arousals interfere with sleep quality through changes in sleep structure, which include delayed sleep onset and early awakenings, reduced deep (slow-wave) and rapid eye movement sleep, and an increase in time spent awake and in superficial sleep stages. However, these effects are not specific for noise, and generally less severe than those in clinical sleep disorders such as obstructive sleep apnoea. Short-term effects of noise-induced sleep disturbance include impaired mood, subjectively and objectively increased daytime sleepiness, and impaired cognitive performance.

6.24 Results of epidemiological studies indicate that nocturnal noise exposure might be more relevant for the creation of long-term health outcomes such as cardiovascular disease than is daytime noise exposure, probably because of repeated autonomic arousals that have been shown to habituate to a much lesser degree to noise than other, e.g., cortical-arousals.

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[5] 1. Basner, Mathias, Babisch Wolfgang, Davis, Adrian, Brink, Mark, Clark, Charlotte, Janssen, Sabine, Stansfeld,
Stephen, the Lancet. Published Online October 30, 2013http://dx.doi.org/10.1016/S0140-6736(13)61613-X

[6] 2. Berry, B., "Environmental noise and effects on health: history; recent developments; horizons" Institute of
Acoustics London: evening Meeting Wed. 11.9.13

6.25 The review concludes:

In 2009, WHO published the Night Noise Guidelines for Europe,[7] an expert consensus mapping four noise exposure groups to negative health outcomes ranging from no substantial biological effects to increased risk of cardiovascular disease (panel 2). WHO regards average nocturnal noise levels of less than LAeq, outside 55 dB to be an interim goal and 40 dB a long-term goal for the prevention of noise-induced health effects.

6.26 In this Review, we emphasise that non-auditory health effects of environmental noise are manifold, serious and, because of the widespread exposure, very prevalent.

6.27 *'These factors stress the need to regulate and reduce environmental noise exposure (ideally at the source) and to enforce exposure limits to mitigate negative health consequences of chronic exposure to environmental noise. Educational campaigns for children and adults can promote both noise-avoiding and noise-reducing behaviours, and thus, mitigate negative health consequences.'*

6.28 *'Efforts to reduce noise exposure will eventually be rewarded by lower amounts of annoyance, improved learning environments for children, improved sleep and lower prevalence of cardiovascular disease*. *'*

6.29 It would appear that Hs2 Ltd, the DfT and the authors of the HIA have selectively cherry-picked research in order to minimise the potential impact.

6.30 As already noted, The European Commission updated its advice about the health effects of noise on 24.1.14. Its recommendations to member states are clear and should supersede the outdated 1996 NIR guidelines in the HS2 CoCP. If Hs2 Ltd. ignores this advice it will place at serious risk the health and wellbeing of all along the route of HS2 exposed to noise levels above those identified as harmful by the WHO guidelines.

6.31 The approach to noise throughout the Hybrid Bill documentation reveals a cynical disregard for public health and an ill-concealed attempt to minimise the dangers and skew research findings to promote the project and save money on noise mitigation.

6.32 The Non-Technical Summary is typical in that it contains inconsistencies and statements that contradict each other. References to noise occur 313 times in its 174 pages, indicating that the effects of noise are a significant consideration, as does the statement at 7.11: *Operation of the railway has been assessed as likely to result in increases in external noise that are considered significant around a limited number of residential areas and non-residential buildings. These effects occur mainly within 300m of the route*.

Nevertheless

Taking account of modern high speed trains and resilient track designs, the project ***will not give rise to significant ground-borne noise or vibration effects on those living close to the railway***.

[7] 3. www.euro.who.int/__data/assets/pdf_file/0017/43316/E92845.pdf

6.33 In the Community section for Euston at 8.1 it states, conversely, that: *'Despite the provision of noise mitigation, the amenity of approximately 50 to 60 residential properties … will be affected permanently by … noise arising from the operation of the project.'*

6.34 Likewise, in the Sound noise and vibration section of 8.6 South Ruislip and Ickenham: '*Noise from construction is likely to result in significant adverse effects on residential areas closest to the construction works at….'*

6.35 In the Central Chilterns CFA9 section, at 8.9. Community, we are warned that: '*During operation, there will be residual permanent adverse effects on residential amenity for some properties in Hyde End from residential demolitions within the community and on Potter Row in South Heath due to noise from passing trains.'*

and under noise and vibration

*'Noise from construction is likely to result in **significant adverse effects** on residential areas closest to the construction works at South Heath along Sibleys Rise, Bayleys Hatch and Frith Hill.'*

6.36 This contradiction between the high level overall assessment and the detail of the impact continues throughout the document. It gives no detail about what the significant adverse effects may be – that is left to the equally self-contradictory Health Impact assessment – but offers only generalised references to mitigation measures, e.g. bunds and noise insulation, that do not inspire confidence.

6.37 The word 'noise' also occurs 550 times in the Health Impact Assessment's 199 pages. Paragraph 5.6.1 acknowledges the dangers to human health and wellbeing, stating that: *'Direct health effects from noise are well established in terms of sleep disturbance, annoyance, cardiovascular effects and cognitive impairment of children when at school. There is also an established link between vibration and annoyance.'*

6.38 Yet, while admitting in Appendix 4.5 Cardiovascular disease at paragraph 4.5.1, that: '*It has been shown that long term exposure to road traffic noise may increase the risk of Heart disease, which includes myocardial infarctions. Both road traffic noise and aircraft noise have also been shown to increase the risk of high blood pressure. It has been noted that there are few studies that exist regarding the cardiovascular effects of exposure to rail traffic noise'*

and at paragraph 4.5.3 that:

'There are no reported studies that specifically investigate possible associations between cardiovascular disease and noise from high speed rail'

It seeks in the same paragraph to deflect attention from the probability that HS noise will be found to be implicated:

'It should also be borne in mind that hypertension is one of many risk factors for cardiovascular disease, other risk factors include genetic predisposition, age, sex, socio-economic status, lifestyle and risk taking behaviour. Exposure to air pollutions may also be a relevant factor. Studies to date have not clarified whether noise exposure during the

day or night (or total noise dose) are contributing to this health outcome.'

i.e. 'It's not the high speed trains that caused his heart attack, Guv!' This tactic of acknowledging the potential problem, appearing to review the research, but doing so highly selectively, then finding excuses why HS2 won't be a problem, is typical of the approach throughout the whole document.

6.39 There is, however, extensive evidence of the deleterious effects of noise upon health and wellbeing: stress, hearing impairment, tinnitus, distraction, physiological effects on digestion, metabolism, the immune system, can be added to the HIA list above, which plays down the serious and possibly life-threatening effects upon the cardio-vascular system from hypertension and ischaemic heart disease leading to myocardial infarction.[8]

6.40 These effects need urgently to be assessed and quantified in relation to HS2. In places, to their credit, the authors do recommend further assessment, notwithstanding the fact that both the EA and the HIA seek to minimise the likelihood of these extremely worrying potential consequences of the project.

6.41 It is also a matter of concern that the authors of the reference given for the review of research on high-speed train noise in the HIA turn out to be Fenech, Cobbing, Greer and Marshall, in association with Arup, UK, ARM Acoustics, UK, and Hs2 Ltd., UK.

6.42 Their paper, "Health effects from high-speed railway noise – a literature review",[9] given at the Innsbruck Internoise conference in September 2013, is not accessible online without payment of a fee. Fenech, Cobbing, Greer and Marshall are all Hs2 Ltd overview consultants, working with the HS2 Acoustic Review group, but not named on the HS2 Ltd. website as members of that group. The only online reference that can be found to their paper is to their own footnote in the HIA, supporting the statement in Appendix 4 at 4.3.2 that:

'The research on noise annoyance from high speed trains is relatively recent and a review paper by Fenech et al. reports significant variability between studies. No evidence was found that the different spectral content of high speed train sound might affect annoyance. Studies report no difference in noise annoyance between traditional and high speed rail for the same timetable frequency.'

6.43 This statement is untrue. They do not refer to the comprehensively referenced work of Guoqing and Lingjiao in China: "Behavioural and plasma monoamine responses to high-speed railway noise stress in mice", in Noise Health 2013[10], which examines the effect of HS rail (HSR) noise in mice, published in June 2013, three months before the HS2 Ltd. employees' Insbruck paper.

6.44 **Guoqing and Lingjiao conclude that: the emission limit (Ldn)* for HSR noise should be stricter than that for conventional railway noise.** (15: 217-23)

6.45 The HIA states that:

[8] 4. "Burden of disease from environmental noise. Quantification of healthy life years lost in Europe" WHO, 2011

[9] Fenech, Benjamin, Cobbing, Colin, Greer, Richard, Marshall, Tom, Arup, UK, ARM Acoustics, UK, HS2 Ltd., UK, "Health effects from high-speed railway noise – a literature review", Internoise 201s

[10] 6. Guoqing, Di, Lingjiao, He, "Behavioral and plasma monoamine responses to high-speed railway noise stress in mice", Noise Health 2013; 15: 217-23

The on-going research into noise annoyance from high speed rail suggests a number of modifying factors may be influencing response. These factors include distance from railway, onset rate, combined effects of noise and vibration, and number of train passbys (especially for people living very close to the railway). For new railway schemes there is also evidence that uncertainty about the future may increase annoyance whilst subsequent habituation with the changed situation may reduce annoyance. In one study in France 75% of the sample living close to TGV-Atlantique became accustomed to the noise within one year. (quoting reference 30)

6.46 The quoted reference (30) turns out to be to Fenech et al's own Internoise conference paper7, and the final comment about the TGV deflects attention from important caveats that they do not quote. While passing reference is made in a footnote to a paper by Gidlöf-Gunnarsson, Ögren, Jerson and Öhrström[11], there is no exploration of the paper, and no allusion to their warning that:

> *'not just the noise level (is) of relevance for the perceived annoyance of railway noise. Both the number of trains per se and the presence of ground-borne vibrations induced by railway traffic … (need to be taken into account).'*

6.47 This is an obvious concern with regard to HS2, but one that is not addressed by the authors of the HIA. Nor do they make reference to the paper given at the same Internoise 2013 conference that is vitally important and highly relevant to the HIA's consideration of the effect of HS2 upon the Chilterns AONB. The abstract of that paper: "Identifying restorative environments and quantifying impacts" by Pheasant, Watts and Horoshenkov[12], states that:

> *The UK has recently recognized the importance of tranquil spaces in the National Planning Policy Framework … Specifically it states that planning policies and decisions should aim to "identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason". This is considered by some (e.g. National Park Authorities) to go beyond merely identifying quiet areas based on relatively low levels of mainly transportation noise as the concept of tranquillity implies additionally a consideration of visual intrusion of man-made structures and buildings into an otherwise perceived natural landscape.*

6.48 HS2 Ltd. and the authors of the HIA would also have done well to commission research similar to that reported in Internoise 2013 paper, "How to characterize environmental noise closer to people's expectations"[13] : This states that:

> *'The issue of resident's exposure to environmental noise is related to a minimum of two complementary approaches: acoustics, as regards of its physical characterization, and*

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[11] Gidlöf-Gunnarsson, A., Ögren, M., Jerson, T., Öhrström, E., "Railway noise annoyance and the importance of number of trains, ground vibration, and building situational factors" Noise Health 2012; 14: 1

10. Pheasant Robert, Watts Greg, Horoshenkov Kirill, Bradford Centre for Sustainable Environments University of Bradford, UK, "Identifying restorative environments and quantifying impacts", Internoise 201390-201

[12] Pheasant Robert, Watts Greg, Horoshenkov Kirill, Bradford Centre for Sustainable Environments University of Bradford, UK, "Identifying restorative environments and quantifying impacts", Internoise 201390-201

[13] Vincent, Bruno, Gissinger, Vincent, Vallet, Julie, Mietlicki, Fanny, Champelovier, Patricia, Carra, Sébastien, Acoucité, France, Grand Lyon, France, Bruitparif, France, Ifsttar-LTE, France, "How to characterize environmental noise closer to people's expectations", Internoise 2013

social sciences regarding exposure, perception and communication with the concerned public. Acoucité and Bruitparif … have worked since 2011 on a proposal for a new index closer to the feeling of the population … the data analysis of an extensive 800 person survey, complemented by 240 home interviews and 120 laboratory interviews with public, associations, politicians, technicians, and experts in acoustics, can suggest some paths to develop new indexes taking into account the continuous and eventful nature of noise while receiving a better understanding and acceptance of the general public.'

6.49 The HIA and EIA, by stark contrast, are self-confessed desk-top exercises that complacently take no account of the feeling of the population. Nor do they acknowledge the invaluable research done in Wendover by Brian Thompson[14], a Fellow of the Chartered Institute of Management Accountants, upon the damaging effect of noise upon health, and monetisation of negative effects not factored in to overall HS2 budget.

6.50 HS2 Ltd. was made aware of this research, but has not used it. Thompson's paper was attached to an email on 24.9.13 sent to Melanie Rhodes at Arup, asking for a response to this and other CCCF health and wellbeing concerns. The email was ignored, as was a further email to her on 28.10.13, stating that a complaint about the lack of response would be placed in the hands of our local MP, Cheryl Gillan. Mrs Gillan duly raised our concerns with Alison Munro at HS2 Ltd., who gave a typically unhelpful and obfuscatory reply.

6.51 Thompson's research is sobering, and feeds into the question of the monetisation of negative health effects, which like other non-market effects of the HS2 project, is absent from all the Hybrid Bill supporting documentation and from Hs2 Ltd budget calculations. Thompson's detailed study focuses on only 593 households in Wendover that will be significantly affected by the noise from HS2. Accepting Hs2 Ltd's own predictions of noise levels, with good mitigation, and using internationally accepted methodology[15] he calculates the cost resulting from Myocardial Infarction over a 60 year period to be £6m and other health effects, including hypertension, but excluding effects upon the health of children at Wendover School: £9.7m, a total of £15.7m. If the noise levels and the effects of mitigation turn out to be underestimated, he calculates that the overall cost could rise to as much as £28.9m.

6.52 This may seem to be a drop in the vast ocean of the overall budget for HS2, but it should be noted that it is based on only 593 households in Wendover. Andrew Gilligan, writing in The Telegraph13 in Dec. 2010 estimated that 50,000 people between London and Birmingham would be affected by noticeable noise increase.

6.53 The figure may have been reduced somewhat by subsequent mitigation measures, but it deals only with phase one of the project. Accurate calculations need to be done on the total number of households that will be affected by noise along the whole route, and the costs then added in to the overall HS2 budget, and included in the figures for the Benefit/Cost Ratio (BCR). **It should be emphasised that it is life-threatening conditions that are the focus of Thompson's study, so HS2 Ltd. should have acknowledged his work and urgently followed up by**

[14] Baxter, Alasdair, Wendover Ambient Noise Survey W11325/VAA/R01 (Wakefield: Pell Frischmann, 2012) Thompson, Brian, Health impacts on Wendover of the proposed route of HS2 (after extension of the green tunnel) (publication pending, 2012)

[15] 12. "Noise and Health – Valuing the Human Health Impacts of Environmental Noise Exposure" (defra: IGCB(N) 2010)

commissioning further independent research.

6.54 In addition, this is a fast-moving area of research. A paper by Basner, Babisch et al[16] (internationally renowned acoustics experts) published in online in The Lancet in Oct. 2013 (but quoted by Bernard Berry, who had prior access to it, in his lecture at the Institute of Acoustics [IoA] on 11.9.13[17]), indicates that the dB level at which heath becomes affected has been set too high, and that damage to health and wellbeing occurs at lower dB levels than previously accepted. Taking into account newer studies, they indicate a doubling of risk overall if effects below 60dB are included.

6.55 This has major implications for the population exposed to noise from HS2, and in the 24.9.13 email to Melanie Rhodes at Arup the CCCF asked for assurances that it would be emphasised in the HIA. This request has been ignored, the authors preferring to rely on the outdated 1996 NIR guidelines in the HS2 CoCP and operational noise mitigation Protocol, despite the fact that Berry was a member of the HS2 Ltd. Acoustic Review group from March 2013.

6.56 Also, in his 11.9.13 IoA lecture, Berry pointed out that the cardiovascular health risks are increased by length of exposure, something which is not factored in to Thompson's Wendover calculations, or acknowledged in the HIA, but which is of vital importance to the evaluation of the long-term health effects and costs of the HS2 project.

6.57 The caveat that there is very little research on the effects of HS noise in humans also has to be applied to Thompson's calculations; the foregoing conclusions are based on research on aircraft and road noise. Guoqing and Lingjiao's[18] recommendation that stricter noise emission limits should apply to HSR noise that to conventional railway noise, and the Gidlöf-Gunnarsson et al[19] observations about the combined effect of noise level, train pass-by numbers and ground-borne vibrations have not been factored into Thompson's work in Wendover Had they been included in the calculations, the cost would no doubt have been increased.

6.58 It is clear that urgent account should have been taken in the ES and HIA of all these variables and an accurate methodology for recording and monetising them developed. This has not been done.

6.59 It is clear also, from the limited Chilterns Conservation Board pilot study in South Heath outlined above, that a methodology for monetising other adverse health effects, in addition to noise, needs to be developed and the long-term costs factored in to the HS2 budget and the BCR.

6.60 There will be no report to Parliament of the electorate's responses to the HIA and EIA before the second reading of the Hybrid Bill, because we have not been invited to respond.

6.61 ***A detailed and independent critique of both documents is therefore urgently***

[16] Basner, M., et al (2013) op. cit.
[17] . Berry, B., op cit"Environmental noise and effects on health: history; recent developments; horizons" Institute of Acoustics London: evening Meeting Wed. 11.9.13
[18] . Guoqing Di, Lingjiao, He (2013) op. cit.
[19] Gidlöf-Gunnarsson, A., et al, (2012) op. cit.

***needed, to expose the spin and distortion employed by the* authors in their transparent attempts to justify proceeding with the construction of HS2.**

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7.0 Volume 5 Draft Code of Construction Practice.

Please let us know your comments on Volume 5: Code of Construction Practice and other documents

Our comments are:

7.1 Standing Orders relating to private bills require that an Environmental Statement (ES) has to be deposited. Paragraph 3.6.1 of the environmental statement states: It is the intention of the Secretary of State to carry out the Proposed Scheme so that its environmental effects are no greater than as assessed in the HS2 Phase One Environmental Statement.

7.2 The CoCP is part of a suite of documents which support the EMR (environmental minimum requirements) – others include environment, planning and heritage memoranda. The EMRs are based on the ES but will evolve during the parliamentary process. Important documents but, it would seem, not open to public scrutiny.

7.3 The draft CoCP has been produced in conjunction with the ES documentation with: *the aim of ensuring that likely significant construction effects that are reported in the ES will either be avoided or mitigated.* Site specific controls, which will be included within the LEMPs, (local environmental management plans) will be developed during the Parliamentary process and detailed design stage. The CoCP covers the nominated undertaker's 'responsible approach to environmental protection and limiting disturbance from construction.'

7.4 Paragraph 1.1.4 states: *The CoCP will evolve and is subject to refinement, amendment and expansion as necessary as the project design, assessment and Parliamentary processes develop. Engagement with stakeholders especially through the planning forums, the national environment forum and the community forums will inform its future development.*

7.5 The aims of the draft environment memorandum state:

- *to design and construct Phase One of HS2 such that significant environmental effects are eliminated, controlled or reduced where reasonably practicable;*
- *to prevent environmental risks and avoid or control the extent of environmental damage by developing mitigation measures to an appropriate standard and monitoring and enforcing them effectively; and*
- *to address sustainability principles in on-going design development, taking opportunities for environmental enhancement and compensation where practicable and reasonable;*
- *and in doing so, recognise that the nominated undertaker will take a responsible approach to balancing the achievement of environmental principles set out in Section 4 with the overall objectives of Phase One of HS2.*

7.6 The memorandum details how a national environmental forum (EA, English Heritage etc.) will continue meet and act as arbiters and moderators of the scheme, providing

strategic advice on avoidance of impact, mitigation and monitoring.

7.7 The undertaker is appointed by the Secretary of State, who acts (presumably through the DfT) as undertaker until appointment). Whether the undertaker will be an authority such as the Olympic Delivery Authority (ODA) or a major contractor is not clarified. There is a requirement for lead contractors to draw up local environmental management plans in association with local planning authorities, communities and stakeholders.

7.8 The environmental memorandum states that all work shall be carried out in accordance with the Hs2 Ltd's Sustainability Policy, its associated plan, goals and targets. Design of depots, railway buildings and stations will be carried out to meet BREEAM New Construction Excellent rating, and track and associated infrastructure (tunnels, viaducts etc.) will be designed to meet BREEAM for Infrastructure.

7.9 The expressed aims might be considered laudable rather than vapid if this were the start of the project. This is, however, not the case. The design has reached the Parliamentary Design Stage. Key decisions have been made. **The Route selection and proposed mitigation are the primary causes locally of the environmental damage to the AONB.** In the light of the decisions that have already been made the sustainability policy lacks credibility. In the draft ES CoCP, Hs2 Ltd identified the development and implementation of a Sustainability Policy, Annex 3. The policy is dated April 2013, far too late in the scheme's development to have any meaningful influence. Indeed it only reinforces the view that this design is dominated by engineering requirements and that the ES is an engineering statement.

7.10 In addition, Hs2 Ltd has become the government's agent in promoting the scheme. The government is driving the scheme forward; it is in their best interests that potential benefits are extolled and environmental impact minimised. As a result, Hs2 Ltd has squandered environmental credibility.

Code of Construction Practice

7.11 The Hybrid bill confers very significant powers to the undertaker. Although there is an occasional reporting line to the national environmental forum, the undertaker's ongoing accountability to Parliament is unspecified. If Parliament gives consent, then Parliament, not the undertaker, must remain ultimately accountable for the project. Hs2 Ltd's role with regard to the undertaker is not clear.

7.12 The lead contractors and their contractors will be required to comply with the terms of the CoCP by the nominated undertaker and *appropriate action will be taken by the nominated undertaker as required to ensure compliance*. The CoCP does not however identify what form redress and appropriate action might take. Monitoring should also involve local authorities and other independent expertise.

7.13 The concept of 'reasonableness' still underpins the CoCP and the aims of the draft environment memorandum document. The undertaker has to use *reasonable endeavours* to adopt measures to reduce adverse environmental effects reported in the ES. The phrase *reasonably practicable* occurs regularly throughout the document and gives it an unwelcome wooliness. The term 'best practicable means', implying high standards, is not used.

7.14 Further, all decisions about what constitutes 'reasonable' lie with the contractor and undertaker. It is not clear how 'unreasonable means' can be challenged by, for example, the Local Authority, LPAs, or the community. This is even more important because '*reasonable endeavours*' are attached to the proviso *that this does not add unreasonable cost or delay to the construction and operation of the proposed scheme.* Thus, not only does the principal undertaker define reasonable but also what constitutes *unreasonable*. This neatly protects the undertaker from any possible challenge.

7.15 The CoCP will be drawn up by the principal undertaker, presumably along with contractors. It has no legal status. The CoCP must be a legally binding document which holds Hs2 Ltd accountable and responsible. It must provide the legal mechanisms for ensuring that the impacts of construction and subsequent remediation are avoided or mitigated. Far greater weight should be given to the role of local authorities which extends beyond 'consultation' and 'being informed'.

7.16 In our submission to the draft ES we submitted that the principle undertaker should pay local authorities to engage, or retain the services of, well-qualified and experienced, independently financed, specialist field officers including archaeologists, will monitor the construction works on a regular and frequent basis to ensure that the CoCP is adhered to. We resubmit this proposal. The Code must include provision for and give greater weight to independent monitoring (and the public availability of compliance data) sufficient to evidence that the Code is being complied with.

7.17 The phrase 'as appropriate' occurs 54 times within the document. This caveat gives the opportunity for contractors **not** to do something on too many occasions. If something is required it should be explicitly referred to.

7.18 A number of key documents are to be prepared very late in the design process and apparently without any input through public consultation. Of particular concern are the production of the Principal Contractor's Environmental Management System and the Contractors' Method Statements at the start of the construction period.

7.19 Although the CoCP is primarily concerned with future activities, it plays a very significant role in the ES, being presented as mitigation. In addition, assessments are made on the assumption that the CoCP and the strategies used within it will be fully effective. Thus, for example, land assessments are made on the assumption that land will be fully restored to its original condition. Again, given the likely reality, this minimises the impact.

7.20 The reference to communication with schools regarding dangers during construction period is welcome. However, it should be a standing item in all LEMPs, be extended to include road safety implications and delivered by professional school liaison officers who are part of the LA but funded through the principal undertaker.

7.21 The main community concerns relate to: **working Hours; noise; dust and traffic.** The ES seriously underplays the impact of the above on communities.

Working Hours

7.22 Core working hours are defined in paragraph 5.2.2 as being between 08.00-18.00.

Subsequent paragraphs detail exceptions. In effect, contractors' wriggle-room is such that work is likely to go on for 24/7 for most weeks of the year.

Noise

7.23 BPM includes measures that are 'reasonably practicable'. Such measures should be agreed at a local level (CF and Local Authority), be subject to independent assessment, challengeable and verifiable. Noise assessments should also be subject to the agreement of the local authorities and this should be expressed in the text. It is insufficient to say that they will be discussed with local authorities.

7.24 The trigger levels for noise mitigation are set too high (ten days out of 15). The Nominated Undertaker should not be the sole arbiter of applications for noise insulation or temporary re-housing. This decision should be taken with the full input of independent experts.

Traffic

7.25 Although routes for construction traffic may be subject to approval of the relevant planning authority, the text does not deal with volumes and type of traffic and the likely implications. Traffic management plans should also be subject to highway authority agreement. Diverting traffic onto narrow roads with poor sightlines such as Chalk Lane and Hyde Heath Road would be dangerous.

Dust

7.26 Although it is downplayed in the ES, dust is an inevitable consequence of large scale earth works and the extent of emissions may be reduced by watering but never eliminated.

- Erection of hoardings or other barriers along the site boundary' will not mitigate to any significant degree, dust arising from earthworks and transportation of spoil
- Dump trucks operating within the site boundary will not be sheeted
- Stockpiles are located near the site boundary in the Environmental Statement
- Spoil material stockpiles are too large to be adequately watered or sheeted
- Haul roads, even surfaced with granular material, will generate dust under heavy trafficking
- Excavation and depositing of spoil in live working areas will not be on hard standing.

7.27 In conclusion. The code makes no distinction for the AONB. The Chiltern Conservation Board made this point in their submission to the draft ES, calling for a supplementary code for the AONB. We support that submission. The landscape and biodiversity of the Chilterns AONB are sufficiently different from the rest of the route as to require a Supplementary Code which is designed to address the specific requirements of the AONB.

7.28 The Chilterns Area of Outstanding Natural Beauty (AONB) is a national, not a local, resource. It is an area deemed to be of such outstanding natural beauty that it has a

statutory designation for the purpose of conserving and enhancing the natural beauty of the area. The Supplementary Code must ensure that the greatest possible weight is given to minimising damage to the Chilterns AONB's land forms, ecosystems, biodiversity and natural beauty during construction and subsequently during remediation.