



Comments on

Draft

**EIA Scope and Methodology Report for
High Speed 2 (London to West Midlands)**

29th May 2012

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Comments on HS2 London to West Midlands draft EIA Scope and Methodology Report

Summary

1. The Chilterns Conservation Board was established by Parliament in 2004 to promote the conservation and enhancement of the Chilterns Area of Outstanding Natural Beauty (AONB). The Board also has a statutory purpose to promote understanding and enjoyment of the area's special qualities; and a duty to foster the social and economic well-being of local communities.
2. The proposal for a high speed railway includes a long section through the AONB, partly in tunnel, partly on the surface and partly on viaducts and embankments. It will have significant and largely negative impacts on the natural beauty of the Chilterns and its enjoyment. It is also highly likely to have significant and damaging impacts on the communities and economy of the area.
3. The Board strongly opposes the scheme on the grounds that it is not convinced of the arguments for the claimed national benefits and because of the significant adverse environmental impacts. Those impacts have not been adequately incorporated in the business plan or design.
4. The Board has provided lengthy and comprehensive comments on the draft scoping report for the Environmental Impact Assessment. In summary the Board believes that the EIA will not be sufficiently broad ranging or rigorous for a scheme of this scale and potential impact. Insufficient information has been presented at this stage, no project description has been provided, the measures of impact lack clarity and the proposed methodologies are insufficiently well described.
5. The Board is particularly concerned that insufficient time has been made available and it is not conceivable that the EIA and subsequent Environmental Statement can be prepared to the necessary standard in the time provided. This is not just a question of resources. For example, the gathering of field data on wildlife will entail more than one season's surveying. It will further undermine public confidence in the scheme itself and the manner in which it is being developed. In line

with the Government's stated intention for this to be a world leading railway it needs to ensure it is based on the highest possible standards. The extent of the shortcomings of the draft scoping report suggest the Environmental Statement itself will be inadequate.

6. Based on the information provided it is not possible for the public and the many stakeholder organisations to assess adequately what the likely significant environmental impacts will be.

General comments

7. The Chilterns Conservation Board believes that the proposal for HS2 should be subject to a full Strategic Environmental Assessment. The Board does not believe that an EIA based on a single route is sufficient to ensure the environment is protected fully from damaging impacts, as alternatives which may provide higher levels of environmental protection are not considered fully or given sufficient scrutiny or weight.
8. The Board also advises that the draft Scoping Report is inadequate for the task of ensuring that the largest construction project to be undertaken in the UK for many years, is subject to sufficient scrutiny or that the outcomes will be sufficiently robust to ensure damage is avoided or mitigated adequately.
9. Of particular concern is the reliance on the Appraisal of Sustainability undertaken for the route consulted upon as a baseline. According to the Department for Transport this was a very high level document. It was subject to considerable criticisms amongst others by the Chilterns Conservation Board. It lacked detail and in many respects failed to identify potentially significant impacts or arrived at conclusions not widely supported. Its value as a baseline has been further eroded as it was prepared for a route which has now been changed. In the Government's own words the changes have been significant, thus undermining the value of that AoS as a baseline for the EIA on the revised route.
10. The AoS for the route consulted on (Feb-July 2011) demonstrated that impacts of HS2 on the vast majority of characteristics were assessed as adversely or significantly adversely affected. This suggests that there should be a high level of correlation with "likely significant impacts" to be covered by the EIA. However, there is often no such direct relationship. It is noted that the review of the AoS was not

undertaken independently and that HS2 Ltd awarded itself a clean bill of health.

11. There are significant shortcomings and omissions in this draft report, which could be described as a scoping report for the full Scoping Report, as it is vague, lacking in detail and the required information. Too often it is ambiguous when clarity is essential.
12. It is vital the public has confidence in the process and outcomes of the Environmental Impact Assessment. To date there has been a notable lack of confidence in the public consultation process most recently exemplified by the justification for taking the project to the next stage which was contrary to the significant majority of views expressed by the general public. It suggests that the Government intends to proceed as it wishes and will only use the results of the analysis to confirm its preferred way of proceeding.
13. This scoping report for this EIA should include straight forward statements of fact and explanation with little, preferably no, commentary. And yet it is laced with examples, arguably pre-judging some outcomes and seeking to provide an early justification for several potentially, controversial outcomes. An example is the reference to the use of spoil for landscaping of shallow cuttings in the Chilterns AONB (12.4.2 page 99). A reasonable outcome of the EIA could be deeper cuttings, even tunnelling.
14. The Conservation Board has significant concerns about the timing of the EIA and the inadequate time allowed in total. In view of the scale and complexity of HS2 it is inconceivable that it can be completed satisfactorily in the time allowed. This is a massive and controversial project with potentially huge and damaging impacts on the environment. It is only reasonable that the Government shows a duty of care and allows adequate time for all the necessary information to be gathered and analysed, followed by a meaningful period of public consultation on the need for alterations to the proposals. Only then can a design be prepared in a form suitable for incorporation in a Hybrid Bill and subsequent scrutiny by Parliament.
15. Throughout, the EIA must use clear and agreed terms and measures beginning with a baseline against which changes and impacts can be measured. An associated expectation is that the Government will adopt the best practice possible. Too often the EIA Scoping Report suggests that a current legal standard will be used. These are regarded as minimum standards often based on past experience and standards

which have already fallen below what is expected. This project must be future proofed based on the best and highest standards available now adapted and evolved to reflect what will be considered best practice long into the future. This project is simply too big, expensive and controversial for the Government to apply anything less than the best possible practice applied to provide the best protection for the environment, economy and society as a whole. As written, this scoping report does not provide that level of confidence.

16. An EIA should be based on a clear and detailed description of a project. It must be accompanied by sufficient information to demonstrate what is identified as a likely significant impact. Where this is a marginal decision it should also show why other impacts are not thought likely to be significant. This must be complemented by clear definitions of how the impacts will be measured and the methodologies to be used. In this case there is considerable inconsistency between chapters with a variety of proposed descriptions of impact significance. Only when this has been provided can the consultee understand what is being proposed and the likely level of impact.
17. The scoping report does not include any project description and instead it assumes that readers have a full knowledge of previously published documents. This is not acceptable. This flawed assumption is compounded by including wholly inadequate large scale maps. For this exercise detailed descriptions and maps are required including, for example, the location of work camps and associated infrastructure, design details of bridges and viaducts and even basic information such as the area of land take and storage areas.
18. The Board is concerned at the level of dependency upon professional judgement. This is an area where there is likely to be considerable confusion and, potentially, disagreement if it is not clearly explained how this will be applied. For example, there has to be full objectivity and multiple assessors.
19. For all attributes the criteria for defining significance must be clear and agreed. Many sections lack this basic requirement.
20. The geographical and temporal scope is often too tight. Any effect which lasts for more than a few months must be treated as though its impact is more or less permanent. Experience of HS1 suggests that many temporary impacts were not reversed fully and restoration fell short of reinstating what was there previously.

21. It is also important that any assessment of impacts assumes changes are not just compared to the state of the environment as currently experienced but what it would have become without HS2. In line with Government policy and aspiration it has to be assumed by HS2 Ltd that all attributes will show higher condition status in future.
22. A complex project will inevitably have many complex impacts, many of which arise due to interrelationships between processes and others by virtue of cumulative effects. This draft scoping report under-estimates those probabilities and needs to give greater clarity as to where this can be anticipated and also provide some flexibility to incorporate impacts which subsequently come to light as a result of a rigorous approach to conducting the EIA.

Comments are provided on a chapter by chapter basis.

Please note that the following comments are based on the information contained in the EIA Scoping and Methodology Report. Though every attempt has been made we cannot guarantee that all issues have been addressed. The Board expects there to be ongoing consultation and negotiation between itself and HS2 Ltd which may help to resolve any omissions from this response.

Chapter 1 Introduction

1.3 Introduction to HS2

1. Given that High Speed 2 trains will make extensive use of the classic rail network the EIA needs to cover that network, if only to prove there will be no significant environmental impact from doing so. At this stage HS2 Ltd has not clarified whether use of the classic network will require any work to it, for example enhancing the electricity supply or re-building bridges.
2. It is stated that it is not envisaged that there will be any significant impacts arising from use of HS1 or high speed lines on the continent. Insufficient explanation or justification is given for this. If there is to be little environmental impact of any kind additional information must be provided to support this view.
3. Section 1.3.4, states that HS2 trains would use some of the classic network at “conventional” speeds. This should be defined to provide public confidence that this will always be the case - in other words the Government has no plans to ever operate HS2 services at more than what it currently refers to as conventional speeds. Plainly if services are to exceed these speeds with potential consequential environmental impacts they need to be identified at this formative stage.

1.4 Purpose of the Report

4. Section 1.4.3 states, “The scoping report allows for early presentation of the intended approach to undertaking an EIA so that it can be discussed with and informed by consultees”. This is an unfortunate statement insofar as this is a late notification especially in view of the planned and rushed timetable. It has also been noted that, at HS2 Ltd’s insistence, it held a number of initial meetings of the Community Forums in March. Despite questioning, HS2 officials failed (despite the launch being only days away) to provide clear statements on the timetable for the publication of the EIA Scoping Report and, as a result, those forums will not meet until after the deadline for comments, in effect ensuring they have no collective input to the consultation. Such poor timing undermines confidence in the process.

5. It is vital that HS2 gives full weight to public opinion on what it considers to be “likely significant effects”. To date there has been a widely held view that HS2 Ltd and the Department for Transport have under-played significant effects such as noise and impacts on the landscape and wildlife.
6. For information the Conservation Board is a statutory consultee and recognised as such by Infrastructure Planning (National Policy Statement Consultation) Regulations (2009), the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations (2009) and the Infrastructure Planning (Interested Parties) Regulations (2010), and yet HS2 Ltd failed to list the Board as a formal consultee. The term “key” consultee (1.4.4) is ambiguous and suggests that individuals and local organisations will not be listened to.

1.5 Phase 1 Route Description

7. Section 1.5.3 introduces the possibility of disruption to The Chiltern line, but it is not made clear if such impacts will be identified and the knock on consequences explained. The large numbers of passengers who use these lines have a direct interest in whether services will be disrupted and in what way. For example reduced services may mean a significant number of additional car journeys will be made or property prices affected if prospective buyers believe it will be more difficult to commute London. This is an example of the many direct impacts which need to be factored in. The report suggests they will only be considered as indirect and, thus, less important.
8. Section 1.6.1 refers to the previous Appraisal of Sustainability. It was widely considered to be deficient in many respects and it was unfortunate that the assessment of the AoS was undertaken in-house, when an independent assessment would have had more credibility.
9. Section 85 of the Countryside and Rights of Way Act 2000 placed a duty on HS2 and DfT to give regard to the impact of its plans on the AONB. A major shortcoming was that it failed to specifically assess the impact on the nationally protected Chilterns Area of Outstanding Natural Beauty. Instead the Chilterns was only included in a longer section including, the very different, Colne Valley and Vale of Aylesbury.
10. The large number of significant negative impacts identified by the AoS would normally suggest that the proposals were unacceptable and major changes should be made to the project. In the event relatively minor changes were made and the scale of negative impacts remained much as before.
11. Section 1.6.3 states “The AoS considered and compared various route options for Phase 1 of HS2 ...”. The Conservation Board can find no evidence that this exercise was undertaken; it was neither published

nor subject to public scrutiny or consultation. The AoS that was published was specifically about the single chosen route only.

1.6 Previous environmental assessment work on this project

12. Section 1.6.4 makes no reference to the scale and number of criticisms of the AoS once again undermining confidence in the analysis undertaken by DfT/HS2 Ltd and the related failure to acknowledge the scale of public opposition to this scheme. In practice the subsequent changes to the design and alignment were limited and, contrary to Government claims, the changes in the Chilterns were no better than neutral, with any improvements from longer tunnels offset by more visible sections. The net effect of saving up to £300m suggests changes were driven more by financial than environmental considerations.

1.7 Consultation on the Environmental Impact Assessment

Please note the general observations on the shortcomings of the consultation process.

13. It is deeply regrettable that the membership of the Environmental Forum is so narrow, in effect dominated by Government Departments and Agencies. This compounds the lack of confidence in the process. This forum and its credibility would be much strengthened by the inclusion of other statutory environmental bodies and national environmental groups such as The National Trust and Wildlife Trusts, together with eminent independent figures.
14. The decision on who should represent the local authorities on the planning forums should rest with the local authorities. It is extraordinary that HS2 Ltd should specify that only officials can participate to the exclusion of elected councillors. It is notable that, to date, HS2 Ltd has not convened a meeting or even sought to identify a suitable date, suggesting little alacrity for this element of consultation.
15. The Community Forums have met but, thus far, have not begun well. Major sources of difficulty have been; the unclear terms of reference; inexperience of managing of public meetings; and a general unwillingness to talk about those issues of most concern to the public. It is important that the Challenge Group set up by HS2 Ltd to monitor the effectiveness of community engagement meets regularly and is allowed to do its job properly. It is noted that it has only met three times in total and only once in the past 16 months.
16. It is essential that consultation on the full draft Environmental Statement is meaningful and the results of public feedback are reflected in the plans.

1.8 Monitoring of performance against sustainability and environmental goals

17. The AoS reported that the scheme would have significant adverse impacts on the majority of features and characteristics included. Simply monitoring impacts on those is insufficient and it should be a stated aim that the scheme design will reduce significantly the number and scale of adverse impacts.
18. Section 1.8.1 refers to the production of Environmental Design Aims, this is supported in principle, but fails to provide any clarity over what they are, their content, how they are prepared and by whom. To what extent will they be agreed with consultees or the general public? The Conservation Board expects that this will include specific references to the Chilterns AONB, as a means of fulfilling its duty under Section 85 of the Countryside and Rights of Way Act 2000. Such aims must apply both to the whole line and, where appropriate, be specific to each section and reflect the character and nature of the environment through which the line will pass.
19. The statement that “practicable measures will be considered” is too vague and requires definition. Experience to date suggests that practicable measures have been ruled out simply because they are inconvenient or might affect the timetable or business plan. These are, for example, insufficient grounds to be deemed impracticable.
20. The Conservation Board expects to be consulted directly over the design aims which will apply to the Chilterns AONB.
21. Section 1.8.2 refers to Environmental Plans with virtually no detail as to what they are and how they will be prepared and implemented. Will stakeholders and local communities be invited to contribute to them?
22. Section 1.8.3 refers to post construction monitoring and remedial plans. Anecdotal experience from HS1 suggests this is a contentious area as many were left disappointed by the “finished scheme” and the many unpleasant surprises not originally planned or explained at the formative stage, such as the urbanisation of ancient country lanes. The scoping report should have had a longer and more detailed section on this aspect which is another key element of giving the public confidence that environmental quality is a high priority before, during and after construction.

Chapter 2 EIA methodology

This section lacks the clarity and detail about the proposed approach necessary to allow an informed consultation response. The style is confusing, often ambiguous and, in places contradictory, giving the impression that this is not a rigorous, impartial process, and risking further undermining public confidence in the process.

2.1 Introduction

1. The report states that the EIA will be ‘carried out in accordance with applicable legal requirement and current best practice’ – specific references need to be included here to lend credibility, in particular with regard to the intended sources of best practice guidance. One guidance document that should clearly be referenced and followed here is the EU guidance on EIA scoping¹, which includes a simple checklist of the details that should be provided. The approach set out in this chapter fails to make explicit statements of principle with regard to avoidance/ mitigation/ compensation and enhancement, or to set out standards for assessment which will ensure minimal environmental harm. Such statements are essential. The report should for example make clear that, avoidance of adverse environmental effects is considered to be the most acceptable approach, followed by minimising of impacts (rather than minimising of features, as proposed in section 2.3.2).
2. Similarly the report needs to state that compensatory measures for unavoidable adverse effects should seek to offset the adverse effects with comparable positive ones – so for example, planting an area of new woodland is not acceptable compensation for the destruction of ancient woodland.
3. The scoping report makes repeated references to the potential for environmental enhancements yet nowhere sets out in anything other than the vaguest of terms what these might consist of and fails to set out a positive approach to building them in from the start of the design phase. For example, there is no reference to enhancements in section 2.3.2, and section 2.3.5 merely states that ‘Where the Proposed Scheme is likely to improve environmental conditions.....these effects will be identified as enhancements’. This is far too passive an approach.
4. Section 2.1.3 states that the scoping report will ‘identify the potentially significant environmental effects and establish the scope and methodology of environmental studies to be carried out’. The

¹ Guidance on EIA scoping, June 2011, EC

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chapters that follow substantially fail to do this, leaving too many crucial decisions about methodology and scope to the ‘professional judgement’ of unidentified individuals, whose qualifications are not specified, working to unknown timetables, often to unidentified standards making decisions outside of the public scrutiny of this consultation. This is not conducive to public confidence that the assessment has been carried out in an appropriate, rigorous and objective manner. In the Board’s view the approach proposed is too reliant on the opinion of individual assessors and, combined with the absence of baseline information would increase the possibility of a misleading assessment which will not enjoy the necessary level of acceptance.

5. The Board notes the comments in section 2.1.3 about projecting future baseline conditions, which is picked up in relation to some – but not all – topics within the report, for example Water Framework Directive status (chapter 17). It is important that this approach is applied consistently - for example with regard to Biodiversity Action Plan targets, local site management and SSSI condition targets, and that the approach to use of these future baselines is clearly set out.
6. The Board assumes that the revised Scoping Report to be published in summer 2012 will contain more detailed information and be more in line with the regulations and EC guidance on scoping. The shortcomings of this draft are so significant that HS2 Ltd should consider subjecting the revised and, hopefully, improved version, to further consultation.
7. The Board notes with concern that there is no timetable included for carrying out the EIA and producing the Environmental Statement – this is crucial and needs to be provided as part of this report, including specifically the date for production of the final ES.
8. Section 2.1.3 also states that there will be ‘engagement and consultation with formal and informal stakeholders throughout the assessment and EIA design process.’ It is not clear what is meant by ‘formal’ and ‘informal’ stakeholders, and more importantly the track-record on this so far is poor, with for example no community forum meetings planned during the course of the consultation period. What are the specific proposals for this engagement and consultation, and what is the timetable for this?

2.2 Scope of the Assessment

Temporal scope

9. Given that the line will not be operational until at least 14 years after the EIA is carried out, this section needs to make a clear statement about arrangements for re-assessment of the baseline during that period where appropriate.

10. The report needs to ensure consistency and lack of bias in relation to temporal scope - for example Section 2.2.5 talks about taking account of 'longer term considerations after opening of Phase 1, such as progressive growth in background road traffic or the maturing of mitigation' but does not include examples such as the expansion of broadband or other technological changes which may significantly affect demand the associated environmental impact of reduced HS2 services. The report should specifically indicate the main 'predicted or anticipated change factors' which it would expect to address.
11. What is absent is a timetable for the various studies – in particular the field studies – proposed as part of the EIA. This is essential in order for the reader to give a view on and have confidence in the approach being taken.
12. The Board has serious concerns about the short timescales being allowed for carrying out the field surveys and the EIA overall, and notes there is no reference in this section for example to the need to take account of the currently atypical drought conditions and weather and impacts of these on field survey data collected over a limited period.
13. Given that construction works will be carried out over a period of 10 years, it should not necessarily be assumed that land take associated with the construction phase can be described as 'temporary'. It is highly likely that some temporary changes will not be capable of restoration to the original condition.

Geographic scope

14. This section needs to include a clear plan identifying all land required for the scheme, including during the construction period, operation and long term-maintenance, and including all infrastructure and works associated with, and arising from, the development, including diverted road networks, bridges and construction sites.
15. The approach to geographic scope should be directed by the nature and the sensitivity of the environmental receptors/ features and their setting, rather than by arbitrary 'distance from proposed scheme' approaches as set out in section 2.2.7. The proposed geographic scope of the EIA is too narrow in many instances – for example with regard to assessment of dust emissions (chapter 4) and species surveys in urban areas (chapter 9).

Technical scope

16. The Board would advise that the list of environmental topics to be addressed (section 2.2.11) be expanded to include the following:
 - Land Use
 - Recreation, access and amenity
 - Health and well-being

- Cumulative effects and inter-relationships between topics.
17. The Board considers that whilst all of these topics are touched upon in various chapters, they are not sufficiently addressed. Specifically, a separate section on cumulative effects and inter-relationships between topics is important in addition to these issues being dealt with within each topic section to ensure that cross-cutting issues are not overlooked. Also, where the development or particular elements of the design have impacts within different sections of the assessment, the cumulative significance of impacts needs to be recorded and addressed. The EIA methodology should also indicate how the information gathered by the various specialist teams will be shared between them (such sharing should be a positive obligation).
- Taking Chapter 8 (Cultural Heritage) as an example, some of the cross-cutting issues which need to be addressed are as follows:
Chapter 5 - Agriculture and soils: data-gathering methods mentioned include soil-sampling, geology and interviews with farmers. All of these could yield information relevant to the Cultural Heritage baseline. Cumulative impacts could also arise, e.g. the loss of farmland or of access to fields or the splitting-up of land-holdings could lead to the non-viability of farms and possible redundancy of historic farm buildings. Chapter 12 – Landscape, townscape and visual assessment: elements of the baseline (outlined in 12.2.7) include several which are relevant to the Cultural Heritage Chapter including geology, route-ways, character assessments, designed landscapes (which may be heritage assets) and Conservation Areas. Historic boundaries and field patterns (not specifically mentioned) would also fall within both topics. Chapter 13 – Sound and Vibration. It is not clear how potentially vulnerable buildings (Table 22) will be identified. Presumably surveys would be required but would these feed into the Cultural Heritage strand of the assessment? Noise-mitigation measures, such as the creation of bunds or tree-planting, may have adverse effects on the cultural heritage and in particular on archaeological deposits. Chapter 14 – Socio-Economics. There is potential for impacts on businesses associated with heritage assets, such as visitor attractions, (e.g. Waddesdon) or, more generally, in the Chilterns AONB where degradation of historic character may contribute to a decline in the use of visitor or tourist facilities. Chapter 17 – Water resources and flood risk assessment. Interference with water levels, flood plains etc and mitigation measures could affect archaeological remains and other significant elements of the historic landscape, such as Shardeloes Lake. The scoping should provide for a specialist geological/archaeological study to establish the potential for Pleistocene deposits and a mitigation strategy.

2.3 Approach to mitigation

18. As stated previously, this section (2.3.2) needs to be accompanied by clearer statements of principle and commitment to the highest environmental standards.
19. Section 2.3.3 refers to mitigation measures being considered at Design Workshops, but omits to state who will be involved, at what stage in the process and what opportunities there will be for input into these workshops. The Board expects to be involved.
20. There is no information about the mitigating measures which are being considered. This is a serious shortcoming in the report and such information should be available by this stage in the design in order to properly inform the scoping consultation.
21. Section 2.2.3 states that 'Where practicable design modifications will be considered to avoid or reduce significant effects', but does not state what will be the response where this is not considered practicable, what the criteria are for what is considered 'practicable' and how this relates to costs.
22. Section 2.3.4 refers to the Environmental Design Aims, Collaborative design work, Community Engagement, Mitigation Report and the Code of Construction Practice, all of which are to contribute to the development of the mitigation incorporated into the scheme. The section fails to explain the scope and remit of each of these, how and to what timetable they will be developed, who will be involved and how they will relate to each other.
23. Section 2.3.6 talks about implementation of the mitigation and compensatory measures. There is no reference to provision for long-term monitoring and management of such measures, it is crucial that this is included.

2.4 Cumulative effects

24. As in other sections the information provided in this section is not adequate for this stage of the development of the proposals. For example, section 2.4.3 states that 'The list of other proposed schemes that should be considered as having a cumulative effect in combination with HS2 will be discussed during the consultation on the scope....' Despite this statement, no such information is provided.
25. Assessment of cumulative impacts should not be restricted to 'other developments which are under construction or have been consented', but should also consider any developments which are known to be under consideration for example where pre-planning consultations have been held or allocations made in development plans.

26. Section 2.4.4 states that 'The geographical scope of schemes to be included in the assessmentwill be defined in the course of the EIA process'. This is another example of information which should already be included within the scoping report to inform the consultation.

2.5 Defining significant effects

27. The approach to assessment of significance is not adequate, it lacks clarity and consistency, with each topic area using different terminology. It is crucial that the report adopts a clear, comprehensible approach which removes ambiguity and is based on a clear statement of what is meant by a 'significant effect' and the criteria by which 'significance' is to be defined. Section 2.5.4 states that 'where it is not possible to quantify impacts, qualitative assessments will be carried out, based on professional experience and judgement'. Again, there needs to be more information provided so that interested parties can assure themselves that the individuals charged with making such judgements are suitably qualified and experienced, and working to recognised professional standards.

2.6 Assumptions and limitations

28. Section 2.6.2 states that there could be circumstances which limit the information available to inform the assessment process. Whilst clearly this is true, the response cannot be simply that 'Any limitations will be described in the relevant topic chapter within the ES', rather, there will need to be some assessment of how critical this gap in information is to the overall conclusions and allowance that there may be circumstances where this needs to be addressed, for example, by extending the time frame of the assessment.

Chapter 3 Reporting of Alternatives in the Environmental Statement

General comments

1. It is not clear why this chapter has been included as no assessments are proposed. It is simply stating the reasons why Government wishes to proceed with this project, which will not involve any assessment of environmental impacts.
2. What is proposed is by no means an adequate substitute for a Strategic Environmental Assessment, as it will not attempt to assess alternatives including: not building a new railway or alternative strategies which might be based on managing demand instead of increasing supply. It suggests that it will simply be a re-statement of existing reports, e.g. Section 3.1.5.

3. This chapter is not written objectively but rather as a series of statements attempting to justify controversial and disputed conclusions. It will not give confidence that this is an objective exercise which will embrace all possible options to avoid or reduce damaging environmental impacts.

Specific Comments

Section 3.1.1

4. No reasons are given for ruling out accommodating some of the predicted demand growth for inter city travel on roads or aviation. If both can make improvements, for example, to their carbon emissions they might prove realistic alternatives to what is proposed along with other measures such as enhancing the rail services on existing networks.
5. The statement, 'there is clear case for this new capacity to be a new high speed rail network' is not accepted. Even the Government's own consultants have shown that significant capacity enhancements to the existing network and services are both realistic and have a better Benefit Cost Ratio than HS2. A comparative EIA should be undertaken for the alternatives including that proposed by 51M.

Section 3.1.2

6. The, so called, incremental enhancements to existing networks do provide sufficient capacity to meet even the inflated demand forecasts for HS2. An SEA which gives full weight to both approaches should be part of selecting the best strategy. Such a comparison, with full environmental impact assessment, should be made available for the public to express its view. They have only been consulted on one option which they comprehensively rejected.
7. It is simply a bogus claim to state that improvements to the WCML will result in substantial disruption. The works necessary are relatively minor compared to the recent WCML upgrades from which many lessons have been learnt, and would not involve the massive disruption to Euston and those services which use it, that are part of the HS2 proposal. The Scoping Report largely overlooks this aspect.
8. There is no mention of the massive disruption that the building of HS2 will cause along its length and no attempt to identify, let alone, quantify it.

Section 3.1.3

9. The report erroneously puts forward the argument that the alternative is either a new conventional speed or high speed line. This false comparison is not put forward by those challenging HS2.

Section 3.1.5

10. The proposed inclusion of alternatives does not involve any assessment of their environmental impacts nor is there any proposal to seek public views on them. This would form part of the SEA approach which the Conservation Board and many others advocate, but is rejected by Government.
11. A more mature and open minded assessment would include assessment of the options of, for example, reducing the need to travel by use of IT, or managing demand, as advocated by Sir Roy McNulty recently in his report to Government. It is now known that loading of peak hour services from Euston to Birmingham, Manchester and Liverpool typically averages 56%. With a more sophisticated approach to managing services and demand, it is feasible to enhance existing networks and services to more than adequately accommodate both realistic forecasts of passenger traffic and even those inflated forecasts of HS2.
12. The Major Projects Authority recently assessed HS2 as Amber/Red. Such a low status highlights the high risk associated with the proposal, and its unsound demand forecasts and economic case. This assessment, the scepticism of the Public Accounts Committee, the criticism of the Transport Select Committee, the inaccuracy of the forecasts of demand for HS1 and the overwhelmingly negative response of the public all suggest that this project is deeply flawed and its basic assumptions need, not only to be re-assessed, but tested against alternatives and subject to public consultation. Any degree of sensitivity analysis shows that HS2 is so high risk it should not go ahead.

Chapter 4 Air quality

General comments

1. It is critical that this section addresses the full range of potential impacts to air quality in a manner consistent with not only the latest guidelines but also the emerging and developing frameworks that will take effect over the next few years. This includes DEFRA revisions to the Local Air Quality Management Technical Guidance, the greater emphasis of PM2.5 and their objectives and the growing importance of the direct human health impacts. DEFRA is also in support of concentrations based metrics that link to health drivers.
2. Air pollution also causes significant damage to the environment. Sixty percent of sensitive habitats exceed the critical load for nitrogen, of which atmospheric pollution is a major cause. Oxides of nitrogen harm

UK biodiversity and are compromising our ability to deliver current conservation commitments such as the objective to achieve favourable conservation status under the Habitats Directive. The Government's steer on the continuing importance of improving and maintaining good air quality is therefore clear in relation to both the general environment and to human health. Both of which are likely (at local levels) to be impacted by the proposed HS2 development.

3. With air quality, there is considerable potential for the development to create both localised sources and localised impacts. It is critical that these local impacts should not be understated or missed at the expense of the apparent wider approach that is being proposed within the Scoping Report. It is apparent from the way in which UK Government LAQM guidance has developed that 'local' foci remain the key to identifying smaller air pollution hotspots. Wider studies such as those proposed by HS2 can become reliant on much less detailed information as a result of scale and as a result have the potential to miss important issues until too late in the process.
4. There is a need for detail regarding the actual timescales being envisaged for the collection of the baseline air quality data and the actual geographic extent. In order to determine the potential impact of the proposed development on local air quality it is necessary not only to identify potential pollutants, but also those groups that are most likely to be affected by them.
5. The Board understands that the number of AQMAs is actually increasing rather than decreasing as indicated in the report. The baseline studies must include the consideration of those locations just below current designation thresholds that may be tipped into becoming a new AQMA with the addition of HS2 works. In a number of areas along the route, measurements for NO₂ indicate levels just below the threshold which remain significant.
6. No details have been provided in connection with the likely impacts of Phase 2 and these should clearly be scoped into the EIA.
7. In terms of air quality management the report looks to the current EU standards for air quality. However, it should be recognised that these are considered to be minimum standards and the EIA should aspire to and anticipate much higher standards.
8. HS2 should obtain reliable local traffic and baseline data to improve both the robustness and confidence in its modelling for air quality. It is also not clear what traffic model HS2 proposes to use as this will directly influence the air quality part of the assessment.
9. It should be recognised that emission factors generally used within air quality assessments, have predicted a steady decline in Oxides of Nitrogen (NO_x) and NO₂ in future years, and based on the assumption

that improving vehicle emissions standards will bring about significant reductions in vehicle pollutants. This has not been the case and the EIA traffic modelling must take account of this. It is considered appropriate to base air quality assessments on the latest emission factor guidance. It is also vital that the use of national background maps is supplemented by and compared to local measurements of background pollutants.

10. The impact and recognition of meteorological influences on air quality appear to be missing from the report and they are obviously a critical element when considering baseline data or monitoring. This is relevant to both wider air quality levels and also localised modelling. The choice of meteorological year for modelling can significantly skew modelling output.

4.1 Introduction

11. Whilst Section 4.1.1 identifies air quality as an issue it would be helpful to put this into the context of the legal requirements upon member states to meet the relevant European air quality limit values due to the health implications of exceeding these levels.
12. The proposed scheme is identified as having potential impacts on local air quality during both the construction phase and the operational phase. It is not possible at this stage, given the limited information provided, to identify the full impacts of the precise route or the implications of construction methodology such as the removal of any natural boundaries between the proposed route and any current receptors or any specific impacts arising from tunnelling techniques for example.
13. The air quality assessment should consider the full implementation of Phase 2.
14. A reduction in the number of trees and the impact on both background air quality and as a point particulate reduction mechanism has not been considered. This should be fully quantified as part of both the national and local assessments.
15. In relation to traffic volume and potential movement of existing traffic flows – contribution to ozone formation and its links with pollution episodes, especially in rural areas along the proposed route appear to be absent from consideration, particularly when there is a need to take account of the impacts of severance in leading to increases in journeys to both work and community and other facilities.

4.2 Establishment of baseline and definition of survey requirements

16. The recognition of the presence of AQMAs in Section 4.2.1 is welcome. It should be noted, however, that air quality impacts will be judged as

being significant if the proposed scheme causes an uplift in concentrations, at relevant locations, where the EU limit values are already being exceeded.

17. Consideration should also be given, through a wider spatial scope, to the impacts on a number of locations that are just under the Air Quality Standards. It is these areas that may risk becoming AQMAs as a result of construction and additional development traffic associated with the development of HS2.
18. It appears that HS2 Ltd. considers that, because air quality is generally better in rural areas than urban areas, an increase in pollutants is acceptable. These areas should not be seen as having the 'capacity' to becoming more polluted.
19. Section 4.2.4 mentions national air quality monitoring data. The Board understands that the national network includes only a very small number of monitoring stations near the proposed route. Of these, most are not in close enough proximity to offer localised relevant data. There will therefore be a need to provide more localised data.
20. Section 4.2.6 mentions that information about critical loads for pollutant deposition and critical levels of gaseous pollutant concentrations for the UK network of protected sites is available from the UK Air Pollution Information System without any indication of what needs to be done in connection with the data and whether the scope of the available data is wide enough. The Board considers that it is vital that other bodies are consulted in connection with this issue, in particular the Environment Agency, Forestry Commission, Woodland Trust and Natural England as well as local authorities along the route, and that proper account is taken of any advice and other information gathered. It will also be necessary to consider lower levels of concentrations than 'critical' levels because in some instances small concentrations could have significant impacts, particularly in connection with Ancient Woodland for example.
21. It is not likely that data will be available from existing resources along the length of the proposed route as indicated in Section 4.2.8. Further specific monitoring is therefore likely to be required which will need to be accounted for in the preparation of the EIA.

4.3 Consultation

Consultation on the AoS

22. As detailed in Section 4.3.1, HS2 Ltd. cannot assume that just because a limited response was made, that there are not significant concerns regarding air pollution. This is not because Councils do not have issues, but is more likely to be due to the deficiencies in the AoS itself.

Consultation as part of the EIA process

23. Section 4.3.2 should acknowledge that road traffic volumes, speeds and composition are all important aspects of any air quality assessment. An agreed process will need to be put in place which ensures transport practitioners in relevant authorities will have inputs into the air quality methodology.
24. Section 4.3.3 mentions consultation with the GLA. This is obviously an important step, however, consultation with other regional air quality/pollution groups along the entire route should also be undertaken.

4.4 Key aspects of the scheme for the topic

25. The tunnelling element itself is absent from the list in Section 4.4.1 and as this will obviously result in significant dust emissions any impacts will need to be accounted for.
26. Section 4.4.2 mentions dust deposition. This would not just be a problem for sensitive locations (though these should obviously be fully assessed), the potential for general dust nuisance over a wide area is also a very real issue. Dust of this type on private property and vehicles is very difficult to address under nuisance legislation. Fine particles can travel great distances and this should clearly be scoped into the report.
27. Section 4.4.3 makes no mention of minimum standards of air quality impacts for buildings. This should be considered at the earliest opportunity.
28. Section 4.4.4 suggests that beneficial impacts may arise from a modal shift from road to rail. Robust input from transport experts will be needed to substantiate this statement. Car to rail modal shift may be able to be quantified but it will only have a positive impact, in local air quality improvement terms, if the resulting reductions in traffic levels on the road networks are maintained. Furthermore, the effects of more efficient car engines will also need to be taken account of.

4.5 Scope of assessment

Spatial scope

29. Section 4.5.1 does not appear to include the impact of the movement of waste by rail or road.
30. Section 4.5.2 – worksites have not been defined and therefore it is not possible to see if the spatial scope is adequate. Notwithstanding this comment, the distances proposed for assessment of dust emissions are considered to be inadequate, particularly in connection with areas where chalk dominates.

31. Section 4.5.3 does not explain what constitutes 'significant changes' and this should be properly addressed. Notwithstanding this comment, the distance proposed for assessment of nitrogen deposition is considered to be inadequate.

Temporal Scope

32. Sections 4.5.4 and 4.5.5 are supposed to deal with the temporal scope and are considered to fail to do this because no assessments will appear to be made post-construction, merely 'during the year of operation'.

Technical Scope

33. The Board considers that Section 4.5.6 does not consider a sufficiently wide technical scope because atmospheric emissions may affect a wide area which goes beyond the scope that is currently suggested.

4.6 Assessment methodology

Legislation and Guidance

34. Sections 4.6.1 and 4.6.2 detail various pieces of legislation and guidance that will be taken account of. The Board considers that the most up to date and stringent guidance should be applied and scoped into the EIA.

Construction effects

35. Section 4.6.6 – the need for appropriate mitigation and control measures should not be underestimated. They will also be highly variable and change from day to day. Appropriate mitigation must be planned in advance and agreed by local authorities prior to activities taking place. The suitable management and supervision of the effectiveness of mitigation obviously remains critical. This section also needs to scope in the movement of waste material by rail and road and the impact of tunnelling.
36. It is not clear what Section 4.6.7 means and it provides insufficient information about the details of the route to enable consultation bodies to give advice about the location of sensitive receptors and therefore the spatial scope of the scheme. Notwithstanding this comment, the Board considers that it is not always the nearest receptor that is affected by the most pollutants because receptors will also be affected differently depending on the prevailing weather conditions.
37. The Board considers that Section 4.6.8 provides insufficient detail in connection with the air quality assessment methodology.

Operational effects

38. The Board considers that insufficient information is provided in Section 4.6.10 in order for detailed advice to be provided. There is no information provided as to how emissions from buildings will be modelled if “a significant impact is expected”. In areas already over the EU limit values, any increases in emissions could be deemed significant. This needs to be clarified and fully scoped in.

Cumulative effects

39. The Board considers that Section 4.6.13 should identify and consider at the earliest opportunity the cumulative impacts that arise from issues such as rat running and other developments within range of the HS2 proposed line.
40. The Board considers that the cumulative effects and interrelatedness of the various issues should be addressed in a separate section at the end of the Scoping Report.

Assumptions

41. In section 4.7.1 it should not be assumed that air quality management monitoring has taken place at locations along the route. Similarly, as construction sites have not been identified as part of this Scoping Report it is doubtful that there will be an adequate level of detail available about the likely impacts.

Chapter 5 Agriculture and Soils

General comments

1. Current thinking, as described in the ‘UK National Ecosystem Assessment’, regards the ‘provisioning services’ of agriculture as one output from the ‘supply services’ soil provides – the others being ‘cultural services’ and ‘regulatory services’. Whilst these aspects are covered in other sections, the Ecosystem Services Approach highlights the inter-relatedness of different topics and this should be referred to.
2. The Chilterns Conservation Board notes the use of the Agricultural Land Classification within the assessment. ALC purely relates to agricultural productivity so we are pleased that other impacts on land use will be considered. However, we are concerned that much of the description within this section is general and although certain terminology might give an implicit understanding of what is envisaged, unless details are clearly expressed, there is a risk that important details may be overlooked or avoided.

5.1 Introduction

3. 5.1.3 and 5.1.4. Whilst the national importance of Grades 1, 2 and 3a are recognised, the Conservation Board believes that land quality needs also to be assessed within the local geographic context. Little of the land within the Chilterns AONB is of the highest quality for agriculture and, combined with the topography that underlies this internationally recognised landscape, this presents an additional challenge to farm business viability. It might therefore be argued that loss of an area of poorer grade land within the AONB might have a corresponding or higher impact on agricultural business viability than the loss of a similar area of higher grade land elsewhere.
4. 5.1.5. One of the other factors mentioned is farm size and structure. The proposals currently take the route above ground within the AONB through a section of the Misbourne Valley characterised by poorer soils, at times challenging topography and smaller farm size than might be found elsewhere in rural sections of the route. The impact of the proposals on farm viability needs to be assessed within this 'local' context.
5. This section also mentions fixed equipment but consideration also needs to include machinery use and size. Land loss, fragmentation and isolation will impact on the feasibility of certain machinery use (e.g. cultivation and harvesting machinery) as will road closures and diversions. This will then impact on future agricultural use.
6. Many of the factors described in this section will also impact woodland and forestry. Is such land use assessed elsewhere? 21% of the AONB is wooded, making the Chilterns one of the most heavily wooded parts of the country. Whilst the section of the Misbourne Valley affected by the proposals does have lower percentage woodland cover, the impacts of current proposals on existing woodland management must be assessed as will any tree planting (and future management) that may form part of any mitigation proposals.
7. We find the reference to 'stimulus...to rural economic activity, for example in demand for renewable energy' puzzling. As yet we have not been made aware of any such opportunities. More detailed information is required to justify such statements.

5.2 Establishment of baseline and definition of survey

8. 5.2.6. The Chilterns Conservation Board welcomes site survey in order to provide detailed ALC information where not available. However, we hope that the definition of 'all land to be acquired or used' will include all areas affected by construction (including work sites, temporary roads), operation (including permanent road diversions and other infrastructural changes outside the immediate land take) and any landscaping or other mitigation proposals.

9. 5.2.9. We welcome interviews of owners and occupiers and hope that the process will be sufficiently comprehensive to highlight any specific area challenges (such as those mentioned above).
10. We recommend consultation with institutions having a long standing involvement in the agricultural and forestry sectors (e.g. Reading University's Agriculture and Agricultural Economics Departments).
11. We agree that such interviews would provide an opportunity to discuss potential mitigation options but want assurance that such discussions will not be limited to options pre-selected by the developer but seek innovative and optimal solutions.
12. 5.2.11. Whilst including a representative of the HS2 project design team may help when discussing details of the project, we are concerned that there may be a conflict for the independence of the interviewing team. Such interviews must not be directive.

5.3 Consultation

13. 5.3.3. We recommend that the Tenant Farmers Association be included amongst the consultees.

5.4 Key aspects of the scheme for the topic

14. 5.4.1. The assessment must cover all of the following:
 - land impacted by the route (construction and operation),
 - infrastructure,
 - road alterations,
 - landscaping and mitigation (e.g. land take for soil bunds and on-going management implications for tree planted areas),
 - temporary road closures and diversions including the likelihood of increased road traffic,
 - impacts on both direct land management and farm operations (including frequent road use required for harvest or livestock operations) should be considered, and
 - restrictions on land use e.g. tree planting adjacent to route or disruptions to irrigation preventing certain cropping.
15. The report mentions permanent and temporary loss of soils and severance of land. This differentiation is too crude. When looking at cropping patterns and rotations, a construction and restoration period lasting several years cannot be described as temporary.

5.5 Scope of assessment

Spatial scope

16. 5.5.1 See comments under 5.4.1 above.

Temporal Scope

17. 5.5.3. Restricting the temporal scope to the construction period and year of opening is not sufficient. The project should assume that there will be impacts on soil structure that remain after this period, particularly if topsoil has been stored for re-use, resulting invariably in compaction and loss of quality. Such impacts will need to be assessed and adequate remedial action taken. The temporal scope should extend to include 10 and 20 year post operational assessments.
18. Similarly, it cannot be assumed that farming and forestry use will remain constant over the development period. The Chilterns Conservation Board has carried out detailed Land Use Change Surveys across the AONB for the last 7 years and noted trends and changes, some related to local factors (e.g. urban edge and leisure), others to international influences (e.g. CAP and world markets). Pressures for change on these land use sectors will continue and this will influence future land use along the route. For example, a scenario can be envisaged where changes in commodity prices might either lead to an abandonment of isolated areas of land or a removal of field boundaries to include such areas in larger blocks. Within the landscape setting of the Chilterns AONB, both of these outcomes would be detrimental. The Conservation Board would, therefore, wish to see the impact of such potential land use changes, on land affected by the route, assessed.

5.6 Assessment methodology

Significance criteria

19. 5.6.9 – 11. It is disappointing that so little detail is given about significance criteria at this stage of the Scoping Report. We would expect that once these criteria have been developed in consultation with Defra and Natural England, they would be available for comment from a wide audience including all the representative groups mentioned in section 5.3.3.
20. 5.6.13. Our comments about sections 5.1.3 and 5.1.4 also apply here. The 'reasoned definition of "locality"' should also include the grade of land assessed within significance of loss.
21. 5.6.14. The assessment must not be restricted to physical impacts but must also be translated into economic terms. Any negative impact on existing land use or proposed mitigation should be costed and then related back to the project business case and benefit cost ratio.

Construction effects

22. 5.16.16 and 17. These also include disruption to farm operations (see 5.4.1 above).

Operational Effects

23. 5.6.19. Severance must also include an assessment of the land use value of smaller, isolated and fragmented areas of a land holding.

Cumulative Effects

24. 5.6.20. The Chilterns Conservation Board objects strongly to the statement that the 'Scheme will generate economic stimulus for development within its corridor'. We are not aware of any such positive stimulus outside the vicinities of the rail termini at either end – unless this is some reference to the temporary employment during construction.

5.7 Assumptions

25. 5.7.1. We welcome the approach of assessing the different functionality of soils within different sections of the report which reflects current developments described within the 'UK National Ecosystem Assessment'. However, we recommend that a separate section is included in the report that covers all the cumulative impacts of significance of different sections – moderate impacts in a number of related areas might lead to a higher combined impact.
26. 5.7.2. Financial implications of all impacts on land use should be fully assessed, as should any mitigation measures suggested. These costs should be fed back into the business case and reflected in the benefit : cost ratio.

Chapter 6 Climate

General comments

1. The High Speed Rail proposals are intended to reduce UK transport carbon emissions. However, the Board considers that because this section of the Scoping Report is so brief it fails to address this issue adequately.
2. The Report must give clear detail on the methodology that will be used to assess the climate change impacts of the proposals and how the significance of these impacts will be assessed.
3. As with other sections, the Report suggests that the AoS provides a suitable baseline for the study. However, insufficient detail has been

published for consultees to have confidence that the AoS is adequate for this purpose.

6.1 Introduction

4. 6.1.4. An assessment of operation between phase 1 and phase 2 should be included.

6.2 Establishment of baseline and definition of survey

5. 6.2.1. As mentioned above, the Chilterns Conservation Board is not convinced that the AoS provides a suitably comprehensive study to define the baseline for this survey.
6. 6.2.2. The future scenarios should include predicted trends in road and air travel together with improvements in technology leading to reductions in CO₂ emissions for these sectors. Comparisons with the aviation sector should also reflect the relatively low embedded carbon within aviation infrastructure.
7. In view of Government Targets for reducing GHG emissions, any increase in emissions should be considered significant. Any failure to reduce emissions beyond the Government's own targets at the various assessment stages should be considered as a significant negative impact.

6.4 Key aspects of the scheme for the topic

8. 6.4.1 and 6.4.2. Construction should also include:
 - the impacts of road closures and diversions on local businesses, travel to work and other road use,
 - extra road travel as a result of disruption to Chiltern Line services, and
 - all construction operations including spoil movement and disposal.

Operational impacts should also include:

- any continued increase in car journeys as a result of road diversion or reduced classic line services, and
- additional road journeys created by people driving to HS2 stations and park and ride facilities.

6.5 Scope of assessment

9. 6.5.2. The Board does not agree that the impact of construction workers, their commuting to site, operation of any residential/welfare sites and movement between these and work sites should be ignored. At a minimum the experience from HS1 and other large infrastructure projects should be used in modelling these impacts.

Other

10. Mitigation measures, including use of renewable energies during construction or operation should be investigated and fully costed. These costs should be fed back to the business case and reflected in the benefit : cost ratio.

Chapter 7 Community

General comments

1. Neither this chapter nor the chapter on socio-economics deals adequately with the local economic impacts, particularly those that are negative (loss of local employment and severance leading to impacts on businesses apart from farming for example) and this should be addressed.
2. Similarly, no mention is made of the reputational damage that would be caused to an area. This will be particularly keenly felt in places like the Chilterns AONB which rely on a good reputation for much of the local wealth generation and job retention, particularly in (but not restricted to) service industries. Both during and after construction less people will want to visit such areas due to the impacts on the visitor experience.
3. The impact on the 'image' of the Chilterns and its ability to attract visitors is key. The Chilterns is a popular visitor destination because of its accessibility (ease of getting there) and the attractiveness of its countryside/landscape, strengths that will be greatly impacted on. Another issue not addressed is the impact of construction of the route on utilities. There will be many instances where water, gas, electricity and telephone networks are affected in some way and this could have direct impacts on customers over a wide area. Such impacts and the consequent inconvenience should clearly be scoped into the EIA and any costs added to the overall budget (this will clearly have impacts on the business case).

7.1 Introduction

4. Section 7.1.2 defines the community effects as those upon people against four themes – residential property, community facilities, amenity and severance. This approach leads to confusion because other direct community impacts such as the effects on employers and employees as well as farms and farm-based enterprises are either not addressed or are dealt with in other chapters. All community aspects should be dealt with in this chapter.

Residential property

5. Section 7.1.3 deals with the effects associated with property, but does not address the impacts of noise. This should clearly be considered here.

Community facilities

6. Section 7.1.6 is concerned with the loss of facilities. However, this section does not address the impacts on Public Rights of Way and their users. This should be scoped in and deal with the impacts arising from severance (both temporary and permanent) and noise (both temporary and permanent). In addition, visual impacts should be addressed too, and this should include a full consideration of impacts at favourite viewpoints for example.

Amenity

7. Section 7.1.7 includes the community effect of impacts on aspects of amenity such as noise and visual intrusion. However, this section should also explicitly deal with all users of the countryside, and in particular those using Public Rights of Way.

Severance

8. Section 7.1.8 gives a definition for severance that is considered to be too narrow. The impacts of severance are felt by a wider audience than is captured in the definition, and this should also include all users of Public Rights of Way whether they are from a local community or not. Many users will be visitors from other parts of the country or abroad and they should be considered as part of the wider community. In addition, much greater prominence should be given to the impacts on health and wellbeing. Health experts should be consulted as part of the EIA process and their responses should influence the outcome. This may result in cost implications being identified (from noise mitigation for example). Such costs should then clearly be addressed in a re-examination of the business case.

7.2 Establishment of baseline and definition of survey

Baseline data and methods

9. It is not clear from this section what is actually going to be measured or assessed. A clear part of the scoping exercise is to identify the likely impacts and how such impacts will be assessed or measured.
10. Section 7.2.5 mentions some potential resources that may be affected including public rights of way and other access routes of 'local importance'. The scoping report should address all routes and should pay particular attention to any routes of regional or national importance,

which should be highlighted as an important resource. The EIA Scoping Report should also address any impacts on promoted cycling routes (the Chilterns Cycleway for example).

11. Section 7.2.6 details various receptors for which information will be collected. Though 'individuals using community resources' are included it is not clear whether or not visitors (including tourists) to an area are also being considered. This should be made clear. Similarly, the receptors should also include tourism and related businesses (pubs for example).
12. Section 7.2.7 lists various sources that could be used to provide information. 'User surveys' are detailed and the Board considers that the Chilterns AONB 2007 Visitor Survey is one such survey that should be examined and referred to. In addition, emerging Green Infrastructure Plans and Local Nature Partnerships need to be taken account of. Local authority Rights of Way Improvement Plans should also be scoped in.

7.4 Key aspects of the scheme for the topic

13. Section 7.4.1 lists a number of different aspects of the scheme that will be considered. Though the permanent severance and / or diversion of Public Rights of Way and other pedestrian routes that 'affect access to community facilities' would be addressed, access to the wider countryside and other places would not and neither would the impacts be considered on other vehicular routes (many of which will be ancient routes in places like the Chilterns AONB). This should be corrected.
14. The Board considers that the EIA should examine the impact on the many walking and cycling events including in the central Chilterns, which may involve charity and challenge events or triathlons for example, some of which attract thousands of participants.
15. The EIA should also consider the impact on user accessibility of any diverted rights of way. Much progress (and investment) has been made by local authorities and other bodies to make many rights of way more accessible, for example to those using all-terrain buggies and wheelchairs by removing obstacles and surfacing paths. Will diverted rights of way offer the same level of accessibility for users?

7.5 Scope of assessment

Spatial and technical scope

16. Table 3 details various resources, receptors and the spatial scope of the assessment. Under residential property the resource and receptors are considered to be too narrow and should at least include other property and visitors. For the spatial scope this is limited to 'any properties needed as part of the direct impacts on land'. Based on HS2

Ltd's information this would limit the number of properties severely and the spatial scope should be extended to include all land and property affected by the scheme. In addition, for rights of way the spatial scope will vary depending on the type of right of way, where it is and the level of use for example.

17. Table 3 continually refers to 'users' of various resources without any clear definition of what 'users' are. For community infrastructure (under community facilities) 'users' may include 'visitors' though this is not clear. If 'visitors' are not addressed, and the Board considers that they are not, then the receptors column would need to be amended.
18. Under spatial scope in Table 3 the following text is repeated on numerous occasions: 'to be determined based on relevant communities, settlements and infrastructure and their geographic boundaries'. It is not clear what is meant by this, though it infers that the Community Forums will take some part in determining what might be defined. However, the timing and length of the public consultation on the EIA Scoping Report does not allow any input via the Community Forums. The Forums do not therefore have a voice in connection with this issue. With lack of direct input the Board wonders who will decide what the spatial scope will be.
19. A new row should be added to Table 3 that deals specifically with Public Rights of Way as a resource. The receptors would include residents, local communities and visitors (as a bare minimum) and the spatial scope should be based on the impacts of the scheme on Public Rights of Way and their use as part of the wider countryside (a greater geographic extent than just the Right of Way).
20. In the severance section of Table 3 Public Rights of Way should also be considered, with receptors including residents, local communities and visitors (as a bare minimum).

Temporal Scope

21. Section 7.5.3 attempts to detail the temporal scope but cross-refers to Section 2 of the report. Section 2 does not adequately address the issue therefore Section 7.5.3 needs to be amended to reflect a proper scope (following amendment of Section 2 as well). It is considered that for this issue the temporal scope should include the following: baseline (now), during construction, on opening and post construction (plus 5 years and plus 10 or 15 years).

7.6 Assessment methodology

22. Section 7.6.1 states that 'there are no industry-wide accepted methods for assessing community effects for projects of this nature'. If such methods are not available, then these should either be developed by independent consultants or a precautionary approach taken whilst

utilising best practice from other countries. A huge reliance is placed on the Design Manual for Roads and Bridges (DMRB). It is widely accepted that this is both out of date and not accepted as best practice. HS2 need to do better than rely on DMRB because on completion of the route the manual will be over 30 years out of date. There is much international expertise and experience that can be called on for help in producing something more up to date and acceptable.

23. The end of Section 7.6.1 refers once again to a reliance on 'professional judgement' amongst other methods. There is no indication of who will be doing what, what relevant experience the practitioners have and who the competent authority will be. These issues need to be addressed and clarified.
24. Tables 4, 5 and 6 attempt to define various impact magnitudes, receptor values and/or sensitivities and the significance of the effect criteria. The Board would have expected HS2 to be consistent in the use of such tables and matrices and for them to be provided for each chapter. This is not the case and should be addressed.

Operational effects

25. Section 7.6.16 states that the 'same process will be used for assessment of operational effects' as outlined for construction effects. However, some aspects of the operational effects do not appear to be considered at all. For example, all maintenance work (which will invariably be outside normal operational hours and therefore result in greater impacts) and the results of any emergency operations should all be scoped in. Similarly, the need to provide extra roads and additional infrastructure (buildings, fences, mobile phone masts, lighting and signage) for tunnel portals or emergency access areas also need to be scoped in as they do not appear to have been addressed.

Cumulative effects

26. Section 7.6.17 states that the EIA will consider the interaction between HS2 and other consented or completed development. The EIA Scoping Report does not appear to address the likely significant impacts that would arise at Euston due to the changes resulting from construction of a new station or the impacts on the Chiltern line due to the need to provide bridges along the railway line. The Board considers that the cumulative effects and interrelatedness of the various issues should be addressed in a separate section at the end of the Scoping Report.

Chapter 8 Cultural Heritage

General comments

1. The Board has undertaken some work on the heritage implications of HS2 and considers that there is insufficient information in the Scoping Report on the nature of the development in order to establish all the likely significant effects that would need to be appraised. In the first instance the nature of the development should be clearly detailed at the start of the report. Once known the likely significant effects would be assessed. For the historic environment these are many and varied and would include (but not be restricted to): harm to interests of acknowledged importance (the Chilterns AONB and its fundamentally historic landscape), destruction of archaeological sites, loss of or alteration to historic buildings and their settings, impacts on tranquillity and impacts on visitors' enjoyment of the historic environment both arising from visual and noise intrusion.
2. As drafted the Scoping Report is not considered to be consistent with the National Planning Policy Framework in connection with this issue and others. In addition, there should be greater cross-referencing between this chapter and a number of others that deal with issues that are also of relevance to the historic and cultural environment.

8.2 Definitions

3. Section 8.2.2 divides Cultural Heritage into three key areas, but fails to address: natural beauty and the direct link in protected landscapes to cultural heritage as well as cultural associations.

8.3 Effects

4. The Board considers that 'or its significance' should be added at the end of Section 8.3.4.

8.4 Establishment of baseline and definition of survey

5. Section 8.4.3 states that data in respect of heritage assets will be collected. This section fails to take account of the need to also collect data in connection with impacts on the settings of heritage assets and the impacts on the viability of such sites.
6. In order to be consistent, the first item in Section 8.4.4 should read 'details of designated assets held by English Heritage'. Section 8.4.4 lists a series of baseline data sources but fails to include the following: the Ancient Woodland inventory, historic townscape character mapping, historic landscape and townscape reports and data held by other organisations such as the National Trust and Buckinghamshire Archaeological Society. In addition, the Board wonders whether the coverage of an area 5km either side of the route for HER data is

replicated in other Chapters of the report in order to be consistent. Zone of theoretical visibility studies are mentioned but it is not clear whether these will address the settings of heritage assets. The Board is not convinced that there will be time to undertake and fully interpret geophysical surveys, particularly if the scope has to be agreed in advance and based on the likelihood that access to important assets may not always be possible.

7. Section 8.4.5 mentions consultation with English Heritage in order to develop the requirement for and scope of any intrusive survey. The Board considers that with their depth of local knowledge about the historic environment, local experts within County and District Councils and other organisations should also be directly involved.

8.5 Definition of survey

Country south and country north

8. Sections 8.5.6 and 8.5.7 appear to dismiss most of Buckinghamshire (outside the Chilterns) and Northamptonshire and this is considered to be a serious omission.
9. The Board considers that there may be instances where a study area of 500m from the edge of the land take will be insufficient to address the likely implications. This is likely to be the case with deserted medieval villages or designed landscapes for example and a more flexible approach will be required in many cases. This should be reflected in the EIA.
10. Section 8.5.9 states that field visits will be made to designated heritage assets. It will be vital for HS2 to check Historic Landscape Characterisation reports in order to ascertain whether other assets are likely to be present as well as other undesignated assets such as buildings, roads and trackways, for example, which all form part of the wider historic environment. A 250m zone is mentioned for walkover surveys. The Board does not consider that this would be adequate, particularly when dealing with the settings of heritage assets. A much wider area should be considered and any surveys undertaken should be much more thorough in more rural places like the Chilterns AONB.

8.6 Consultation

Consultation on the AoS

11. Section 8.6.2 mentions the comments that English Heritage made as part of the consultation. English Heritage is of the opinion that a 350m study area is inadequate and HS2's response is that the study area will be determined by the zone of theoretical visibility (ZTV). The Board is not convinced that the ZTV will be sufficiently wide in all instances and a more tailored approach may be needed in some instances.

12. Section 8.6.5 contends that the methodology provides a robust framework for the assessment of impacts. The Board questions this stance and considers that all higher ranking assets (including the AONB) should be subject to bespoke and specialist studies.

Consultation as part of the EIA process

13. Section 8.6.9 mentions various bodies as consultees for this topic, but fails to mention the Community and other Forums. This should be addressed, though the Board is concerned that with the timing of the public consultation on the Scoping Report and the calendar of Forum meetings there will be little opportunity for the Forums to have any influence over the outcomes.

8.8 Scope of assessment

Spatial scope

14. Section 8.8.2 mentions a revoked planning policy statement and appears to repeat Section 8.8.3 apart from this error, this Section should therefore be deleted. Any spatial scope that is set should clearly take account of the wider implications of HS2 and be based on a landscape scale approach.

Temporal scope

15. The Board considers that Sections 8.8.3 and 8.8.4 fail to provide any detail about the temporal scope in connection with this issue. The temporal scope should include the following: baseline (now), during construction, on opening and post construction (plus 5 years and plus 10 or 15 years).

Technical scope

16. The Board cannot see how the settings of designated heritage assets and archaeological assets of schedulable quality will be defined as there is no relevant detail in Section 8.8.5.
17. Section 8.8.6 states that only those undesignated heritage assets that may 'experience physical impact' will be identified and assessed. The Board is of the opinion that this is more restrictive than the NPPF and is therefore inconsistent with Section 8.9.4 and that HS2 should consider all significant effects on all assets.

8.9 Assessment methodology

Approach

18. Section 8.9.5 mentions that mitigation, or the scope for mitigation, will be identified. The Board would like to know what is likely and what is being considered and is of the opinion that this information should clearly be part of the EIA process. The Board wonders, for example, if off-site mitigation or compensation will be needed if an asset is lost. In addition, it should be noted that surveys will lead to important information being gathered. This should be adequately catalogued, interpreted and made available.

Assessment of significance – value of baseline assets

19. Table 7 fails to mention the contribution that the Chilterns AONB makes to cultural heritage and the significance of this is clearly high (the AONB is a nationally designated asset). Table 7 also lists various asset categories with various significance levels. It is confusing to have both Registered Common Land and existing commons and greens in the same category without any explanation as to why this is the case.
20. Tables 7, 8 and 9 attempt to detail various significance values for heritage assets, factors influencing the assessment of magnitude of impacts and a matrix for establishing the overall significance of effect. The Board would have expected HS2 to be consistent in the use of such tables and matrices and for them to be provided for each chapter. This is not the case and should be addressed.

Significance of effects

21. Section 8.9.13 mentions mitigation of impacts by incorporation of noise barriers without any detail being provided about the specification for the noise barriers and how the consequential impacts of their introduction would be assessed and dealt with.

Cumulative effects

22. The Board considers that Section 8.9.17 does not adequately address the likely cumulative effects. There is a need to recognise the many significant relationships between cultural heritage and other aspects such as the setting of assets, landscape and visual impact assessments and noise impacts and mitigation measures for example. The Board considers that the cumulative effects and interrelatedness of the various issues should be addressed in a separate section at the end of the Scoping Report.

Chapter 9 Ecology

General

1. An EIA scoping report needs to include sufficient baseline information to identify the 'receptors' within the geographical scope of expected HS2 impacts, along with a clear methodology for assessment based on a commitment to minimising environmental harm.
2. The approach set out in the scoping report, chapter 9, does not do this, and needs to provide clearer, more detailed information on the proposed surveys.
3. The Board considers the information provided in this chapter – in particular with regard to the detail of the scheme, the environmental baseline, timetable and methodology for assessment - to be inadequate and believes that this seriously undermines the consultation process.
4. The Board is concerned to note that this section makes no reference to the government's vision for the natural environment as set out in its recent white paper, 'The Natural Choice – securing the value of nature' (June 2011) or the UK National Ecosystem Assessment (June 2011), other than passing reference to the Wildlife Trusts' consultation response to the AoS. The Board also notes that the report fails to acknowledge or discuss the need for an Appropriate Assessment despite this being raised by Natural England in their AoS consultation response.

9.2 Establishment of baseline and definition of survey

5. Section 9.2.1 refers the reader to the description of the baseline environment as set out in the Appraisal of Sustainability in February 2011. It is unacceptable that readers are expected to refer back to this documentation which is out-of-date, incomplete and widely considered to be seriously flawed. By HS2 Ltd's own admission the AoS was never intended to provide a detailed baseline.
6. In order for readers to understand and make informed comment about what is proposed, this section needs to set out a clear statement of what data is already available, what further data is to be collected and the geographic scope, methodology and timetable for further work. Detailed maps showing geographic scope of this work and identified receptors need to be included.
7. The proposals for geographic scope of the assessment of impacts on ecological receptors as set out in sections 9.2 and 9.5 seem confused and inconsistent. The Board welcomes the statement in section 9.5.1 that 'the assessment will consider all ecological receptors with the potential to be directly or indirectly affected by the Proposed Scheme'

(subject to confirmation that Proposed Scheme includes all associated works, infrastructure and development). However, subsequent statements appear to contradict this, introducing arbitrary 'distance from scheme' approaches. The proposals set out in section 9.2 do not even seem to be consistent from one paragraph to the next for example, whilst section 9.2.3 talks about taking account of impacts on sites up to 10km from the route, section 9.2.5 proposes that the field survey will in places be much less than 500m either side of the route. It is not clear to what extent or how the desk study in 9.2.3 will inform the geographic scope of the field surveys.

Timeframes

8. Given the nature and scale of the Proposed Scheme and the significance and sensitivity of the wildlife and landscapes on which it will impact, it is crucial that sufficient time is allowed to obtain the necessary data and carry out field surveys to appropriate professional standards. This is particularly so given the lack of detail and baseline information included within the Scoping Report.
9. The Board's view is that the proposed time-frame - less than a year from final Scoping Report to draft Environmental Statement - is not sufficient to ensure well-informed decision-making and appropriate mitigation and compensatory measures. A full year's survey data will be needed to establish a satisfactory baseline for certain species – more than a year for some such as Bechstein's bat.
10. It is also important to take account of the current atypical drought and weather conditions and its impacts on certain habitats and species – depending on data already available it may be necessary to extend the survey period.
11. Section 9.2.4 makes reference to consulting other sources of ecological data 'where these are available within the time-frame of the study'. It is not acceptable for data collection to be curtailed in this way due to an unrealistically brief timeframe for the work.
12. Section 9.2.7 lists specialist surveys which may be included as part of the assessment. However, there is no indication of where, when or by whom such surveys will be carried out. It is not clear who will be responsible for making the decision as to whether or not such surveys are required in particular locations, nor who will be consulted on this.
13. The Board would recommend adding hedgerows, trees, Ancient Woodland (including sites < 2ha) and BAP habitat to the list of specialist surveys, and also would point out the need to assess ecological networks, not just individual species.

9.3 Consultation

14. Section 9.3 refers to some of the organisations who raised 'ecology matters' in response to AoS findings and some of the issues raised in those responses. There is no indication that the issues listed are to be addressed in any way in the EIA and no reasons are given for highlighting these particular issues out of all those raised.
15. Section 9.3.4 refers to 'key consultees' - how is a 'key consultee' defined as compared to consultees such as the Conservation Board referred to in Section 9.3.5?

9.4 Key aspects of the scheme for the topic

16. This section of the report lacks the detail required, and misses a number of key aspects which are likely to give rise to adverse effects relating to hydrological changes, dust, spoil and mitigation works.
17. Section 9.4.1 is a further example of the confused and contradictory style of much of the report. Where species, populations or habitats are 'irreplaceable' how can temporary land take be considered to have a short – medium term impact?
18. Section 9.4.3 is again lacking in necessary detail and fails to outline specific proposals for creation of beneficial effects on the environment.

9.5 Scope of Assessment

19. Assessments of ecological networks, BAP priority habitats and ancient woodland sites (including those < 2ha) need to be added.

Temporal scope

20. It is not sufficient to take account of the potential for a changing baseline up to but not beyond the date of operation - projections of trends during the operation period of the scheme should also be taken into account.
21. There needs to be opportunity built in for re-survey ahead of construction where needed.

9.6 Assessment methodology

22. Section 9.6.1 states that 'the impact assessment methodology for the Proposed Scheme broadly follows the standard method for ecology as set out by the Institute of Ecology and environmental Management (IEEM) in their guidelines for Ecological Impact Assessment (2006)'. In what ways does the methodology depart from the methodology set out by IEEM?

Guidance

23. Section 9.6.3 omits to mention the Natural Environment White Paper 2011 or UK National Ecosystem Assessment (2011). The report should set out to what extent it will ensure the Proposed Scheme helps to deliver resilient ecological networks and enhanced biodiversity.
24. There is also no mention of the Chilterns AONB Management Plan and the relevant policies regarding biodiversity and land management.

Significance criteria

25. Again, this section is not sufficiently clear or specific and the reader is left unsure about what exactly is proposed. For example, section 9.6.9 talks about the likelihood of 'a need to define an approach to relating significant ecological effects on receptors at different geographical scales to the overall significance categories used by other topic areas.' Proposed approaches to assessing significance should be clearly set out in the report.
26. Towards the end of this section the report states 'this process will also ensure that the overall assessment focuses on the key significant ecological issues.' The focus should be on 'likely significant issues' - it is not clear what is meant by 'key significant issues' and use of this phrase introduces further ambiguity.

Construction and Operational effects

27. There are a number of discrepancies and omissions here, including the fact that the majority of potential impacts listed in 9.6.10 - for example severance, surface water run-off and hydrological effects – will apply equally during the operational phase.
28. Section 9.6.11 talks about opportunities for habitat creation – it is essential that proposals are included for how all such habitat would be managed and cared for in perpetuity.

Cumulative effects

29. What is the proposed methodology for assessment of cumulative effects? This remains entirely unclear.

9.7 Assumptions

30. It is not clear what is meant by section 9.7.1. Cross-referencing to other sections would help.

Chapter 10 Electromagnetic Interference

General comments

1. The Chilterns Conservation Board believes this section should be widened to include suitable detailed assessments of:
 - Potential impact on future technologies,
 - Effects on human health, and
 - Effects on animal health and habit (e.g. changes in nesting, bat foraging, movement).
2. Where mitigation proposals are considered, they must be fully assessed with implementation costs fed back to the business case and reflected in the benefit : cost ratio.

Chapter 11 Land quality

General comments

1. The Board notes that the issue of contamination is considered in the Scoping Report to relate primarily to the present existence of land or water contamination. This is considered to be too narrow. Other contamination will result from the construction and operation of the route and this should clearly be scoped into the EIA. Examples of such contamination are: windblown dust beyond the confines of the route, dust and mud deposition on local roads, sediment deposition within surface watercourses and groundwater, chemical and other spillages with leaching to groundwater and risks arising from things such as concrete batching and fabrication of elements of tunnels and other works on site. Such contamination will be costly to deal with and this will clearly need to be recognised and the cost impacts on the business case detailed. In addition, the Code of Construction Practice should include specific guidance about this issue. However, as this has not yet been produced we do not know what it is likely to say.

11.1 Introduction

2. The Board considers that soils form a fundamental part of land quality and that they should also be addressed as part of this Chapter. At present it appears that they are not and this should be rectified. In addition, there should also be a cross reference to Chapter 5.

Land contamination

3. Section 11.1.2 and others refer to groundwater contamination. This section also refers to temporary dewatering (presumably of bedrock/aquifer) without any explanation of what this means and what

the likely implications are. The impacts on groundwater and any aquifer should be thoroughly assessed as part of the water resources chapter (17) and cross referred to in this Chapter.

Other Geological features

4. Though Section 11.1.5 states that there may be areas of land with special geological significance it does not appear that this statement is followed up within the Scoping Report. The Board notes that the clear overlap between archaeological interest and geological interest along the route has not been recognised by HS2 and considers that a specialist study should be commissioned and undertaken in order to establish the potential for any significant impacts. The publication of appropriate strategies for mitigation should arise from such a study.

11.2 Establishment of baseline and definition of survey

5. Section 11.2.1 mentions that 16 old landfill sites will be crossed giving an opportunity to re-use currently disused land. Though this may be possible, the potential implications of such a re-use need to be fully assessed and scoped into the EIA.
6. Section 11.2.2 lists a series of data and other information that will be gathered to determine baseline conditions. To this list should be added hydrogeological data (which is available from different organisations). The Chiltern Society and other groups monitor groundwater for many rivers along the route and data should be available. This will be particularly important for the Chilterns chalk streams which are a globally rare resource vulnerable to small changes in groundwater availability.
7. Data will also be available from water companies and these should be consulted as a matter of course. This does not appear to have taken place so far and should be rectified with reference being made as part of Section 11.2.3.
8. The Board considers that a width of 250m from either side of the route alignment is wholly inadequate for the purpose of assessing the impacts on aquifers like that in the Chilterns because water movement within bedrock will take place over much greater distances. As part of catchment sensitive management the whole catchment for rivers should be considered, particularly when dewatering and boring through saturated bedrock which forms part of an aquifer are being considered. The Board also considers that the statement that contamination migration beyond this distance (250m) 'is likely to be minimal or could be mitigated' is inaccurate and should be removed.

11.3 Consultation

Consultation as part of the EIA process

9. Section 11.3.2 lists a number of organisations that will be consulted during preparation of the EIA. The Board considers that not only should such consultations already have taken place, they should involve a much wider set of consultees which should include local experts and others with a great deal of knowledge about the local environment.

11.5 Scope of assessment

10. The Sections that deal with this issue (11.5.1 to 11.5.3) are considered to be wholly inadequate. They do not address the possible contamination that may arise both during construction and in the operational phase (which is specifically excluded from the temporal scope). Therefore, the Board suggests that the scope of the assessment should include the need to address the contamination issues as detailed above over the life of the scheme. The temporal scope should include: an assessment of contamination pre-construction to establish a baseline, during construction, on opening and post-construction (plus 5 years, plus 10 years and plus 30 years).

11.6 Assessment methodology

Significance criteria

11. Section 11.6.4 suggests that for contamination to present a significant potential effect it must be demonstrated that there is an identifiable source. This appears to suggest that only those contaminants found on site will be considered. The Board is of the opinion that this is inadequate because contaminants could be brought onto site as part of the construction. Such an event should be scoped into the EIA process.
12. Section 11.6.5 suggests that the distances of receptors and resources from the route may be reduced in Table 10 if pathways between source and receptor are weak, for example where underlying ground is impermeable to groundwater flow. Clearly, if such pathways are strong, for example with underlying ground that is very permeable to groundwater flow (such as the chalk of the Chilterns AONB) then the distances given should be increased not decreased because the impacts are likely to be felt much more widely.
13. Table 10 should recognise that the Chilterns Chalk Streams are a globally rare resource.
14. One example of a high magnitude of impact given in Table 11 is the 'likely significant contamination of a primary aquifer'. Any contamination of an aquifer, especially one such as that which lies within the Chilterns

AONB, would lead to very serious impacts that could not easily be remedied.

15. Tables 10, 11 and 12 attempt to detail various impact magnitudes, receptor values and/or sensitivities and the significance of the effect criteria. The Board would have expected HS2 to be consistent in the use of such tables and matrices and for them to be provided for each chapter. This is not the case and should be addressed.

Construction effects

16. Section 11.6.12 states that land contamination will 'be manifest only during the construction phase'. This is clearly not true as there is the possibility that contamination could arise post-construction and this should be scoped into the EIA.
17. Section 11.6.14 claims that remediation of groundwater would be regarded as a beneficial effect. How is this to be achieved?

Operational effects

18. Section 11.6.15 states that operational effects are scoped out of the assessment. As described above it is quite possible that contamination could result post-construction and this should therefore be scoped in and considered within an appropriate temporal framework. One aspect that appears to receive no consideration is the requirement for the installation and operation of water collection and treatment plants to deal with waste from trains as well as water run-off (from track as well as trains for example). Such facilities are likely to be required to be operating on a permanent basis with consequent implications for noise and CO₂ emissions for example.

Cumulative effects

19. The Board considers that the cumulative effects and interrelatedness of the various issues should be addressed in a separate section at the end of the Scoping Report.

11.7 Assumptions

20. Section 11.7.1 includes an arbitrary figure of 250m either side of the route alignment as an area to be reviewed. This distance is more than likely to be inadequate and should be reviewed and varied according to the location of each part of the route and the likely contaminants that are either present or which might be brought onto the site.
21. Section 11.7.3 states that land contamination has the potential to affect groundwater resources, then pushes this issue to Chapter 17. The Board considers that the link between land contamination and water

bodies has not been fully assessed and that a full consideration of this should take place in this Chapter with appropriate cross references.

Chapter 12 Landscape, townscape and visual assessment

General comments

1. The Chilterns Area of Outstanding Natural Beauty is an internationally recognised designated landscape. The Chilterns Conservation Board is the statutory body established to conserve and enhance the natural beauty of the AONB and, as such, we are concerned that the landscape and visual assessments carried out within the AONB give an accurate indication of the impacts of the proposals.
2. When considering a designated landscape it is necessary to look both at the wider landscape and at the individual components of a landscape area. Damage to individual components of a landscape area can affect the reputation of the AONB as a whole. The study area must not be merely restricted to the ZTV but should cover all landscape areas and components affected by the development.

12.1 Introduction

3. 12.1.4. and Figure 3. In identifying the zone of theoretical visibility (ZTV) all construction, operational, mitigation and potential offsetting measures need to be assessed.
4. The ZTV must include structure and infrastructure and also the loss of or change to individual landscape components currently present (e.g. woodlands, hedgerows, field patterns and lanes).

12.2 Establishment of baseline and definition of survey

5. 12.2.1 and 12.2.2. The AoS is not detailed enough to set out the baseline for the EIA.
6. 12.2.3. The Chilterns AONB is internationally recognised and not merely of national importance.
7. 12.2.5. The Chilterns Conservation Board recommends that survey work is required in all seasons - winter and summer are not sufficient. For example, the AONB attracts large numbers of visitors to see the bluebell woodlands in the spring and to see the autumnal colours of mixed woodlands. The impact on these seasonally attractive components must be assessed.

8. The proposed methodology for preparing the ZTV and series of mapping needs to be clearly articulated. The ZTV must set out which aspects of the built form are to be included. Woodland cover must be included as topography. All aspects should be agreed with the consultees.
9. The reporting unit to describe the landscape character should be identified. This should be the district level character areas, informed by national and county character assessments. If the assessors intend to subdivide the District character areas to identify local character areas, this should be made clear.
10. All visual receptors must be identified, not just key viewpoints. These may be grouped but must be comprehensive.
11. 12.2.6. The area of the AONB affected by the proposals includes wide expansive views, secluded hidden valleys between blocks of woodland and intimate locations within small fields or woodlands. The 'comprehensive photographic record' must reflect this diversity and record all seasons (see comments to 12.2.5 above).

Landscape and townscape baseline

12. 12.2.7. Woodland cover must be included as topography.

Landscape and townscape character assessment

13. 12.2.8 and 12.2.9. Character area report sheets should be used for field studies and baseline information and should be made available to consultees for verification of accuracy.

Tranquillity

14. 12.2.11. The definition of the meaning of the word 'tranquillity' must be agreed and how it is to be measured under each factor listed.

Landscape and townscape value

15. 12.2.13 and Table 13. The AONB status has international recognition as a Category V Protected Landscape by the International Union for the Conservation of Nature. The international importance of protected landscapes must be included in the EIA.

Sensitivity Criteria

16. 12.2.14 and Table 14. 'Professional judgement' will be used to assess sensitivity. It is important that such judgement can demonstrate independence from the development project. As the statutory authority for the Chilterns AONB, the Chilterns Conservation Board will want to test and verify all assessments relating to the AONB.

17. In many instances, parts of the AONB will be high sensitivity not only because they are in the AONB but also because they fall under another high sensitivity category. This double (or even triple in some cases) sensitivity must be factored in.
18. 12.2.16. Night time character must take account of maintenance works, access shafts and evacuation facilities, new road lighting.

Visual Baseline Selection of viewpoints

19. 12.2.18. The Chilterns Conservation Board is classed as one of the 'relevant stakeholders' to agree viewpoints. We wish to agree all viewpoints of the route both within the AONB and outside that might affect the setting of the AONB.
20. 12.2.19. See comments above (12.2.6).

Sensitivity

21. 12.2.21 and Table 15. Table 15 is overly simple and does not fully reflect the LI guidelines. It should be changed accordingly. One aspect of the existing table that would not be appropriate is that many sporting activities (including cycling), more or less formal, are held within the AONB specifically because of the landscape setting – sensitivity would not be low.

12.3 Consultation

22. 12.3.2. Although changes have been made to the route and design elements as a result of consultation, these have yet to be tested under EIA and therefore there is no basis for the assertion that these satisfactorily address environmental matters. The Conservation Board asserts that aspects of the current design of the non-tunnelled route within the AONB (including shallower cuttings north of South Heath and deeper, wider cuttings through the Ancient Woodland of Mantles Wood) are potentially more damaging in landscape and wider environmental terms than previous route designs.
23. All design options must be examined with the same rigour.
24. 12.3.3. Any landscape earthworks and planting within the AONB would need to be of the highest quality and complement the local character of the Misbourne Valley. The Conservation Board is concerned that soil bunds as noise barriers could potentially be detrimental in landscape terms.

25. There has been frequent mention of the planting of 'two million trees' over the last two years – again this is overly simplistic as design, species, and on-going management are crucial.
26. 12.3.4. The Chiltern Hills escarpment crosses a direct line between London and the West Midlands.
27. The 'additional tunnelling' mentioned does not answer the concerns raised during consultation. All mitigation options need to be tested.

12.4 Key aspects of the scheme for the topic

28. 12.4.1. The assessment of construction works must include: all temporary fencing, temporary exposure of chalk, removal of existing vegetation along the line (including any advanced works and the period of time before reinstatement), temporary signage, spoil movements, machinery and personnel working within the route corridor as well as construction traffic on public roads.
29. Infrastructure and utility diversions must include assessment of the wider impacts of road and rail closures and diversions and their impacts on local people and visitors to the AONB.
30. 12.4.2. See 12.3.3 above. Features should also include cut and cover, bridges (road and footpath), road diversion /'upgrading', lighting, communication masts, signage.

12.5 Scope of assessment

31. 12.5.1. The *Design Manual for Roads and Bridges* is not regarded as current best practice. All route and infrastructure design should be of the highest standard and aim to set international standards from the start of the operational period.

Temporal Scope

32. 12.5.6. The Year 1 assessment should be at pre-planting, unless this has been done in advance by more than a year and has established; Year 15 is usual practice. Year 60 is too far in advance so an additional assessment is required at year 25. The Year 15 and 25 assessments must, at minimum, be winter and summer though the Board would wish to see spring and autumn as well.
33. All impact assessments must include the 'worst case' – e.g. from the most exposed views, in winter.

12.6 Assessment methodology

Visual assessment methodology

34. 12.6.5. to 12.6.9.
- The LVIA must consider indirect effects on the landscape arising from other environmental impacts.
 - The use of the ZTV to define the spatial scope of the Study is welcomed but impacts beyond this geographical area may need to be considered. The LVIA must show that that this has been examined.
 - The LVIA must describe opportunities for advanced planting and phasing and the impacts of this. The LVIA must take into account that the possibility that landscape mitigation, such as screen planting, can have a significant negative impact e.g. obscuring of valued open views or introduction of alien vegetation patterns.
 - 12.6.7. A full seasonal assessment is required.
 - The LVIA must inform the assessment of the impact on the setting of historic assets. This should be done in close collaboration with the Cultural Heritage identification of the significance of the setting to a heritage asset. The significance of the setting of each asset should be agreed with EH and BCC. This may require a material amount of field work and research as to date this has not always been a priority, although it is now a requirement of NPPF. The assessment should take account of elements borrowed from the wider landscape which contributed to the design, siting or orientation of a heritage asset.

Determining magnitude of change

35. 12.6.10 and Table 18. The 'magnitude of change' must identify the impact on the part of a Landscape Character Areas affected. It is not appropriate to argue that as only part of the LCA is affected, the impact is therefore lower.

Verifiable photomontage methodology

36. 12.6.12 and 13.
- Photomontages must be produced for the main elements: viaducts, bridges, tunnel portals, cut and cover, major earthworks, and other permanent developments e.g. service area, masts; and also typical more minor elements such as road diversions, tunnel shaft building and access design, and others. The location of photomontages should be agreed with the relevant consultees.
 - The methodology for photomontages must be in accordance with the latest guidance from the Landscape Institute.
 - A greater level of illustration to inform the consultees and general public must be carried out. This should include animation, fly throughs etc.

Cumulative effects assessment

34. 12.6.14. The significance of cumulative effects must be assessed. Cumulative effects must be fully described. The cumulative effect of impacts of 'minor' significance should be included as well as the cumulative adverse effect of the impact of the development in conjunction with existing detractors on the AONB such as the pylon line. Potential mitigation to address such cumulative impacts should be set out (such as undergrounding pylon lines).
35. **Other**
- The LVIA must take account of the impacts of other mitigation measures.
 - There should be evidence that the EIA has informed the design and that the development of mitigation measures under each topic has been carried out comprehensively taking into account the effects on other topics. The EIA is an iterative process.
 - All suggested mitigation proposals should be fully assessed and the implementation costs taken back to the business case and reflected in the benefit : cost ratio.
 - The EIA must test the effects under each topic against international policy and guidance, against the NPPF and other national policy. The effects should also be considered against regional and local policy and guidance.
 - Consultees should be invited to comment on the full baseline information for accuracy and this should inform the impact assessment.
 - The EIA should identify shortfalls in the adequacy or accuracy of data available and agree with consultees on how these shortfalls will be addressed

Chapter 13 Noise and Vibration

General Comments

1. The EIA has to be relied upon as being prepared from the most rigorous and detailed base and as such the previously available Appraisal of Sustainability (AoS), being defined as a high level document, cannot be used.
2. The EIA Scoping report seeks to set out the topics and methodologies to be addressed in the EIA. In this regard there are areas in this chapter where such methodologies are not sufficiently detailed or explained. There is a danger that certain areas of examination will not receive sufficient study in depth. Previous processes of the public and professional consideration of HS2 have been hampered by insufficient

information. This scope must ensure that such information is now available.

13.1 Introduction

3. In setting out the proposed approach to assessing sound and vibration effects consideration has to be given to certain fundamental principles that are defined by the scale of the project.
4. HS2 will have a very long construction period that will entail activity on both sections of the route and the route as a whole. There will be facilities set up that will be in use for long periods of time. Construction camps, equipment storage and maintenance, spoil storage and handling, haul routes, site haul roads and so on. Consequently such areas should not be considered as having short term impacts but should be recognised from the outset as having long term impact and their potential effect should be assessed on that basis. It has to be a matter of judgment as to what constitutes a long term construction impact but it is suggested that any facility or use that is in place for more than six months should be considered as an operational source and assessed accordingly.

13.2 Ground borne sound and vibration

5. The scoping report sets out the fact that ground borne sound and vibration is a recognized potential impact from rail operations and can occur in both the operational and construction phases. The design of the track-bed and considered working practices for land preparation, construction and tunnelling can contribute to ensuring that the potential impacts are minimised.
6. 13.2.16 However, the spatial effect of the assessment in this regard is suggested as being limited to 85m from the centre line of the track or nearest construction activity. Given the essentially unpredictable scale of such impacts and their dependence upon possible unpredictable factors such as geological influences it is suggested that this 170m corridor is extended to 350m. This is particularly important where such geological factors and buried infrastructure are known to aid the transmission of ground borne sound and vibration and, possibly even more importantly, where underground geological parameters are not known.

Impact criteria (direct impacts)

7. 13.2.26, Table 20. The measure of train noise takes no account of duration of the impact nor of time of day. Ground borne vibration induced noise in a dwelling is a very distressing effect and can be influenced by the shape and construction of the affected area. It is generated by the walls of the room vibrating in response to the driving vibration travelling through the ground. Cure of such a condition is very

difficult and needs measures such as floating the dwelling on an independent foundation slab. It is therefore doubly important that the potential incidence of such effects is rigorously explored as post completion mitigation is not usually possible. It is therefore suggested that a very severe criterion of acceptability is adopted to assess these effects where an expected impact exposure of greater than 35dB LpAS.max be assessed as a very high adverse effect. This consideration should apply to direct, indirect, operational and construction sources.

13.3 Airborne Sound

8. It is recognised that sound generated by the project has the potential to cause disturbance to neighbouring sound sensitive receptors. This recognition is welcomed and should be interpreted in the declared spirit of the design of this project. Namely, that more will be done to examine and mitigate potential adverse effects than is required by the regulations or has been done in the past.

Consultation

9. 13.3.8 and 13.3.9. Where this is an area where most knowledge and experience is held by local communities it should be considered essential that local community groups be considered as key stakeholders.
10. 13.3.10 Response to consultation on AoS. Six recurring matters have been identified in this report from the AoS consultation. These are merely noted. A statement must be included in the EIA that these matters will be properly considered and addressed. The AoS was defined by HS2 Ltd on a number of occasions as a 'high level document'. Some matters were excluded or limited to a passing reference without explanation as being of significant complication and 'liable to confuse' if set out in the AoS. It was further stated that all detailed work would be included in the EIA.
11. As an example 'A request to present contour maps' has been noted. Leaving aside this understatement, it must be accepted that noise contour maps are a basic noise assessment tool, especially so in regard to this project. A commitment must now be made that they will be presented to show the extent of noise exposure for the various assessed options of the project. Short term, long term, direct, indirect and cumulative effect sets of contours for each iterative step of the design process should be provided. It is complex and can be confusing but it is for the presenters of the EIA to explain the process.
12. The matter of noise contours maps is just one example of the concerns raised at the consultation stage. The other matters are similarly not addressed in this scoping report beyond their mention. They should also be fully examined and full explanation and justification given as to

the consideration and acceptance of these matters.

Key aspects of the scheme for the topic.

13. 13.3.11. The need to define the temporal extent of a 'temporary effect'. As set out above, a temporary noise source should not be present for longer than six months. After this time it becomes an operational source and should be assessed accordingly.
14. 13.3.12. The use of 'best practicable means' (BPM) to decide on a mitigation measure during the construction phase is generally an acceptable way to proceed. However, the needs and expectations of the local community should not be overridden by the economic consideration inherent in the BPM methodology. The proactive community engagement process must include the provision of advance notice of activities and allow time for a response. The process must not be allowed to become merely reactive.
15. 13.3.13. Operational source sound levels may be reduced by performance specification of the component elements – however, this process cannot specify equipment noise outputs of hardware that is at present not even designed let alone available.
16. Accordingly where equipment specification is used to define source noise levels used in modelling inputs, no assumptions should be made that rely upon possible future reductions of noise output of equipment. As is the declared position of any planning consideration the worst case assumption should be made in all circumstances.

Scope of assessment

17. 13.3.14. The wording of this paragraph is not clear. The temporal scope should include the construction period, year of opening, a time consistent with the highest rail traffic pattern and a suitable time period thereafter (possibly 25 years after opening).
18. 13.3.15 Spatial scope for direct effects - operational noise. Noise assessment should be within a corridor of 1km (urban) or 2km (rural) wide but extended where the area of the prescribed noise exposure contour exceeds this area.
19. 13.3.16. Spatial scope indirect effects. It is stated that a qualitative assessment be made where the indirect effect of HS2 are + 3dB in LAeq,T. At this level of change it is accepted that the majority of the exposed population would notice the change. It is now accepted that in transport noise assessment such changes in noise have an effect at 1dB and significant numbers of an exposed population are aware of adverse effects. It is no longer acceptable to make the assumption that + 3dB marks the limit of perceptible and therefore insignificant noise change. A +1dB change is also an intrinsic part of the qualification for

treatment of a property under the Noise Insulation Regulations. Both of these considerations lead to the suggestion that the spatial scope for indirect effects should be an area exhibiting a change exceeding +1dB in the baseline sound level of LAeq,T for day or night.

Assessment Methodology Legislation and Guidance

20. 13.3.17. The Environmental Noise Directive (END) proposes that events that occur during the evening and night receive a weighting to take account of the increased sensitivity of respondents to exposure at these times. This Lden index is in use among many member states of the EU and it is to be expected that over the lifetime of the noise assessment period of this project, now until 2026, it will be Directed for use across the EU. The proposed EIA scope is remiss in not including these considerations within this EIA.
21. 13.3.19. Confidence intervals and wind effect should be included in published noise contours.
22. It is noted that the method to be used for the EIA calculates maximum sound levels for each train as well as equivalent continuous sound levels. This is welcomed and the undertaking must be given that contours of both indices will be published for the incremental design stages and the EIA final report.
23. 13.3.21. The publication of the number of properties estimated to qualify under the Noise Insulation Regulations should not be taken as any indicator of the extent of the adverse impact of these proposals. The choice of the qualifying level was influenced by the cost of provision of noise insulation for the number of properties so exposed and not on the basis of the effect of the noise on the occupants. Without question properties exposed to less than the NIR qualification levels would have a significant adverse reaction to such exposure. The mention of the publication of these figures and no others should not be taken as the limit of published information from the EIA. Such figures must be augmented by the noise contours.

Impact Criteria (direct impacts) Airborne Sound – operational train movements

24. 13.3.24. A level of 55dB has been shown to initiate sleep disturbance. Exposures within this environment of 85dB external would be severely detrimental.
25. It is suggested that the values to be included in the EIA for this identification purpose should be a change of +1dB in daytime or night-time Noise exposure or an exposure of greater than 65dB Lmax as a façade noise level.

26. 13.3.25. Further consideration of the possible noise impact will only take place if the absolute sound levels from the proposed scheme are above 50dB LAeq by day and 40dB LAeq by night. Such a methodology of impact consideration will remove any consideration of noise being an effect where the ambient background levels are low. The effect of HS2 on quiet areas would effectively be ignored. This exclusion of impacts with an exposure to lower values of HS2 noise also removes the consideration of those dwellings exposed to peak noise. It is suggested that the qualifying levels should be 45dB LAeq,T by day and 35dB LAeq,T by night.
27. 13.3.26. The magnitude of the impact, in essence the effect of the noise exposure, will be quantified using a semantic scale. This scale is defined entirely by the degree of the change in the value of the impact. There is no consideration of the absolute value of the impact. It is noted that a change of >1dB and <3dB is defined as a small impact. With any semantic scale the discrimination of detail is difficult. However a 'small impact' should not be confused with an 'insignificant impact'.

Airborne Sound – operational static sources

28. 13.3.28., Table 26. Using this sieve method would result in noise activity from these sources not being acknowledged as even being present until a 'moderate effect' impact was present. Such an approach is likely to understate any likely noise situation. In accord with the general methods described above, incoming rating levels 1dB above the background should be indicative of an incoming static noise operational impact source being present.

Impact Criteria (indirect effects)

29. 13.3.29. Distinction is made in this section between areas of high levels of sound and areas of quieter current exposure. The former would be considered as having a potential impact if the incoming indirect effect resulted in a 1dB increase whereas the latter would need a 3dB increase for the same consideration. The inference from this is that it is considered that quieter areas are more tolerant of increased noise exposure. This goes against all intuitive reasoning. Surely it must be the case that if an area is quiet then a small increase is of more impact than the same increase in a noisy area. To even embark on this argument is an admission that ambient noise is a relevant consideration and that absolute noise level as well as comparative noise level should be considered. This reasoning should be extended to examination of areas of tranquillity and certainly to the AONB.

Significance Criteria

30. 13.3.30 – 13.3.31. These sections have been considered in the scoping report in a cursory manner. The significance criteria are described in a descriptive way and no indication is offered as to the criteria to be

used. For example, in 13.3.31, the factors to be taken into account are relevant but no measure is suggested to apply the 'magnitude of the forecast impact'. Also, how are the potential combined impacts of sound and vibration to be 'combined'?

Significance Criteria – Quiet Areas

31. 13.3.32. Under the heading of indirect impacts the criteria to be used are not specified. The reference to the criteria set out in the 'Noise Action Plans (NAP) in England for Quiet Areas' is not helpful. As the Defra website states : The Action Plans apply in particular to the most 'Important Areas' as established by the noise mapping and also set out a process for identifying and aiming to protect 'Quiet Areas' from an increase in noise in agglomerations. With regard to HS2 there is a huge concern about railway noise intrusion into areas of the countryside that are prized and highly regarded. These include the nationally designated Chilterns Area of Outstanding Natural Beauty (AONB). The fact that these are rural areas means that they are not within 'agglomerations' and would therefore not fall within the NAP. The Scoping report must include a consideration of how these potential impacts are to be considered and assessed in these very special areas. Such studies as the Tranquillity Mapping of the Cannock Chase AONB 2007 identify noise intrusion as significant adverse effect on the tranquillity of an area. The EIA must expressly consider such previous studies and include a section in the methodology setting out how such impacts are to be assessed. This section includes a statement to the effect that the effectiveness of mitigation through design or other means will be considered in the significance criteria. The EIA process requires that the classification of potential impacts be carried out after mitigation, if such mitigation is possible. The cost of such mitigation would of course fall upon the project.

Assumptions

32. 13.3.36. A brief set of the assumptions to be used for airborne sound assessment is shown. This list is woefully short. This project is of a national scale and will take a number of years to come to fruition. Over that time expectations of what is environmentally acceptable will change. Standards will rise. In accord with any sensible planning process and certainly within the Planning profession any future estimates and assumptions must always take a worst case view. The 'END' will impose measures, methods and specifications that must be considered. The EIA methodology must consider these possible requirements in its assessment.

Other

33. It is important that all aspects of the development are fully assessed.

34. Adequate detail has to be supplied to ensure all aspects of the proposals are fully assessed.
35. Where mitigation proposals are considered, they must be fully assessed with implementation costs fed back to the business case and reflected in the benefit: cost ratio.
36. No mention is made of assessing the impact of ground, airborne noise or vibration on wildlife (very brief mention is made in chapter 9- Ecology). There is likely to be significant disturbance during both the construction and operation phases on bats and breeding birds – though other species will also be affected – this needs to be assessed.
37. Many of the factors covered by separate chapters within the report have inter-related impacts. As mentioned elsewhere in this response, the Conservation Board recommends that a separate section is included in the report that covers all the cumulative impacts of significance of different sections – moderate impacts in a number of related areas might lead to a higher combined impact.

Chapter 14 Socio-economics

General comments

1. Though this Chapter is supposed to relate to both social and economic impacts, the Board considers that it relates primarily to business impacts. It does not appear that societal impacts are addressed in any detail at all. It appears that the preparation of this chapter has been rushed resulting in a vagueness that does not help engagement. The cumulative local economic impacts must be considered.
2. For places like the Chilterns AONB societal impacts will be keenly felt. There is likely to be a reduction in the number of visitors due to the reputational damage. For example, the Chilterns AONB is used by many film companies and they are likely to go elsewhere if they cannot guarantee being able to film or get the right location. In addition, due to severance of rights of way there will be a lack of access to services and facilities and in many instances this will lead to increases in the length of journeys to work. Similarly, there will be a loss of asset value for many businesses and such costs need to be built into the overall business case. These are local impacts that affect the national case and all should be scoped into the EIA.
3. One key issue that has not been addressed is that of mitigation. The costs of mitigation have not been worked out and we do not therefore know what the impacts are likely to be. This should also be scoped in. Another cost implication that will affect many is that associated with changes that will be required to be made to the many publications that

affect promoted or walking and cycling routes for example (there are many such examples in the Chilterns AONB which will require changes, all of which have a consequent cost).

14.1 Introduction

4. Section 14.1.1 mentions that a socio-economic assessment is needed. The Board wonders why this has not already been produced and fed into the EIA process. Furthermore, the Scoping Report does not detail: what is actually going to be assessed, what criteria are to be used to assess impacts on businesses and economies for example and where such businesses and economies actually are.
5. Section 14.1.2 states that community implications are covered in the Community Assessment. What is this and where can it be found? Section 14.1.3 describes at least two different assessments that will feed into different elements of different business cases. This causes a great deal of confusion and the Board considers that the impacts on local businesses should feed into the national business case and that all of the impacts should be assessed together, particularly as a lesser impact at a local level could have far reaching consequences for both local businesses and society. In addition, the cumulative impact of local effects should also be built in and feed into the wider business case.

14.2 Establishment of baseline and definition of survey

Baseline data and methods

6. Section 14.2.3 claims that stakeholder views will inform how best to approach the more qualitative aspects of some work. How will those views be ascertained and what likelihood is there that they will ultimately influence the outcome?
7. Section 14.2.5 talks about baseline information being presented against comparator statistics for benchmark areas – what does this mean?
8. Extra studies are to be carried out, though these are not yet known. Any such studies should relate to Community Forum areas and be guided by those forums.

14.3 Consultation

Consultation on the AoS

9. Section 14.3.1 states that key stakeholders (only business related ones are listed) were consulted through a reference group in preparation. Who were the stakeholders and when were they consulted? Social impacts and costs to society may not all be related to businesses, in

fact many such impacts and costs will be felt by both residents and visitors as well as businesses.

10. Section 14.3.2 claims that 7,487 responses stated that the proposed network will create jobs across the UK and then states that 'a number' of respondents expressed doubt about the forecasted economic benefits (undoubtedly significantly more than 7,487). Without including a specific number in relation to the negative aspects we cannot gauge what level of opposition there was. This is misleading and disingenuous and should be corrected. This section also talks about communities that 'would not see any benefits'. The EIA should clearly show what all impacts are likely to be – whether positive, negative or neutral.

Consultation as part of the EIA process

11. Section 14.3.4 refers to the Socio-Economic Assessment being carried out. What is and where is it? Aside from the fact that we don't know what it is or where to find it, we consider that such studies should be available now because the EIA Scoping Report at present lacks detail and transparency. This section also states that local authorities within 1-2km of stations, interchanges, junctions and depots will be consulted – the Board considers that this consultation should be extended to apply to the whole route. In addition, the Board considers that because social and economic impacts on local communities are not addressed in the Community Chapter they should be addressed here.

14.4 Key aspects of the scheme

12. Section 14.4.1 details what HS2 considers to be a number of relevant aspects of the scheme. The Board is of the opinion that this list should be extended by scoping in likely significant effects such as disruption to the Chiltern Railways line and the local road and public right of way network. It should be stressed that many of the changes in accessibility will be negative and this therefore needs to be properly scoped.

14.4 Scope of assessment

Spatial scope

13. The Board considers that the spatial scope detailed for business displacement in Table 27 is far too narrow. There should be a much wider scope as roads and rights of way could be severed (temporarily or permanently) which could impact on businesses some miles from the route. The spatial scope should therefore be flexible enough to accommodate this likely impact.
14. Table 27 fails to address the negative impacts of job losses, loss of visitors, reputational damage, and loss of asset value and fails to address social costs such as longer journeys to work and to services and facilities for example.

Temporal scope

15. The Board considers that the temporal scope detailed in Section 14.5.2 is too narrow and should be extended to at least 20 years post completion.

14.6 Assessment methodology

Cumulative effects

16. The Board considers that the cumulative effects and interrelatedness of the various issues should be addressed in a separate section at the end of the Scoping Report.

14.7 Assumptions

17. Section 14.7.1 states that it is assumed that there will be no major changes in technology and method of work that lead to changes in the skills mix etc. This is an absurd statement and appears to be contrary to the Government's own policy in connection with the desire to reduce the need to travel and takes no account of the fact that there are continual advances in technology at a rapid rate which do lead to changes in the methods of work. The rollout of high speed broadband is one such example which is more than likely to lead to a significant reduction in the need to travel.

Chapter 15 Traffic and transport

15.1 Introduction

1. Despite the statements in Section 15.1.2, the Board considers that all transport modelling should already have been undertaken, particularly as there may be later changes to the proposed scope of the EIA.

Issues to be considered

2. Section 15.1.3 does not appear to contain sufficient detail by which to judge likely significant impacts. For example, it should clearly consider the impacts arising from the construction and operation of the scheme: temporary closures of all routes (roads and public rights of way/footpaths) and the severance or stopping up of all routes with a full consideration of the impacts on CO₂ emissions, as well as any impacts on journey times and distances and changes in amenity for all users, not just those listed in this section. The Board is concerned about any assessment of traffic impact in the rural areas, particularly for the construction phase. However, there is no information on: the routes and points of access for construction traffic and whether there will be the need for new or upgraded highways to accommodate this; the

impacts on historic rights of way and landscape features that will be lost due to the need to gain access to the wider highway network; the location of haul roads and construction compounds; the number of construction workers and times of operation, and the number of heavy vehicle movements and over what timescale. In addition, the loss of amenity on pedestrian routes and rights of way is not assessed, similarly the social and distributional impacts of severance are not assessed.

15.2 Establishment of baseline and definition of survey requirements

3. Section 15.2.2 states that the future baseline will include consideration of the growth in travel demand. Studies have shown that although there is likely to be growth in local traffic, often arising due to new developments taking place there won't be growth in overall travel demand, it is understood that this has reached a plateau and is more than likely to decrease over time, particularly when other changes in technology are taken into account. The use of IT, for example, is making a considerable impact on the need and demand for travel and this should clearly be scoped into the EIA. At a local level any growth in local traffic must be acknowledged and scoped in, in order that any impacts of construction traffic are adequately assessed.

15.3 Consultation

Consultation as part of the EIA process

4. Section 15.3.2 lists a number of organisations that will be consulted on traffic and transport issues. Whilst accepting that this will not be an exhaustive list, the Board would have expected it to appear in the list because it is a statutory body with responsibility for a nationally protected landscape and with purposes and duties relevant to this topic. In addition, the Board's own publication 'Environmental Guidelines for the Management of Highways in the Chilterns' is also considered to be relevant and should be assessed as part of the EIA.

15.4 Key aspects of the scheme for the topic

5. Section 15.4.1 fails to include car and other users who are likely to be affected by the scheme. The Board considers that the following should be added to the list in Section 15.4.1: routes and points of access, haul roads, construction compounds, new highways and improvements and any other changes to existing highways.

15.5 Scope of assessment

Spatial scope - temporary

6. The Board considers that the spatial scope of the assessment, both temporary and permanent, is not sufficiently well defined and that a map or plan should be included showing the extent of the likely impacts on the transport networks under consideration. Some of the elements listed in Section 15.5.2 are likely to be permanent and the subdivision into temporary and permanent causes confusion. In some instances some things that are installed or undertaken on a temporary basis will not be removed and conditions restored to those that pre-dated the scheme. These elements will therefore become permanent and should be properly considered (new roads to enable construction for example). It would be better to assess the spatial scope as a single entity. Whatever is decided the following comments are also relevant: the additional maintenance required for local roads due to the number and frequency of heavy goods vehicle movements should be scoped in and addressed in the overall business case and the spatial scope should be extended beyond the current scope for roads and other rights of way because 'in the vicinity' of the scheme is considered to be unclear and too narrow.

15.6 Assessment methodology

7. Section 15.6.1 mentions the Transport Assessment – what is this and where is it? The Transport Assessment should be informed by a much more detailed scheme description than that which has been provided so far and by a much more detailed scoping exercise than provided in the current Scoping Report.

Guidance

8. Section 15.6.4 lists two guidance documents in connection with transport assessments. Whilst not directly related to the transport assessment, the Board considers that it will be vital to get the detail right on the interface where roads and other rights of way cross the HS2 route. The Board is concerned that the Design Manual for Roads and Bridges (DMRB) is relied on many times in the Scoping Report and we consider that there needs to be a level of caution in its use, especially on rural 'C' and unclassified roads. The Board considers that HS2 should fund the development of an independent guidance document that would provide advice about good design, particularly for bridges on rural routes and networks. This is particularly pertinent as we are at the start of the project that may go beyond Birmingham and it is an issue that many rural areas will face. The Board is of the opinion that this would be a positive step on HS2's part in ensuring that the design is of the highest and most appropriate standard for the location and type of road and is not just an off the shelf DMRB standard.

Public transport delay

9. Though the impacts of delays on public transport are considered to be adequately addressed in Section 15.6.7, this Section fails to scope in the likely impacts on the Chiltern Railways line and at Euston. These should be included and the resulting costs (as well as those that will be associated with the impacts that have already been identified) should be included as part of the overall business case.

Traffic Flows and delays to vehicle occupants

10. Though Section 15.6.9 appears to be fairly comprehensive, the Board considers that in some instances smaller increases in traffic levels may be significant depending on the local conditions. The Board would expect HS2 Ltd. to identify such issues in discussion with the relevant highway authority and other interested bodies such as the Board.

Vulnerable road user delay and loss of amenity

11. The Board considers that more detailed consideration should be given in Section 15.6.11 to the implications for pedestrians, cyclists and other users of Public Rights of Way due to any changes in topography or route arising from the scheme.
12. The Board considers that the scale of the impacts that are scoped in Section 15.6.12 is too narrow. For instance, the scales attributed to the number of travellers affected are less than 200 (minor), 200 to 1,000 (moderate) and greater than 1,000 (major). For many rural areas there will be reduced numbers of users of rural roads and other routes, and in many instances this may be less than 200 in total. However, if all users are delayed and/or lose some element of amenity then this is considered to be a significant impact. More detail is required for this and should be reflected in the EIA process. At no point in this section are the impacts on the Chilterns AONB considered.

Severance

13. The Scoping Report claims in Section 15.6.14 that public footpaths and routes will, wherever possible, be reinstated or alternatives provided. The Board is concerned that this section fails to adequately scope the likely impacts arising from the detrimental changes to the experience of users of such routes. This section also fails to take account of the need to ensure that any roads/bridges are properly designed and built to take account of their context rather than being standard 'off the peg' designs that accord with the principles in the Design Manual for Roads and Bridges (which the Board considers to be inappropriate as a guiding document, see above).

14. Tables 31 and 32 attempt to detail significance levels for delays and an assessment/scoring of change in severance. The Board would have expected HS2 to be consistent in the use of such tables and matrices and for them to be provided for each chapter. This is not the case and should be addressed. Notwithstanding this comment, the Board considers the Scoping Report to be inadequate in these assessments and scoring because it states (in Table 31) that only those impacts that are major (both journey time changes and number of travellers affected) will be considered as significant. It is normal practice to have a greater breadth of scales (5 rather than 3 as shown here) and the Board would have expected those to be detailed. Similar comments apply to Table 32.
15. The Board considers that Section 15.6.19 is too simplistic when it states that ‘the overall assessment is likely to be of no impact if increases in severance are broadly balanced by relief of severance’. The scheme is unlikely to lead to any relief of severance unless completely new routes are to be provided – we are not aware that this is likely to happen so the statement merely adds confusion. Furthermore, the degrees of severance will vary from place to place, it will be significant if all people in one locality are affected even if the number is small. Great care will be needed in connection with this issue.

15.7 Assumptions

16. The Board considers that Section 15.7.3 should also scope in the likely impacts arising from changes in technology which will result in both changes to demand forecasts and trip generation. The greater use of broadband for example will mean a decreased propensity to travel which will be in accordance with Government policy.

Chapter 16 Waste and material resources

General comments

1. While the expertise of the Chilterns Conservation Board does not lie in ‘Waste and Material resources’ real concerns were raised during the AoS consultation over amounts of spoil likely to be produced within the AONB, storage, transportation and disposal.

16.1 Introduction

2. 16.1.2. We are surprised at the mention of ‘eventual deconstruction’? This is not mentioned elsewhere in the report or this chapter. Other sections include a temporal scope covering time periods beyond commissioning of the route – this section has no such time frame.

16.3 Consultation

3. 16.3.3. Mention is made of re-use of material for noise and landscaping bunds. The Chilterns AONB is a nationally designated landscape and any such landscaping has potential to damage the landscape character (see our response to chapter 12). The consultation for such work within the AONB must also include the Chilterns Conservation Board which has a statutory duty to protect the designated landscape.

16.4 Key aspects of the scheme for the topic

4. 16.4.1. Consideration must also be given to the 'demolition' of woodland. While some timber may be recycled much of the root material will form waste that needs to be processed, stored and disposed of.

16.5 Scope of assessment

5. 16.5.4. The report suggests that excavated material to be used for site engineering and restoration will be excluded from the assessment. However, such materials may require processing (separation into different graded components) and storage – potentially for a considerable time period before subsequent use. Storage might in itself require soil stripping of the storage area with measures taken to retain materials and avoid contamination of watercourses or the aquifer from silt or other run-off. All such potential impacts must be assessed.

16.6 Assessment methodology

6. 16.6.1. The report states that there is no recognised methodology. Such a project of major national transport infrastructure should seek to establish the highest standards of methodology that will be accepted as a benchmark at an international level. Basing the assessment on 'professional judgement' and other projects is not sufficiently robust.
7. 16.6.2. As with 16.5.4 above, material storage must be included.

Significance Criteria

8. 16.6.11 and Table 33. The Conservation Board is concerned at the amounts of waste that are used to define minor, moderate and adverse degrees of significance. These are all assessed against local, regional and national landscape capacity but no account is taken of collection, storage and transport of waste to landfill. Even the minor adverse capacity requirement of up to 2,000,000 tonnes, if transported by road, would require a minimum of 100,000 full lorry (20t) movements, twice that when including empty lorries travelling to the site where waste is produced. Such extra heavy road use will have carbon emission and road maintenance implications which should be fully assessed within the relevant section of the EIA.

16.7 Assumptions

9. 16.7.1. Currently there is no clear reference within section 17 to liquid waste (waste water or sewage) – this omission should be rectified.
10. 16.7.4. Include waste from removal of woodland (see 16.4.1 above).

Chapter 17 Water resources and flood risk

17.1 Introduction

1. The report needs to set out a clear methodology for assessment based on a commitment to minimising environmental harm. In the case of water resources, this should include a clear commitment that the Proposed Scheme will not lead to any deterioration in Water Framework Directive status for any of the water bodies impacted.

17.2 Establishment of baseline and definition of survey

2. Section 17.2.1 states that ‘The baseline conditions will be those set at the time of assessment, i.e. documented during the baseline data collection phase’, and argues that ‘given the variable nature of the water environment through time it is not feasible to set a baseline for the future at time of construction or operation’. The Board fundamentally disagrees with this approach for the following reasons. Firstly, current conditions are highly atypical so should not be relied upon as the sole source of baseline data. Secondly, the water environment is not unique in being variable over time, and this should not preclude attempts to anticipate future conditions based on all the data available including long-term ground water flow data and climate change forecasts. Consideration should also be given to re-surveying nearer to the time of construction. Thirdly, the proposed approach appears to directly contradict the statement in section 17.7 to the effect that the baseline conditions will assume that Water Framework Directive (WFD) targets for 2027 (all water bodies to have good overall status) are met.
3. Reference is made repeatedly in this chapter to WFD status with regard to ‘physico –chemical and hydromorphology’, but not to ecological or overall status. No reason is given for this and this should be corrected throughout.

Baseline Data and Method

4. Data on river flows needs to be added to the list of proposed baseline data in Table 35.

17.3 Consultation

5. The Conservation Board and many other organisations in addition to those few listed in section 17.3.1 raised concerns during the consultation on the AoS regarding impacts of HS2 on water resources. The scoping report needs to make clear how the issues raised, for example impacts on flows and water quality and on the chalk aquifer, will be addressed.
6. It is not clear what the purpose of the statement in Section 17.3.5 is, but this does not address the issues raised by the Conservation Board with regard to impacts on water bodies and the aquifer.
7. The Conservation Board expects to be consulted as part of the production of the final scoping report and the EIA process.

17.4 Key aspects of the scheme for the topic

8. Section 17.4 demonstrates a lack of understanding about what aquifers are and how they work. It is important to appreciate that the aquifer is not just the water-containing rock, it is also the part which has the potential to contain water which can act as an important conduit to the ground water store. Alterations to the route made in the January 2012 announcement did not reduce the area of aquifer potentially impacted by the scheme.
9. Specific reference is needed in this section about the potential impacts of tunnelling below water bodies including the River Misbourne and Shardeloes Lake. The Board has serious concerns about the potential impacts on river flows, water quality and changes in hydrology and groundwater flow that may impact flows further downstream which do not appear to be addressed here.
10. Opportunities to improve river flows need to be incorporated (along with their costs) from the start of the project, for example re-instatement of water treatment works. There is little point creating more natural river channels (see section 17.4.2) if flow is significantly disrupted by the impacts of the Proposed Scheme.
11. Section 16.7.1 states that 'Liquid waste such as wastewater from dewatering operations and sewage from buildings and operation of the rolling stock is covered in Section 17 of this report', however no reference to this specific issue was found in Section 17. These issues need to be fully addressed in the scoping report and EIA.
12. Water consumption through both the construction and operation of the scheme does not seem to be addressed in the draft scoping report. This is an important omission and information needs to be included in the draft scoping report on likely water consumption and proposals for sustainable water collection and re-use.

17.5 Scope of Assessment

13. The proposed spatial scope with regard to surface water features (section 17.5.1) is far too narrow and does not take account of potential impacts on the hydrology of water courses, for example loss of flow in the Lower Misbourne as a result of route crossings more than 1km away. Similarly the approach to groundwater bodies proposed in 17.5.2 is too narrow, and again it is important to recognise that the aquifer is not just the water-containing rock. It is also important to take account of the fact that current groundwater conditions are atypical when assessing the distance between the aquifer and the lowest point of proposed construction. The statement in Section 17.5.3 that 'the assessment will consider the possible effects throughout the catchment of the impacted water course or the wider aquifer extent' is welcomed. However, this statement appears to directly contradict the narrower approach set out in the previous two sections.
14. It is unclear what section 17.5.2 refers to.

Temporal Scope

15. Section 17.5.6 makes no mention of assessment of effects of impacts beyond 2026, the end of the construction phase. This is not acceptable.

17.6 Assessment methodology

16. The approach to assessment of significance in this section would appear to result in only major impacts - for example permanent loss of flood plain - on highly or very highly sensitive/rare receptors being considered 'of significance'. This would appear to be designed to screen out all but the most extreme impacts from being considered significant.
17. The approach to receptors is not acceptable as it appears to conflate sensitivity, rarity, value as well as condition/quality of possible receptors. This aspect needs to be re-written so that it is clear what is proposed. Again with regard to WFD class overall status should be referred to not just physico-chemical status.
18. Section 17.6.2 states that 'tests against the provisions of (the Water Framework Directive) have been built into the assessment methodology for this topic'. This needs to be clearly set out.
19. Sections 17.6.7 and 17.6.11 provide examples of possible effects – the report should set out all effects which it is proposed to assess, not examples of effects. There are clear omissions from these lists for example water bodies e.g. lakes and ponds, productivity of the aquifer (section 17.6.11), public and private water supplies.

20. The Board is extremely concerned at the statement at section 17.6.8 about potential effects on surface water bodies. The report states that calculations will be carried out to 'estimate the quantity of pollution that could be released during routine construction operations'.....'Estimates will be conservative and will assume little or no dispersion.' Release of pollution which may impact on surface water bodies is unacceptable. What is meant by estimates being conservative is unclear, and the assumption of little or no dispersion - in water bodies – is astounding. Again, there is a need for a clear statement of principle that measures will be put in place to ensure no deterioration in water quality or flow.
21. Section 17.6.9 refers to use of 'a suitable combination of expert judgement, analytical calculation and computational modelling' in relation to effects on groundwater. This is not adequate, the scoping report needs to set out the proposed methodology and details of personnel to be involved.

Cumulative effects

22. Again, the report should list all anticipated cumulative effects to be assessed, not just a few examples. There are many obvious omissions to this list including impacts of housing growth on water demand, increased run off, increased frequency of extreme weather events due to climate change.

17.7 Assumptions

23. Section 17.7.1 refers to 'the quality of all water courses will be at least 'good' status' – water courses should be replaced by water bodies as that is the reference in the WFD, and 'good overall status' rather than 'good' status. If the scoping report is suggesting that impacts will be assessed against the WFD standards that constitute 'good overall status' for all water bodies (by 2027), the Board welcomes this approach. However, 17.7.1 does appear to contradict 17.2.1.

Chapter 18 Structure of the Environmental Statement

General comments

1. The Board is greatly concerned that this Chapter lacks any real detail at all. It appears to have been drafted in a rush and without undertaking adequate research. From the text included the Board is not reassured that the Environmental Statement will contain the required topics and the right level of detail.
2. Once complete the Environmental Statement (including all of the associated studies and appendices) should be published in paper form, particularly for those people that request it and those that are not able

to access electronic copies, and made widely available for a full period of public consultation which should last at least 12 weeks. Everyone that is involved in the process should feel confident that any engagement with it will be likely to influence the outcome.

3. Section 18.1.2 is considered to inadequately reflect what will be required as part of the Environmental Statement. Not only should the Environmental Statement include detail about the main alternatives studied taking into account the environmental effects, it should also say why they have been rejected. The effects on the whole route should be addressed (not 'a number of sections' as described in the fourth bullet point) and this should cover the whole of the 'Y' route impacts as well. The main report should contain a detailed description of all the assessments that will have been done, not just some of them with others relegated to appendices. The main report should also include detailed descriptions of all mitigation that is to be proposed and the likely impacts arising from such mitigation. This Section should also have detailed the likely content of the Environmental Statement and at present it does not.
4. Section 18.1.3 lists a series of documents that will be produced to support the Environmental Statement. The Board considers that the following should also be available:
 - assessments of mitigation measures,
 - studies of mental health and well-being/psychological impacts (in addition to the Health Impact Assessment),
 - community assessment (which has been mentioned in the Scoping Report without any background detail and is not detailed here either),
 - noise contour maps, and
 - GIS files for results and analysis at sufficiently detailed scale to allow interpretation at a local level.
5. All of these should be annexed to the main report and the subject of consultation.