MINUTES OF ORAL EVIDENCE
taken before the

HIGH SPEED RAIL BILL COMMITTEE

on the

HIGH SPEED RAIL (WEST MIDLANDS – CREWE) BILL

Monday 19 March 2018 (Afternoon)

In Committee Room 5

PRESENT:

James Duddridge (Chair)
Sandy Martin
Mrs Sheryll Murray
Martin Whitfield
Bill Wiggin

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IN ATTENDANCE:

Timothy Mould QC, Lead Counsel, Department for Transport
James Strachan QC, Counsel, Department for Transport

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WITNESSES:

Professor Andrew McNaughton, Strategic Technical Adviser, HS2 Ltd

IN PUBLIC SESSION
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1. THE CHAIR: Thank you very much for all coming here this afternoon and a welcome to the first meeting of High Speed Rail (West Midlands to Crewe) Bill Select Committee’s substantive programme. As you’re all aware the Committee’s purposes are different to that of an ordinary Select Committee. Our role is to hear the concerns of petitioners against the Bill and determine whether there should be changes to the Bill itself or undertakings made by the Bill’s promoters in order to address these concerns. Today we’ll be hearing opening statements from the promoter. Anyone viewing the sessions online can also find the presentations they’ll be giving on our website. Tomorrow, Wednesday, we will be in Staffordshire to get an overview of the route. Next week we’ll have a series of sessions on environmental issues, tunnelling, noise and compensation. We’ll be making these presentations of these sessions available again on our website.

2. There were 188 petitioners against the Bill. We understand the Secretary of State is challenging the rights to be heard of 26 of those petitioners. We hope to begin hearing those challenges before Easter and complete them shortly after the Easter recess when we return. We’ll then be moving on to hearing petitioners on substantive issues raised in their petitions. The Committee’s already announced it will begin to consider the major in principle issues namely the deeper, longer tunnel between Madeley and Whitmore, the proposed Aldersley Rough alternative to stone infrastructure maintenance based railhead and the lowering of the viaduct at King’s Bromley. We’ll then look at route wide agricultural issues and rural issues before hearing petitioners along the route progressing from south to north. We’ll then move on to consider the compulsory acquisition cases before finishing with multi-site organisations and utilities.

3. For practical and logistical reasons we’ll intend to hold all of our hearings in London in the House of Commons Hearing Committee Room 5 although we will be making visits along the route during the course of our work. Initially we’ll be sitting on Mondays, Tuesdays, Wednesdays and Thursdays and hope to finish hearing petitioners before the House rises on 24 July. The Committee will be broadly taking a similar approach to the previous HS2 Committee although, as you can see, a different membership. So we may decide to adjust our approach as we go on, having learnt from the process. We’re not expecting any divisions but there could be divisions today. But
throughout proceedings if there are divisions we will take a short 15-minute break, adding an additional 10 minutes if there are further divisions. I’d appreciate if everyone could avoid acronyms, legal terminology and certainly Latin or any other foreign languages. Now, on that note, can I invite counsel to HS2 to introduce their team and we will take a short break of five minutes after, Mr Mould, you present and then move on to the next session.

**HS2 Ltd**

**Opening Statement by Mr Mould**

4. MR MOULD QC (DfT): Thank you very much indeed, sir, and good afternoon to you and your Committee. My name is Timothy Mould, Queen’s Counsel. I am appearing before you during these proceedings as the Advocate for the promoter of this Bill. With me, firstly to my right, Mr James Strachan, Queen’s Counsel. Just sitting behind me, Ms Jacqueline Lean and Ms Clare Parry. Also with me but unable to be present today, Ms Justine Thornton, Queen’s Counsel and Mr Mark Westmoreland Smith. You will be meeting them over the course of the coming days and weeks. I have very much taken to heart your injunction in relation to acronyms. If I may say so it is an injunction that I, if I had more power vested in me, would have invited others over the course of my career to conform to.

5. Planning is a field of practice where acronyms I’m afraid are one of the great bedevilsments of the work we do. Perhaps law less so because most planning lawyers will tell you they don’t know very much about the law. They’re being to some degree disingenuous in that respect. But certainly jargon is also something that we will seek to avoid unless it is absolutely unavoidable. You will find during the course of the next hour or so I may sail fairly close to the wind in relation to one or two legal comments. But I hope that you will indulge me at least today and I will take account of what you’ve said about that in the coming days and weeks.

6. The Bill before your Committee authorises the construction and operation of a new high speed railway line approximately 36 miles or 58 kilometres in length running between the West Midlands and Crewe, known as Phase 2A of High Speed 2. The railway will run between the connection with Phase One of High Speed 2 at Fradley to the northeast of Lichfield in Staffordshire and the connection to the West Coast Main
Line to the south of Crewe in Cheshire. We do have some slides, which we’ll show. I may not draw attention to them specifically but they will come up just to provide us with some pointers as I go through. So we have a screenshot of the Bill and we then turn to the next slide, which just gives you a very broad overview of the route from the connection with Phase One to the south and the connections at and just south of Crew to the north. The numbers on the slide, just lest there be any doubt about it, they correspond to the five community areas into which the route has been conveniently divided for the purposes of environmental impact assessment.

7. A few words about High Speed 2. It is a new high speed railway promoted by the Government to connect major cities in the United Kingdom. Stations in London, Birmingham, Leeds, Manchester and the East Midlands and interchange stations at Old Oak Common in West London and south of Birmingham will be served by dedicated high speed train services. Such services will also run beyond the High Speed 2 network to serve destinations including Liverpool, Glasgow, Edinburgh, Newcastle and York. The railway is being developed in phases and the first phase has been authorised by the enactment of the High Speed Rail (London – West Midlands) Act about a year ago in 2017. That Act authorises the construction and operation of Phase One, which runs between London, Birmingham and the West Midlands and is programmed to begin main construction in 2018 and to come into service from 2026. That is the line shown in the red notation on the screen in front of you. The dark blue line is Phase Two, running between the West Midlands and Crewe. Then the medium blue notation shows you the remainder of the Y network which, I shall say in a moment, is described as Phase 2B. The light blue are sections of the existing railway line onto which HS2 trains will run during the course of operation.

8. So Phase Two of the railway will extend the high-speed network to the northwest to Manchester and to the northeast to Leeds, completing the so-called Y network. Phase 2A with which you are concerned comprises the western section of Phase Two between the West Midlands and Crewe. Construction of Phase 2A is expected to begin in 2020 and the railway expected to come into operation from 2027. Phase 2B will complete the western leg of the high-speed railway to Manchester and the eastern leg to Leeds. The Government will introduce a Phase 2B Bill later in this Parliament with a view to beginning construction in 2023 and bringing the completed Y network into service from
2033. Later this afternoon, as you know, you will hear in more detail about our Bill and the route thereof from Professor McNaughton. The Bill was introduced into Parliament in July of last year and received its second reading on 30 January of this year.

9. Now I hope it may be helpful if I very briefly outline our position on one or two aspects of procedure. The Bill, as we know, is a hybrid Bill as it’s been given a second reading. The promoter is not required to prove the need for Phase 2A before your Committee nor is the principle of the Bill open to debate. The principle is as follows. Firstly, the provision of a high-speed railway between a junction with Phase One of High Speed 2 near Fradley Wood in Staffordshire and a junction with the West Coast Main Line near Crewe in Cheshire. Secondly, the broad route alignment of the Phase Two railway as set out on the deposited plans. Thirdly, the fact that there are to be no new stations on or additional spurs from the Phase Two railway itself. According to the established practice of this House your Committee has a quasi-judicial function; each petitioner must prove his or her case. Moreover a petitioner against a hybrid Bill must, if challenged, prove that he has standing to petition according to the established rules and orders of the House. In a report published in July 1988, the Joint Committee on Private Bill Procedure said that it considered that, ‘It was a fundamental principle of private legislation procedure that only parties specially affected should be entitled to be heard and that the rules of standing must be upheld. If they’re allowed to lapse,’ said that Committee, ‘more of Members’ time will be taken up in Private Bill Committees.’ They recommended the promoters should be encouraged to police the rules of standing and that Private Bill Committees should not deprecate a reasonable but unsuccessful challenge.

10. At the outset of these proceedings in this House before the Phase One Select Committee the promoter took a cautious approach to challenging petitioners’ right to be heard or standing. In its second Special Report of 2015/16 at paragraph 394, that Committee stated its belief that there should be ‘a stricter approach.’ For the purposes of the present Bill therefore the promoter has been guided by the established principle upon which a person has the right to be heard, that is to say that a person has the right to be heard only if his or her property or interests are directly and specially affected by the Bill. In this context, an ‘interest’ means a property right which a person could enforce at law in the absence of the Bill. On that basis we have challenged, as you stated in your
opening remarks, 26 of the petitioners who have laid petitions before your Committee. Our intention is that your Committee should be able to focus its business upon the petitions of those persons whose property or interests are indeed specially and directly affected by this Bill rather than a wider and less defined body of persons and organisations who have a more general interest in the subject matter of the Bill.

11. We have not challenged the standing of local authorities including parish councils in whose area the works are situated. We anticipate that those authorities will bring to the Committee any points of concern arising from the Bill and relating to their areas as a whole or to local communities whom they represent. Such concerns might include for example, the effects of construction traffic and road closures or the need for further environmental mitigation. Nor has the promoter challenged the standing of any Member of this House who has lodged a petition against the Bill. There is a further important point to be made at the outset where the promoter believes that a petitioner who is to be heard by your Committee will raise issues that traverse the principle of the Bill or otherwise go beyond the proper and reasonable scope of a petition against the hybrid Bill, the promoter will draw that matter to your attention in response to the petition. In this way we hope to assist your Committee to direct petitioners to focus their cases before you on those matters that in accordance with the established rules and usage of this House, your Committee will wish to consider and to include in your special report.

12. I turn to the case for the Phase 2A scheme. The Government’s case for the new high-speed rail network is primarily to ensure that the intercity rail network supports the nation’s economic development by providing sufficient capacity and improved connectivity between major urban centres. This will help to build a stronger more balanced economy delivering growth and wider economic benefits. HS2 will provide sufficient capacity to meet the long-term demand for travel and to improve connectivity by reducing journey times and making travel easier. The scheme will improve resilience and reliability across the network. From 2026, Phase One of HS2 will significantly improve connectivity between London, Birmingham and the West Midlands. From 2027, Phase 2A will deliver faster journey times between London, Crewe, Manchester, Liverpool, Preston, Warrington, Wigan and Glasgow. The northwest and Scotland will enjoy wider benefits resulting from HS2 more quickly through accelerating the delivery of the network to Crewe. And Phase 2A will also help
to relieve pressure on the West Coast Main Line at Colwich Junction and around Stafford, improving the performance and resilience of the existing railway. On the screen in front of you I’ve taken a table from the non-technical summary of the environmental statement. Just to give you an example, if you take London Euston to Manchester, the current position, that is to say without HS2, the journey typically takes two hours and seven minutes. With Phase One in place from 2026 that journey will reduce to one hour and 41 minutes. From 2027 with HS2 on current programme that will reduce further to one hour and a half. There are corresponding reductions for other typical journeys between cities in urban areas as you see on the page in front of you.

13. We expect that up to six trains per hour will run in each direction on Phase 2A from 2027, rising to 12 trains per hour with the Y network in full operation after 2033. The railway will be operational between five in the morning and midnight on Mondays to Saturdays and between eight in the morning and midnight on Sundays. Services will operate as 200 metre long trains accommodating up to 550 passengers or 400 metre long trains accommodating up to 1,100 passengers depending on demand and the time of day. Trains will be so-called ‘classic compatible’ trains; that is to say able to run both on the high-speed network itself and also to pass on to the West Coast Main Line. Trains will run at speeds of up to 360 kilometres per hour, which is the equivalent of 225 miles per hour.

14. I turn briefly to public consultation. Public consultation on the Government’s preferred route for Phase Two of the railway took place in 2013. Following the announcement of the proposed route for Phase 2A in autumn of 2015, the Government consulted the public on a package of proposed measures to alleviate the impact of generalised property blight. Public consultation on the working draft environmental statement took place between September and November 2016. The Government also consulted the public on a series of refinements to the proposed design of the Phase 2A project including the location of both the railhead to serve construction of Phase 2A and the permanent rail maintenance facility on land between the M6 motorway and the line of the Phase Two railway at Stone, which I shall return to a little later. I have the front page of that design refinement consultation document on the screen in front of you. To support these public consultations, public events were held in towns and villages local to the route of the railway. Engagement with local authorities, statutory bodies and local
communities affected by the Phase Two project has been central to preparation of the Bill. That engagement continues with your petitioners with a view to resolving their concerns where the promoter is able to do so.

15. I turn then to the Bill itself. It closely follows the format of the Phase One act. There is an information paper, B9, which provides an introduction to its main powers and I shall summarise them now. First of all, there are works powers. These are powers to undertake and maintain what are known as scheduled works and other ancillary works such as environmental mitigation works. Those are works in connection with the construction and operation of the Phase 2A railway. The scheduled works are the principal engineering and railway works such as the railway itself, highways and utilities diversions required for delivery of the Phase 2A railway under the Bill. The relevant clauses are clauses 1 and 2 and the first, second and third schedules together with the deposited Bill plans and sections, of which an example is on the screen in front of you. Now the plan itself will take a bit of time to decipher. I don’t propose to do that now but what I can do is if you work on the principle that the shaded areas on this plan comprise the lands within the Bill limits, to which I’ll turn in a moment, I’ll just flash up the corresponding plans from the environmental statement. This is the construction phase plan. So this is works, the use of the lands during the period of the construction of the railway. You can see that we have a series of construction facilities. We have a satellite compound, which is in the medium orange notation just in the middle of the plan. Then a series of brown coloured areas on either side of the railway trace, which are designated for the storage of materials, excavated material and so on and so forth.

16. Then with the grey notation both on the right-hand side, that is to say to the south of this plan, the north point is to the left side on the screen in front of you, then further north, to the east of the railway and then a further grey area on the western side of the trace – each of those denotes an area that is for which powers are sought to located a borrow pit, the purpose of which I shall explain a little later in my talk. So you can see that quite extensive land areas are required during construction not only to construct the permanent way itself which is the line of the route running south/north along the middle of the page, but also for the areas in the immediate vicinity which are required for a variety of construction purposes. Then finally, running across the page there is a column of land shown pink with the notation ‘UT’. That shows the line of a major
utility work, which is required in order to accommodate the construction and operation of the railway. That’s an overhead power line shown there.

17. You then turn to the next plan; this is the CT-06 series, you’ll become familiar with this. This is the operational phase so this is once construction is completed and the railway has come into operation from 2027 onwards. As you can see the areas which are subject to permanent occupation and use are much narrower. We have the railway itself. We have some lands immediately to the east and west which are required for the creation of an embankment, the Pyford north embankment, which are required for planting and habitat creation purposes. Those are the green notations you see to ensure that the railway is properly and effectively mitigated. Then moving north we have the Kings Bromley Viaduct. And you can see also where roads have had to be diverted in order to accommodate the railway so we have a diversion of the A515 Lichfield Road as it passes across the railway line. We have a diversion of Shaw Lane, which is a more minor highway. And you can see that utility and overhead power line to which works have been carried out in order to enable the railway to pass beneath it under the terms of the Bill.

18. Another point of reference here, you can see a minor highway known as Common Lane, which presently crosses over the line of the railway. On the present plans that road is to be stopped up as a highway at the point at which it crosses and a diversion is to be provided to accommodate farm traffic in its place. I say no more about that now because that is a point of controversy with your petitioners but it gives you an indication of the range of construction and operational measures and works for which the land shown on the parliamentary plans in the notation that I showed you at the start of this little presentation to which those lands will be put in the event and following enactment of the Bill.

19. With that little digression I return to my script. The Bill and the parliamentary plans prescribed limits of deviation within which scheduled works be carried out in order to allow an appropriate degree of flexibility for the detailed design of the project. You will hear more in the coming weeks about limits of deviation because they can be controversial. The Bill also prescribes limits of land to be acquired or used whose purpose is to accommodate ancillary works such as environmental mitigation. Together all those lands, that is to say the lands within the limits of deviation and the limits of
land to be acquired and used, they constitute what are known as the Bill limits, which again is another term that will be very commonly used during the course of our proceedings.

20. Turning from the works powers to the next category which are highway powers included in schedule 4 to the Bill. These powers are necessary to enable the creation of means of access, interference with existing highways and the construction and maintenance of new or altered highways in connection with delivery of the project. Then there are fundamentally powers to acquire compulsory or by agreement the land or rights which are within the Bill limits that are required for Phase 2A purposes. They’re conferred by clauses 4-9 of the Bill. The exercise of such powers is subject to the payment of compensation under the Land Compensation Act, which are applied to this Bill. Schedule 15 also confers powers upon the nominated undertaker to possess and to use land within Bill limits temporarily for Phase 2A purposes subject also to the payment of compensation and to the restoration of land that is temporarily occupied for those purposes in accordance with an approved scheme. Planning permission conferred under clause 17 in the form of deemed planning permission, forgive me a rather technical term, ‘For development that is not comprised in a scheduled work deemed planning permission is granted where it has been subject to environmental impact assessment or is not likely to have significant effects on the environment.’

21. The detailed planning regime is set out in schedule 17 to the Bill: ‘The nominated undertaker is required to obtain from local planning authorities approval of the detailed design of the project and of a range of construction matters as set out in that schedule to the Bill.’ Clauses 21-33 disapply a series of general regulatory legislation and instead the Bill provides a tailor made regime for the regulation of construction and operation which is appropriate to a project that is specifically authorised by an Act of Parliament.’ That is explained in information paper B4, very briefly. An example is this: the Bill removes the need to obtain specific listed building consent for works to listed buildings affected by the route and in their place there are alternative procedures provided for under something known as the heritage memorandum, which I shall touch on later. But not all existing regulatory controls are dis-applied or substituted. For example, the site licencing regime under the Control of Pollution Act 1974 applies to the Phase 2A project in the usual way. There are then clauses 34-39 that address railway matters.
Clauses 45-47 are concerned with the relocation of certain undertakings affected by the Bill and with carrying out reinstatement work. The Secretary of State is given power to promote a compulsory purchase order to acquire land for the purposes of relocating an undertaking displaced by the project. In simple language, where it is thought to be in the public interest that a valuable commercial undertaking should be relocated rather than simply have access to land compensation, then the Bill enables the Secretary of State to take that course. That is explained further in an information paper, which is in our series ‘C7: Business Relocation’.

22. Clause 48 empower the Secretary of State to enforce environmental covenants entered into for the purposes of protecting and maintaining landscaping and other works carried out in order to mitigate the effects of the railway. You may or may not know that it is an established principle of law that ordinarily what are known as positive covenants, that is to say covenants which actually require someone to do something associated with their land, they can’t be enforced against successors in title. So if the Secretary of State entered into covenant with a current landowner to manage an area of habitat, compensation planting or something of that kind, without this clause that obligation might lapse on the transmission of title to that land. This overcomes that risk.

23. Finally, in relation to the Bill, I draw attention to the protected provisions for statutory undertakers. Those are set out in schedule 32. These ensure that the interests of undertakers such as gas and electricity providers enjoy proper protection during the delivery of our project. There are also a number of protected provision agreements with certain undertakers for example Network Rail.

24. Another term that you will hear referred to is the nominated undertaker. That’s dealt with in clause 41 it is the person or body to be appointed by the Secretary of State who will be responsible for delivery of the Phase 2A project. An important point of law, which I mention now is that the law places upon the nominated undertaker a ‘non delegable duty of care’ to exercise reasonable care and skill in the execution of the works authorised by the Bill. That is a point of debate that may come before you in relation to some petitions. It’s important I state that for the record straightaway. Until the Bill is enacted HS2 Ltd is the body responsible to the Secretary of State for developing and promoting the Bill. Additional provisions, certain changes will need to be made to the scheme promoted by the Bill whilst it’s before your Committee. For
example, if the design is refined or, in response to petitions, or indeed in response to your Committee’s directions. Where the promoter proposes alterations to the Bill scheme which extend the powers in the Bill it is necessary to promote what is known as an additional provision for that purpose. We expect to submit the first set of additional provisions next Friday 23 March. These deal primarily with minor design changes to the Bill. And some further changes are likely to be brought forward during the proceedings before your Committee. Any additional provisions will have to be the subject of environmental assessment and consultation in accordance with the Standing Orders of the House and petitions may be made against additional provisions in the same way as they have been made against the Bill scheme itself. More information on this topic is to be found in information paper B11.

25. A little more about the planning regime in the Bill explained in information paper B2. ‘The current design of Phase 2A project provides the level of detail needed for the purposes of the Bill and for the requirements of environment impact assessment. The level of detailed design required in order to enable the project to be constructed and operated will not have been completed until after Royal Assent. Schedule 17 creates the planning regime that regulates the process of detailed design. Although planning permission for the project is granted by the Bill it is local planning authorities who exercise the power of approval of the detailed design under the procedures provided by that schedule. Qualifying local authorities will have powers to regulate and approve a wide range of matters in the interests of preserving the local environment, the local amenity, to prevent prejudicial effects on road safety and the free flow of traffic, to preserve the historic and the natural environment. These matters include firstly, plans and specifications for a range of elements including buildings, embankments, cuttings, artificial lighting, earthworks, fences and barriers; secondly, certain construction arrangements for lorry routing, artificial lighting, construction camps, construction storage sites, working and restoring borrow pits and spoil handling; thirdly, plans for the restoration of construction sites; and fourthly the approval of works before they’re brought into use in order to confirm the efficacy of mitigation works carried out for the operation of the railway.’

26. Turning to the assessment of environmental effects, as required by the Standing Orders of the House the Bill was submitted to Parliament together with an
environmental statement. That includes a detailed description of the project, a comprehensive assessment of its likely environmental effects and of the range of measures that are proposed for the purpose of mitigating its adverse effects. It is accompanied by a non-technical summary. It consists of a number of reports. Volume 1 provides an introduction to the project and the process of environmental impact assessment and also of alternatives considered by the promoter. Volume 2, as I’ve mentioned, consists of the five community area reports and the map books. You’ve seen an extract from one of those a few moments ago. Volumes 3 and 4 deal respectively with route wide and off-route effects. Volume 5 comprises technical appendices and other technical data.

27. The courts have said frequently that the principal purpose of an environmental statement is to assist environmental decision-making and to generate environmental information in the widest sense to enable the decision-maker to be well informed about the project that he or she is being asked to authorise. Here Parliament is the decision-maker and for these reasons Standing Order 224A requires that the environmental statement be subject to public consultation and for the comments received in response to that consultation to be reported in summary to the House by an independent assessor appointed for that purpose. That procedure has been followed. Golder Associates submitted a report to the House in November of last year and many members of the public, local authorities, non-governmental organisations, businesses and individuals took the time to participate actively in that process. The House had the benefit of the key points made in response to the environmental statement from Golder’s report. That document was placed in the library of the house. Where we submit supplementary environmental information under Standing Orders, that information is also subject to public consultation and to reporting to the House in accordance with Standing Order 224A.

28. Information papers, I’ve touched on a number of those already. They were published on the website in July 2017. They are thematic. They explain the position of the promoter on various issues and they include a number of policies and commitments in respect of particular aspects of the project. I refer for example to the series from E9 to E13 that sets out the promoter’s commitment for the control of noise. There are a wide range of such papers. We shall draw them to your attention as appropriate as we
proceed through the hearings.

29. A petition response documents and exhibits – petition response documents are specific written responses to individual petitions. We shall also produce exhibits as appropriate, which will provide the basis for our evidence in response to individual petitions that you hear. We shall of course seek to limit the amount of volume of material that we produce to you to that which we consider to be necessary. That will obviously vary depending on the scale of the issues raised.

30. I turn then to an important topic and one which will be at the forefront of many of the petitions that you hear which has to do with compulsory purchase and land compensation. ‘The Bill will confer upon the Secretary of State the power to purchase compulsorily any land within the Bill limits that may be required for Phase 2A purposes. This includes the power to acquire rights of way and other rights over land to which the Bill relates as well as airspace and subsoil. The Bill limits extent to all that land that the promoter presently judges to be required in order to enable the construction and operation of the Phase 2A project in accordance with the Bill and in a timely and economic manner. As the detailed design of the Phase 2A project progresses, the promoter may not need to acquire the full extent of the land within Bill limits.’ In paragraphs 3.3 and 3.4 of an information paper entitled ‘Land Acquisition Policy’ which is C3 on the screen in front of you, ‘The Secretary of State has stated that in any individual case the exercise of these powers will operate on the basis that he will acquire no greater amount of land than appears to him to be reasonably required following the detailed design of the scheme.’ In paragraphs 4.2 of the same paper, ‘The Secretary of State has also made clear that in appropriate cases where land is required only for uses of work site, and upon him being satisfied that he’s able to construct the project in a timely and economic manner, in reliance only upon his powers of temporary possession and use, he will be prepared to offer a commitment not to exercise his powers of outright compulsory acquisition under clause 4 in relation to that land.’

31. I turn to safeguarding. The Secretary of State has safeguarded the land required to construct and operate the project by issuing safeguarding directions. These directions broadly reflect the land requirements set out in the Bill. The current version of these directions on the screen in front of you issued on 29 September 2017. Their purpose is explained in information paper C4. ‘It is to protect land likely to be needed for the
construction and operation of the railway from potentially conflicting development. The directions require a local planning authority to notify HS2 Ltd of applications for proposed development on land falling within the safeguarded areas. The key objective of the safeguarding directions is to enable would-be developers to engage with HS2 Ltd at an early stage to ensure that the development they propose does not prejudice delivery of the Bill scheme itself.’ It’s also important to note that safeguarding directions serve a valuable role for the owners of properties falling within the safeguarded area. They trigger the statutory arrangements that allow qualifying property owners to serve a blight notice on the Secretary of State. Since the original safeguarding directions were made in January 2016 qualifying owners of residential properties, small business premises and agricultural premises situated within the safeguarded area have been able to require the Secretary of State to acquire their land and to receive land compensation on the same basis as for compulsory purchase. That is the effect of the statutory blight regime. In the case of Phase 2A, the Secretary of State has also introduced what is known as an ‘express purchase scheme’ whose purpose is to streamline the process of acquisition under a blight notice, also explained in the information paper that is on the screen in front of you.

32. I turn to the statutory land compensation code. This Bill is subject to the provisions of the code, which are summarised in information paper C8. The code is based on the principle of fair compensation also known as the principle of equivalence. That principle says, ‘That a person whose land is subject to compulsory acquisition gets monetary compensation that is no less but not more than the loss that he has suffered as a result of compulsory purchase. Depending on the particular circumstances of each case, such compensation may be claimed for the following matters. Firstly, the open market value of the land acquired, valued on the assumption that it is to be sold in a world free from the existence or effects of the Phase 2A scheme’, so its un-blighted market value. ‘Secondly where only part of a land holding is acquired compensation will extend to any depreciation in value of retained land to cover the effects of severance by the railway and any other diminution to the value of that retained land resulting from the scheme; thirdly, disturbance compensation, examples being the costs and losses incurred as a result of an occupier having to move his or her business from the land and relocate elsewhere; fourthly, certain statutory loss payments, which are set by reference to the interests being acquired; fifthly, reasonable professional fees incurred in
negotiating and securing compensation and finally, conveyance costs.’ More detail on the practicalities can be found in a series of information papers under the ‘C’ series. I won’t read out the various names now but they’re to be found on the website. Mr Colin Smith will say more about the detail of these matters when he presents to you next week. At the heart of the compensation code is a series of longstanding general legislation that has been consistently applied by this House to major infrastructure projects promoted through primary legislation.

33. There is one matter that merits clear emphasis at the outset. Financial compensation has never been payable simply for disturbance resulting from the construction of a project undertaken in accordance with statutory powers. Persons who own and occupy neighbouring property have never been entitled to claim such compensation unless the whole or part of their property is actually acquired for the purposes of the project or they have a proprietary right that is infringed or interfered with by the project. Instead, and as with other national public works projects undertaken in recent years, the promoter will secure the operation of a comprehensive regime of environmental controls during the construction of this scheme. The purpose of those controls is to limit disturbance to neighbouring owners and occupiers as far as is reasonably practicable. I shall return to this topic when I touch on the code of construction practice and other environmental controls. But I do mention part one of the Land Compensation Act 1973 which provides a right of compensation for qualifying owner occupiers of property whose value is depreciated by physical factors such as airborne noise resulting from, and I emphasise, the operation of the railway. So there’s a clear distinction between construction and operation in that respect.

34. A major concern of petitioners in relation to HS2 has been the impact of generalised blight. Information paper C5 introduces an explanation of the Government’s package of non-statutory compensation measures, which have been designed to alleviate the impact of generalised blight resulting from the Phase 2A project. These schemes operate across HS2 on the basis of the same eligibility criteria that governed the operation of the statutory blight notice regime. That is to say they’re available to residential owner/occupiers, to the owner/occupiers of small business premises and the owner/occupiers of agricultural holdings. The schemes are voluntary purchase, alternative cash offer, rent back, need to sell and homeowner payment. Mr
Smith will give you the detail of those schemes next week. The Secretary of State has also stated that he’s willing to consider applications in cases that raise exceptional circumstances or which concern atypical properties on their individual merits.

35. I turn them to design and mitigation. No doubt much of what you hear in the coming weeks will be concerned with the impact of the construction and operation of the railway on those who live and work along or in the vicinity of the route and its impacts upon the local environment. ‘The objective, as a matter of principle, must be to enable the nation to take full advantage of the opportunities and benefits offered by this Bill whilst mitigating its adverse impacts as far as reasonably practicable. It is an important principle that the additional cost of any change to the Phase 2A project must be shown to be in reasonable proportion to the benefit that is gained by incurring it. Changes to the Bill that are disproportionate in cost to the benefits that result from them are not, we say, in the public interest.’

36. Let me explain briefly how the promoter has sought and will continue to seek to mitigate adverse environmental effects as effectively as we reasonably can. Our approach has been three-fold. Firstly, to avoid or reduce adverse environmental effects through the design of the railway and the trains themselves. Secondly, to include measures in the project to limit or reduce adverse effects, whether at the railway, sometimes referred to ‘at source’, or at the point of impact, sometimes referred to as ‘at receptor’. Thirdly, to provide compensation measures to remedy those adverse effects that remain. How that approach has been applied has been explained in the non-technical summary of the environmental statement and in much more detail supported by comprehensive technical information in the environmental statement itself. We shall draw attention to the relevant parts as necessary in response to petitioners. For present purposes I shall mention the principal design and mitigation techniques that we have used, illustrating those by reference to noise and visual effects. As to noise, you’ll be hearing from Mr Thornely-Taylor on the technicalities of that in a presentation next week. And you’ll be visiting the sound lab I believe. First and foremost the promoter has followed the principle of seeking to avoid or reduce adverse effects through the design of the railway. The alignment of the route itself has been developed and refined in order to limit the potential for adverse environmental impacts. The Phase 2A railway has been designed to take advantage of natural topography and landform to shield the
line both visually and aurally from those who live and work along the route. The creation of false cuttings and extensive planting along the route will provide further effective visual and aural screening to neighbouring occupiers and local communities. Before we move on from this slide, just to give you the context, this is a slide that I’ve taken from the non-technical summary and it’s a useful encapsulation of the approach to environmental mitigation and monitoring which I am summarising briefly in what I say to you now.

37. We then turn to the next slide which is taken from the map book for Community Area 3, Stone to Swynnerton. Perhaps if we could just blow it up a little, if you look at the key on the Ordnance Survey based here, you’ll see that the view is looking from a point between the settlement of Stone to the east and the railway line to the west. The view is looking broadly in a south westerly direction towards the railway line but also towards that area between the railway line and the M6, within which we propose to locate the railhead and the infrastructure maintenance base rail that you’ll be hearing about rather more in the coming days and weeks. If we then blow out again just to see, these of course are computer generated photo montages and they come with all the caveats that come about the ability of this kind of exercise to replicate what the human eye will see. But you see the existing winter view in the north so we’re looking across the countryside to the southwest. Then you can see, again I don’t know if we can blow it up a bit, but you can see we’ve sought to give an indication of the presence of the railway and of the maintenance base in that view. You’ll see the key features are shown. The Eccleshall Road which is just to the south of the main area of the railhead. Then, a key feature, an embankment, Yarnfield south embankment, the viaduct, the maintenance base itself and then the Yarnfield north embankment. It hasn’t come out very clearly on the screen. If you’d like to see the map book itself I’m sure we can make that available to you but it gives you an indication of the way in which we’ve sought to fold the railway, if you will, into the landscape as part of the design.

38. So I say that noise and visual impacts are either avoided or we say limited by the simple expedient of using the natural landform and the engineered railway as a noise and visual screen, tried and trusted techniques which have been shown to work on previous projects. Improvements in the design of high-speed trains are expected to bring further benefits in reducing noise by the time the railway comes into operation in
2027. The nominated undertaker will be expected to take advantage of those opportunities. Where it hasn’t been possible to limit the impact of the railway through application of these design principles, for example where the line is on embankment or on viaduct, the promoter is able effectively to limit or reduce noise from the operation of the railway by providing noise barriers. This is a tried and trusted technique. It’s important as an example of an ‘at source’ mitigation measure that I mentioned a moment ago. As regards ‘at receptor’ mitigation, an obvious example is sound insulation. That is a well-established means of mitigating railway noise and is reflected in the current statutory noise insulation regulations. We propose as regards design to engage closely with local planning authorities to seek to ensure that the design and appearance of features such as viaducts, bridges and other structures are keeping with the local environment. We’ve committed to a process of local community engagement on what are known as ‘key design elements’ of the project such as the facility at Stone and the Great Haywood Viaduct so it will enable local people to have their say on the emerging designs for such elements prior to the submission of our applications for approval under schedule 17 to the Bill.

39. There are a number of other examples of mitigation measures which apply that design approach. I won’t read them all out but I’ll just give you one that is likely to arise from time to time. By providing alternative bridleway or footpath links in place of existing routes we are able to limit the impact on that kind of local amenity. And there are others which we’ll deal with during the course of the proceedings. I acknowledge of course that notwithstanding these measures there will inevitably be some adverse effects that remain. It’s at this point that a range of compensatory measures is available to provide a remedy, sometimes monetary and sometimes in kind. I mentioned the availability of land compensation. As regards compensation in kind, an obvious example is where it is necessary to provide new habitat in order to compensate for existing habitat, which is unavoidably lost to the railway. I remind the Committee that the promoter does not regard the process of mitigation of adverse environmental effects as complete, far from it. On the contrary the promoter is confident that the process of detailed design development under the auspices of the Bill and other statutory and non-statutory environmental controls will provide further opportunities to continue to refine and improve the environmental performance of the railway.
40. That is of particular relevance to the difficult balance to be struck between securing effective mitigation of the railway and seeking to limit the interference with farming activities on holdings through which the route must pass, which is a key point of concern. The promoter has published a guide for farmers and growers which sets out the principles that the promoter will follow in seeking to achieve that balance as the detailed design of the railway progresses. On the screen I’ve shown you that but I’ve also copied paragraph 2.1.5 of that guide. I won’t read it into the transcript because it’s there and can be read. But it is one of the key commitments that the project has given in order to seek to ensure that farmers and growers are able to be involved in the detailed design of the railway as it passes through their land. Thus our ambition is that the impact on them should be kept to the reasonably practicable minimum.

41. Finally on this topic I refer to the £5 million that has been made available in an extended community and environment fund and business and local economy fund primarily for those disrupted along the line of the route of the Phase 2A project. Details of these funds, their objectives, administration and eligibility for bids are given in information paper C11. I notice we’ve got to about five past four. I think I’ve got about another ten minutes to go if that’s all right?

42. THE CHAIR: It’s time well spent.

43. MR MOULD QC (DfT): We’re on to quite an important topic now so I will deal with this. The topic I am now going to deal with is the control of environmental impacts. This is dealt with in information paper E1. ‘Without an effective control regime there will be understandable concern that the promoter or the nominated undertaking might take steps during the process of detailed design and procurement that led to an increase in the adverse environmental effects of the project over that stated in the environmental assessment before the House.’ How is this risk to be addressed? This is explained in the information paper that is in front of you and it will be the subject of Mr Peter Miller’s presentation next week. In summary, there are three distinct components that taken together will provide effective control over the environmental impacts of the project. These are, firstly, the requirements laid down by the Bill itself for the approval of detailed design and construction arrangements. I’ve touched on those. Compliance with these matters will be secured by local authorities through their existing statutory enforcement powers. Secondly, arrangements laid down
by existing general legislation such as the Control of Pollution Act. These remain applicable to the project alongside the Bill. Again, compliance with these approvals will be secured by local authorities through their existing statutory enforcement powers. Thirdly, there are all the policy commitments and undertakings given by the promoter which take effect alongside the provisions of the Bill. These are known as the environmental minimum requirements with which you will become very familiar. The acronym I fear will be used, EMRs.

44. THE CHAIR: Let’s try not.

45. MR MOULD QC (DfT): The environmental minimum requirements are the principal component of the controls which sit alongside the Bill itself. ‘Compliance with these requirements will be secured through contractual obligations binding both on the nominated undertaker and also through him on his contractors.’ An example of the category controls imposed by the Bill is that relating to the approval of construction arrangements of which an obvious example is the requirement to secure approval to lorry routes. As regards arrangements laid down by existing legislation, the obvious example is section 61 of the Control of Pollution Act, which is the regime under which local authorities will be required to licence the operation of work sites including matters such as working hours and the control of construction noise.

46. As regards the environmental minimum requirements, the general principles upon which they operate is set out in a document, the front page of which on the screen in front of you, the draft general principles document. For those who wish to familiarise themselves with that, paragraph 3.1.1 is the key paragraph. They establish a series of controls in relation to the environmental impacts of design, construction and operation of the project with which both the nominated undertaker and his contractors will be contractually obliged to apply. As their title indicates, they are intended to be minimum requirements.

47. The first component are various memoranda and deeds and agreements on planning, heritage and environmental controls. These will be developed during the passage of the Bill in consultation with local authorities and other statutory bodies such as English Heritage, Natural England and the Environment Agency and finalised with Royal Assent.
48. The second component are binding commitments in the form of undertakings and assurances given to local authorities, statutory bodies, private entities, and individuals and recorded during the passage of the Bill in the Phase 2A register of assurances and undertakings. This register will include specific policy commitments given by the promoter in the information papers to mitigate the impact of the project on property owners including the mitigation of noise impacts and of ground settlement. Again, ‘The nominated undertaker and his contractors will be contractually obliged to give effect to undertakings and assurances.’ The register was published in draft on 2 February this year and it will be updated periodically and finalised at Royal Assent.

49. The third component of these controls is the general assurance to use reasonable endeavours to adopt mitigation measures that will further reduce any environmental impacts caused by the scheme, insofar as these mitigation measures do not add unreasonable cost to the project or unreasonable delays to the construction programme.

50. The fourth component is the code of construction practice and the local environmental management plans which sit beneath it. The code is explained in information paper D3. It sets out objectives and measures to protect the environment and limit disturbance from construction activities as far as is reasonably practicable. It covers the full range of environmental topics that you would expect to see in the control of a major project of this kind. Again, compliance with its requirements will be a contractual obligation on the contractors and on the nominated undertaker.

51. I mention briefly one aspect of the code which is the obligation upon the nominated undertaker and contractors to develop comprehensive community relations plans so that local communities who have to receive the construction of the railway are given effective engagement as that process progresses.

52. I also mention the small claims scheme, explained in information paper C10 which provides a prompt and informal remedy for small claims relating to damage to property arising from the construction of the project.

53. Finally, I mention the independent construction commissioner, explained in information D4, whose role is to provide what is intended to be, a swift and informal process of handling complaints.
54. Now I must read into the register some formal matters by way of undertaking, on behalf of the Secretary of State. Firstly an expression of the Secretary of State’s intention through the controls contained in the Bill in general legislation and in the environmental minimum requirements, the Secretary of State intends that the environment impacts of constructing and operating the project should not exceed those that have been assessed in the environmental statement, save in the following circumstances:

55. That is to say where any new impacts beyond those assessed in the environmental statement firstly result from a change of circumstances which was not likely at the time of the environmental statement; or secondly, would not be likely themselves to be environmentally significant; or thirdly, result from a change or extension to the project where that change or extension does not itself require and environmental impact assessment; or fourthly, would be considered in any event as part of a separate consent procedure and therefore further environmental impact assessment, if required.

56. The purpose of that rather technical statement of intent is to make clear that where formal environmental assessment is required under the environmental impact assessment directive, works will not take place unless they have been assessed already as part of the environmental statement to the Bill, or themselves are subject to a further environmental impact assessment and development consent process.

57. I now undertake, on behalf of the Secretary of State to this House in the following terms. Insofar as the environmental minimum requirements are not directly enforceable against any person appointed as the nominated undertaker, the Secretary of State will take such steps as he considers reasonable and necessary to secure compliance with those requirements. This undertaking will be entered in the register.

58. This undertaking applies also in any case where a statutory undertaker is carrying out development for, or in connection with, the Phase 2A project in reliance on the planning permission enjoyed in consequence of the provision of the Bill, of which the marginal note is extension of permitted development rights.

59. The Secretary of State undertakes to take such steps as he considers are reasonable and necessary to secure compliance with such of the environmental minimal requirements as he considers relate to that development and are not directly enforceable
against the undertaking.

60. Now, what I have just said will plainly repay careful reading, but it reflects the undertakings given by the promoter of earlier Bills, including the Phase One Bill and its purpose is to ensure, as I say, that there is a comprehensive regime of control over the construction and operation of this railway, and to ensure that works are undertaken in accordance with the environmental assessment that is being carried out, or where that is not the case, and significant addition or different effects occur, that they themselves are subject to appropriate environmental assessment.

61. Now, my final section relates to one or two of the key design and construction issues, but I’m conscious of the time and I wonder whether it might be more sensible if I – unless there are any questions that you or your colleagues may have, if I were to interpose, as it were, Professor McNaughton, and if there is then time at the end of this session, for me to return and just address those other four or five matters, I can deal with that then. I don’t want to squeeze the Professor’s presentation because it is important that you and those who are watching should hear it. But I am in your hands on that.

62. THE CHAIR: I think it would be better if you maybe took five minutes, complete it and then end it, if the route familiarisation ends early, we’ll end early. You’ve got a slot of time. I’m happy to extend that another five minutes.

63. MR MOULD QC (DfT): Well, I’ll press on. Thank you very much. So, the first of them relates to Crewe. The project under the Bill will connect to the West Coast Main Line south of Crewe via two spur lines. The scheme includes works required to the existing railway infrastructure in the Crewe area, to enable Phase 2A train services to operate from 2027 onwards. They include a junction enhancement south of Crewe station, a new platform on the Manchester independent lines to maintain appropriate overall capacity for services through Crewe and junction enhancement at Sandbach and Maw Green to the north.

64. On 9 March of this year, the Secretary of State announced Government support for the broader Crewe hub vision, including a high speed service to Stoke and platform extensions, and a re-designed junction at Crewe to give more people access to HS2.

65. Plans for Phase 2A will need to be modified to include three matters. Firstly an
extension of platform 5 at Crewe to 400 metres to allow for the splitting and joining of HS2 services which also opens up opportunities to serve Stoke-on-Trent with HS2.

66. Secondly, a more efficient design for the proposed platform on the Manchester independent lines, incorporating a transfer deck to the main station, and thirdly, a change to the design of the southern connection from HS2 so that HS2 joins and takes over the central two lines on the existing network. Our present thinking is that these modifications will not require and additional provision to the Bill but we will keep that under review.

67. I turn then to tunnels. The Phase 2A project before the House includes two short tunnels at Whitmore Heath and Madeley, some 930 metres and 670 metres in length respectively. During the project design, a single tunnel option was considered but not selected as the greater benefits were judged not to justify the additional cost. The promoter has given further consideration to this question and published a report on the 16th of this month, last Friday. Overall, there are environment and engineering benefits of the single tunnel option compared to the Bill scheme, although these would come at a considerable increase in the cost of the Phase 2A project, and I know that petitioners are going to make what they consider to be a forceful case in favour of further tunnelling in the coming sittings of the committee.

68. Mr Smart, our chief engineer, will be available to give a short presentation on tunnelling methods in advance of hearing those petitioners, and he will make a brief presentation on traffic next week as well.

69. Turning to the railhead and the maintenance base, we propose, as I’ve said, the provision of both of those facilities in an area of land situated between the M6 motorway and the line of the Phase 2A railway near Stone. Alternative locations for these facilities were appraised during the development of the project design, and that’s described in information paper F3. Each was found to be inferior to the proposed location near Stone.

70. Since the introduction of the Bill last July, the promoter has undertaken further comparative evaluation of the merits of the proposed location of the railhead and maintenance facility near Stone against an alternative location advocated by petitioners at Aldersley Rough, and I’ve just put up a plan to show you the location of that facility.
This is the West Coast Main Line, if we can just get to that. It runs in a south-westerly, north-easterly direction across the plan. Here is the Phase 2A railway running along the plan and we are at the point between the two tunnels, Whitmore Heath to the south, Madeley to the north. So you can see that the Aldersley Rough location is broadly speaking at a point between those two tunnel locations and the idea is that it would be served by bringing back into use the currently disused Stoke to Market Drayton railway, which is the line that is running across the plan being pointed out to you now. So that’s broadly speaking the location that petitioners are advocating.

71. The promoter, on this point, remains convinced of the merits of the site near Stone as the optimal location, both for the railhead and the maintenance facility, for reasons that have been explained to petitioners and will be addressed in our response.

72. As regards borrow pits in order to serve the construction of the railway. The case for borrow pits is set out in information paper D12. In essence, the purpose of borrow pits is to enable the promoter to win high quality materials for the construction of the railway, and at the same time to seek to limit the volume of construction traffic on local roads. The materials borrowed from those pits would be brought directly onto the trace for the purposes of construction, and that’s the thinking there.

73. Ecology; I know that that is a source of particular interest. Information paper E2 addresses that, in particular, in relation ancient woodland. In simple terms, our objective is to design this project with the objective of achieving no net loss in biodiversity. How that is achieved is explained in detail through the environmental statement.

74. As regards ancient woodland, our current estimate is that some 10.2 hectares of ancient woodland would be lost to the project. Extensive measures to address this loss would be developed as part of the detailed design and they are set out in the recently published ancient woodland strategy.

75. Finally, I simply record that the Secretary of State has confirmed that, in his view, the provisions of this Bill are compatible with the European Convention on Human Rights; he has a statutory duty to consider that and he has done so, and I confirm the promoter has, and will continue, to fulfil its duties under the Equality Act 2010, the publication of the impact assessment took place at the time of introduction of the Bill.
76. At a canter, that completes my opening and I commend this Bill to your committee.

77. THE CHAIR: Thank you very much, Mr Mould. I propose we suspend for five minutes and then we’ll go up to 5.55 or before, with a route familiarisation, so we will come back at 4.28.

Sitting suspended—

On resuming:

78. THE CHAIR: Professor, welcome, and we look forward to a familiarisation with the route. I am going to try and keep on time, so we will finish at 5.55, but the time between then and now is yours.

79. PROFESSOR MCNAUGHTON: Thank you very much.

80. MR MOULD QC (DfT): So, it’s customary for me just to introduce the Professor. I know he finds this tedious, but it’s just so we have on the record a brief outline of his credentials.

81. THE CHAIR: Let’s stick with tradition.

82. MR MOULD QC (DfT): Thank you. The Professor is a fellow of the Academy of Engineering, and of the Institution of Civil Engineers. He’s also a fellow of the Royal Geographical Society. Since 2009, he’s led the specification operational design transport strategy and route development of HS2. He was principal witness before Parliament on the Phase One Bill. He chairs the International Railway Union, World High Speed Rail Committee and advises other Governments on high speed rail and allied transport policy.

83. He was chief engineer of Network Rail, accountable for overall safety and specification of the British Rail Network and chairing its investment committee. He chaired the European Union Rail Research Council and the Infrastructure Commission, and was vice-chair of the European Union transport advisory group, part of a railway career which started in 1973 in relation to rail engineering, operational and general management matters.
84. He’s an honorary professor of rail engineering at Nottingham University and a visiting profession of engineering at both Imperial College London and Southampton University. His current role within HS2 is as strategic technical adviser.

85. THE CHAIR: I think I agree with the Professor, it was a bad tradition. You know your stuff; we get the message. You’ve got a few qualifications in this subject area. Professor.

**Route Presentation by Professor McNaughton**

86. PROFESSOR MCNAUGHTON: I apologise. Thank you. Good afternoon. I will try to avoid not only legal terminology, but to try and avoid all those acronyms that the railway industry, engineers and environmentalists enjoy as well. But if I fail, please pick me up. If we get stuck in, I think. Now, Mr Mould has pinched my first slide and I think there is no ambiguity about the piece of railway we are talking about, so let’s move on very quickly and save some time.

87. I wanted to introduce a couple of slides about what the nature of high speed rail is, to set the context for the way we sought to design it through the landscape. This won’t take too long but there’s some principles that I hope you’ll find interesting and useful. The first is that it’s not a new thing, high speed rail. It is 53 years old, introduced initially in Japan back in 1964; it’s in its 54th year. You will often hear the term ‘bullet train’ used for high speed, and it actually comes from the original high speed trains with noses that are shaped like bullets.

88. The world has moved on considerably since those early days but the Japanese gave us the principles on which high speed rail has been built, which is, it’s a railway for intercity travel. With it comes, without all the vagaries of shared use with freight trains or local trains, the ability to run a very reliable service, and a safe service, even though it runs at very high speed.

89. It has matured over that half century and high speed rail anywhere is built, essentially, to international standards. It’s a relatively small gene pool of railways across the world, running to some 35,000 kilometres, 20,000 miles of high speed rail across the world. The picture I’ve shown here is just to illustrate that point. The train you see here is essentially a French branded train, although I have to say, many of the
components in it come from British engineering industry, particularly the higher value pieces.

90. The track it sits on is of a German design. The picture is actually taken in Korea. Now, I’ve chosen this picture not for any other reason I think, than to make a second point which is, if you look at the track, it is a continuous concrete slab. Conventional railways are built on concrete sleepers, but in some parts of the world, and for Phase 2A of high speed, like Phase One, our track is based on a continuous concrete slab. It is actually pre-cast and set in on a foundation. And the reason for that is that this is a very heavily used railway. In Phase Two, 12 trains an hour running at high speed is, in engineering terms, quite challenging. So, a continuous concrete slab enables us to run a safe service, but with minimal maintenance.

91. Now, when we come to consider the impact along communities along the way, Mr Mould pointed out that the railway shuts for service every night at midnight and reopens at five in the morning, and doesn’t run at all in the night time, quite unlike a conventional railway where trains run through the night.

92. The amount of maintenance we have to do in the night, where it to be conventional sleepers and ballasted track, would be considerable. But by using concrete track, which is more expensive initially, we can reduce the amount of maintenance we have to do and therefore, the amount of night time disturbance that goes with it.

93. The railway through the piece, unless I say or highlight otherwise, is a two track railway. It is powered by overhead line, that’s where the power comes from, and to give it some sense of scale, the distance between the overhead masts is around 11 metres (35 feet), which effectively gives us, Mr Mould used the word, ‘trace’ which is a technical term, and I should say a trace is simply the track width of the railway which you see effectively shown in grey underneath the train there, the foundation of the railway. If we lapse into talking about the trace, we mean the width of the railway itself, not necessarily the embankments and other things.

94. That 11 metres (35 feet) is effectively the same width as three lanes of carriageway of a road. So, our railway in all is slightly under half the width of a motorway. It carries, in passenger terms, between two and three times the passengers that can travel on a motorway in an hour. It is a very high capacity system.
95. In terms of keeping it secure, immediately next to the railway, we build a security fence. Now, this all looks, as a diagram, very engineering-y. So, the next picture is mean to put that in context. It is an image taken from the first high speed railway in this country High Speed one, in other words, the London to the Channel Tunnel railway. I’ll spend a little bit longer on this slide because I want to point out several features which is how we design a railway, and how, indeed, this would translate into Phase 2A that you are going to consider.

96. The first thing to say is that high speed trains and railways are slightly different, as well as being similar to a conventional railway. The similar bit is two tracks. The tracks are slightly further apart than on a traditional railway, simply because the trains are passing each other at very high speed.

97. I’ve mentioned that it is overhead line powered, and that’s simply because of the amount of power you need to get a high speed train going, a bit like an aeroplane. Most of the power is taken in getting up to speed and then after that, it’s basically cruising.

98. There are no signals. The control of trains at the speed we travel at is way beyond conventional signals and is controlled by in-cab devices, and computer control. A high speed railway has no level crossings. Wherever we have a right of way, we will either go over it or under it, no level crossings, and that is just fundamental to the safety of high speed trains.

99. There are no traditional railway junctions where trains cross over in front of each other, for very similar reasons. The technology we’re dealing with, we can’t mess about with those sorts of things. So, perhaps the analogy is, on a motorway, you have grade-separated junctions, so that cars don’t cross in front of lorries. We have just the same; we have grade-separated junctions. When we come to the approach to Crewe, I’ll explain what that means in practicality.

100. I highlighted a moment ago the security fence and on this picture, has been highlighted nicely now. The security fence is placed quite close to the railway and inside that barrier, there are no trees, but there is vegetation. It’s not a scorched earth. In many respects, it’s very similar to pictures you’ll see of railways from the steam era in this country, where the embankments were clipped and cut properly to avoid catching fire. But we’re not catching fire, but we don’t want leaves on the line; it’s fundamental
to our railway that it’s reliable, and reliable in all weathers.

101. Behind that fence, there is, in the middle of the trees, you may just see a typical public fence, and that’s our second boundary fence. Between the two, there are trees. This may come out slightly wrong, but I’ll describe them as, for us, the right sort of trees. In other words, trees with the kind of leaves which don’t cause us a problem in autumn.

102. The planting though is part and parcel of how you make a new railway fit in with the landscape quickly and not be some sort of horrible engineered earth structure and a blot on the landscape. This picture was taken about four – I think it was in the fourth summer after the opening of this section of High Speed One, which shows you that we can, through planting, quite quickly, soften the railway and not leave it as a sort of bare earth thing.

103. Mr Miller, when he talks to you, will talk about how that can be used to create and connect up areas where wildlife lives, effectively creating a wildlife corridor. It is not our job to create a slice through the landscape that stops wildlife migrating. We can create a longitudinal corridor.

104. The last thing to say before I move on from this slide, this is the main slide I wanted to pause with, is a fundamental difference between high speed rail and a conventional rail, or the railway that you know and love in the country today, is the railways we have today were built very much as canals were, which was to follow contours. They are curvaceous, the early trains could not climb gradients at all, virtually, and therefore a typical existing railway will have a gradient of around one in a hundred and that will be panting to get up it.

105. High speed is different. We are going at high speed; we cannot actually follow curves in the same way; it has to be quite a straight railway. In numerical terms, the curves are about four times flatter than on a traditional railway. It is a pretty straight railway. High speed trains, because of the power that they have in order to get going, can cope with gradients far better. So, whereas the conventional railway is around one in a hundred at best, we design around one in forty, which is not far short of what you would see on a motorway.
106. This helps us basically tuck the railway into the landscape better than we otherwise would be able to. Now, there are limits because we are not actually building a rollercoaster, we are building a railway and that is no good if the trains are equipped with sick bags. I trivialise it probably in the way I say it, but we have limits which are based on passenger comfort rather than on engineering matters. We do, where Mr Mould said as a principle, try and fit low into the landscape, exploit the ability to dip down as much as we can.

107. The train you see here is a Eurostar which many will know and love. It is an example of what Mr Mould called a classic compatible train. In other words, it's been designed small enough in its cross section to fit onto the British railway network and Eurostars were designed to travel at high speed on high speed line, and then to trundle through Kent initially, before we built the High Speed One. So, when we talk about a classic compatible train, we mean one that can travel as a high speed train on High Speed 2 and then cope with the vagaries of the existing railway network beyond High Speed 2.

108. Train design does continue to develop though, and Eurostars are actually about 30 years old now in their design. This is an example of a more modern train and it’s one that we’ve used to carry out our noise assessments, in terms of taking data from its performance. The point about the more modern trains is that they have learnt a lot from the car industry, in terms of making them smoother, they use generally a little less energy, even though they go faster than the older trains, and because of that, they generate slightly less noise. That’s important to us because noise is one of the bigger features that we have to mitigate for.

109. I can’t resist saying this but the train is actually Ferrari red because it is an example of a train in Europe which is being part-funded by the family that runs Ferrari.

110. A more important point is our trains will be normally 200 metres long, which in old terms, is about eight coaches long, but we can couple two together to make 400 metres, which is a very long train indeed. We do this to make as much use of the new railway as we can. But not to run fresh air around at times we don’t need to.

111. In the early days of Phase 2A which you will consider, many of the trains will be only 200 metres long, either because of the amount of demand or because of where
they’re going to on the existing railway network. When Phase 2B comes forward, assuming it finds favour, then most of the trains will be, if not all of them, a full 400 metres long. We have carried out our assessment of impacts based on the ultimate case, the ultimate case being full trains, full length throughout.

112. Last slide on the introduction. I wanted to try and bring to life a little bit one of Mr Mould’s other comments, which was about some of the design principles, although you’ll hear far more about this from Mr Miller next week. We talk about false cuttings which sounds great until you think, ‘What does he mean by false cutting?’

113. A false cutting is where we use earth which we have excavated from somewhere where we do have a cutting to build up when the railway is at ground level, or even slightly above it, to build up against the railway to reduce the visual impact of it, and to reduce the amount of noise. Earth is a tremendous absorber of noise.

114. What we have here, and there are some little numbers, and if I can chase you around the numbers for a moment. The number one illustrates that the ideal height of a false cutting is sufficiently high to pretty much hide the trains themselves, and therefore to hide the sources of noise, which is the train itself. That will vary a bit, so it’s not absolute, but that’s that first key thing.

115. The point number two is the kind of planting which I showed you an example of from High Speed One a moment ago, which does nothing much for noise but it does do a lot for the visual covering of it.

116. The little arrow three is actually meant to highlight where the security fence would be, certainly not to that height actually, it’s very illustrative. It’s at that point from there, into the train itself, that we don’t have trees, but we do have grass.

117. Point five is just pointing out where the railway is, which I’ve already gone through, so I won’t detain you there.

118. Six is the ubiquitous person who is looking at this from a distance and the objective of our mitigation is that a person at a distance is not troubled by high speed rail. I’ll leave it at that for now.

119. MR WIGGIN: What is the distance? What is eight?
120. PROFESSOR MCNAUGHTON: Seven is the public boundary fence… It can be – good challenge – it can be as much or as little as people want, and I’m not dodging the question, I’ll try and explain that. We are very flexible in how we create these. The example you’ve got here where it’s a very, very flat slope, the objective has been to return as much of land as possible to agricultural use. In other words, to create such a flat slope that all the way up to our trees at two can be, even though we’ve taken land for construction, it can be restored for productive agricultural use.

121. But other places, communities will say, ‘No, we don’t want you to spread it all out and take so much space’. It is possible to shrink that down to a very narrow bund. It has a more engineering look to it at that point, because it’s the kind of shape like a traffic soil shape. But the point I wanted to make really was, it can be as much or as little as communities want it to be, we can be very flexible.

122. Our general principle is to try and reduce in the permanent state, the amount of land we take out of productive use to as little as possible.

123. MR WIGGIN: My trigonometry would have said there was a figure for that.

124. THE CHAIR: Maybe we’ll come back to it under additional –

125. MR WIGGIN: Well, it would just be helpful to know roughly what you thought it was.

126. PROFESSOR MCNAUGHTON: I’m sorry. If we restore it around one in 12, to one in 15, then that’s about 60 metres.

127. MR WIGGIN: Okay, that’s helpful, thank you.

128. PROFESSOR MCNAUGHTON: Sorry.

129. MR WIGGIN: That’s all I needed to know.

130. PROFESSOR MCNAUGHTON: Apologies. Now, you’ve been very patient with me so far because we haven’t actually got onto the route itself, but now we’re going to. As Mr Mould has pointed out, we have 35 miles of route, our trains at full speed will cover that in just around 10 minutes.
131. Now, the route, as you can see, runs north west from the point where it starts, which is the stub on the Phase One railway, just near Lichfield, at a place called Fradley, and then continuing northwest and eventually ending up in the outskirts of Crewe. It starts in an area which is the flood plain of the River Trent, so whilst I’ve talked a lot about lowering the railway in the landscape, the first few miles for us are quite difficult in that respect because it’s a flood plain and we tend to be above the flood plain; I’m coming onto that in a moment. Then we get to an area where the countryside gets a bit more undulating, before we finish basically on the Cheshire plain, flat again.

132. I’m now going to go through a series of around 10 slides, each of which break up that 35 miles into three or four mile chunks. So we go to the start. Here, we are in the constituency of Mr Fabricant and we start, as I’ve just mentioned a moment ago, off the end of a sub provided in the Phase One Act. You’ll see in Phase One the trains coming from the south, go on a link bank onto the mainline railway in the village of Handsacre. Our railway basically is threaded between Handsacre on the west and Kings Bromley on the northeast.

133. We’re passing through the Trent flood plain and I think you mentioned at the start, Chairman, the height of the viaducts through here will be the subject of discussion with petitioners. I should point out the colour coding which we’ll be using where this kind of reddish or mauve colour, is a viaduct. The brown-y colour is an embankment and green is a cutting. There is no green on this bit because we are above the flood plain. Most of it is relatively low to keep just sufficiently above the flood plain, but we pass on to, first of all, Kings Bromley viaduct, which is around three quarters of a mile long, and that is where we pass over the top of the A515 and then we have a little bit of embankment before we start a second viaduct which is slightly longer, just over a mile long, which will cross the A513 road and then on to cross the River Trent itself, but we’ll come to the River Trent in a moment.

134. The height of the embankments and viaducts in this area, and these are the principal viaducts on the route, certainly in terms of length and impact. The height we have worked on through the development of the route – at one stage, we had a number of maintenance sidings in this area but when we came to decide on the maintenance facility at Stone, we were able to get rid of those and that enabled us to reduce the viaducts at their southern and northern ends, but we’re left with still quite a high area
passing Kings Bromley itself.

135. I just wanted to make that point; it’s not the purpose of today to justify that or anything else, it’s just to highlight that these are where these significant viaducts are, and I’m sure you’ll that on your route tour tomorrow and the next day.

136. If we pass onto the next five mile or so section. There is a little bit of overlap, because in the south – and we tend to overlap these just so I can pick up the thread from one slide to the next; we are still in Mr Fabricant’s constituency and in coming from bottom to top, or south to north, there is that second major viaduct which crosses the River Trent itself.

137. The railway then is going northwest. The reason it’s going in that direction will become clear on the next slide, but we are passing between a series of villages collectively, the Ridwares, which are to the southwest of our railway, and the village of Blithbury which is just to the northeast, so we sought to thread between the two village areas.

138. Once we come over the River Trent and its flood plain, then we come down quickly and then you see the green starting which is our preferred situation which is to be in cutting. So, once we come off the flood plain, we dive down into a low cutting.

139. The next feature I should mention is coming up which is Newlands Lane autotransformer feeder station, that’s its correct term. Basically, it’s where we get the power for the route from. This is the connection into the national grid. Feeder station from the national grid. It’s the only one on Phase 2A and it powers the whole line. Now, we do have a slight image of it if we go forward. It's taken from north to south, which is I hope not too confusing. I want to say feeder stations are quite normal on overhead line railways. You will find them on the existing railway and they all look much the same. It is quite a substantial area; it’s one of the few areas where the permanent railway is much wider than that two track trace that I talked to you about earlier.

140. The actual area of a feeder station is around 150 metres square. Now, we can play around with the shape of it a bit, but it is that sort of area. There are similar feeder stations on the other electrified railways in this country and I could have shown you
perhaps a picture of one on the existing main line but I wanted to keep to this specific one.

141. As with other feeder stations, it’s normal practice to surround it with planting so that from outside it, you’re not aware it’s there. We don’t want something completely unsightly in the middle of, as you can see, what is essentially very rural and tranquil countryside, so planting trees around it is the easiest way of dealing with that. It has road access, I’m not sure there’s much else to say about that, but the feeder station is a substantial piece.

142. I should say the connection to the national grid is off to the right hand side here and you can’t see power lines coming to it, because the power lines in the immediate area will be underground, so we’re not creating a new high level set of overhead line wires from the grid to our feeder station.

143. I think if we move to the next five mile stretch. We leave behind the feeder station. The land has now become quite undulating and you may see from the flicking of colours between green and brown and back again, that it is a classic mixture of cutting, embankment, cutting, embankment as on main railways.

144. MR WIGGIN: Could I just ask a question about that?

145. PROFESSOR MCNAUGHTON: Please.

146. MR WIGGIN: The reason you’re doing cuttings and embankments is to keep the track on one level?

147. PROFESSOR MCNAUGHTON: Broadly speaking, yes.

148. MR WIGGIN: And that is going to be true for the viaduct as well?

149. PROFESSOR MCNAUGHTON: Yes.

150. MR WIGGIN: And so you skirted neatly over the height of the viaduct earlier on, but actually, this is where any changes would – presumably the gradient is quite slight, so that’s why you’re doing this, isn’t it? To keep it all flat?

151. PROFESSOR MCNAUGHTON: We are using the design maximum gradient of
one in forty, where we can, and one of the things of getting it down as much as we can into the ground, and when we get into the detailed discussions in weeks to come, you will see how we constantly dip and dip, but as I said slightly facetiously at the start, without getting to the stage where it is a rollercoaster. It’s as much as we can do, whilst maintaining passenger comfort.

152. THE CHAIR: Sheryll’s got a question, but I remind you, we’re going to end at 5.55, so if we’re incurring too much of your time, taking up too much of you time, let us know. Sheryll?

153. MRS MURRAY: I think mine’s been answered, because I was wondering why we needed so many embankments and cuttings if we have the ability to be able to go along with more gradients in the topography than a conventional railway.

154. PROFESSOR MCNAUGHTON: Because at the end of it, the land rises and falls sharper than we do.

155. MRS MURRAY: Okay, that’s fine, thank you, thank you very much.

156. MR MOULD QC (DfT): There is one point that I think you wanted to make particularly about Kings Bromley and the River Trent viaduct that we were looking at and that is that a key point defining the height of the viaduct is the need to accommodate existing highways which pass across the lie of the railway and those roads could either go underneath or over the top, can’t they, Professor?

157. PROFESSOR MCNAUGHTON: Okay, yes. We are going over the roads and therefore that limits how low we can be.

158. MR MOULD QC (DfT): Particularly in a flood plain.

159. PROFESSOR MCNAUGHTON: If we went under the roads in a flood plain, we have created something which is basically a canal, which doesn’t go well for a railway.

160. I’ll say less on this slide because I want to come to other features to spend a little bit more time on them. Where you see the purple line which is a community boundary, is also the boundary where we pass from Mr Fabricant’s constituency to Mr Lefroy’s constituency, I’ll just mention that.
161. Just at that point we do pass, immediately to the south of the line, we pass Moreton House. Moreton House is a special needs school and because we are so close to it, by just a few metres from it, we affect it very significantly and I wanted to say that we are in negotiation with Moreton House about that school relocating. It is so close, and the special needs of the pupils at that school are significant that it’s not reasonably practical to protect them when they are so close.

162. THE CHAIR: Thank you.

163. PROFESSOR MCNAUGHTON: The next slide has got a lot more happening on it and this defines where the route is pretty much through the whole of the southern part of the route. I’ll go through this at a little bit of a pace, but, to the immediate south of the route, we are threading, but we are threading through some very sensitive areas. To the immediate south of the route, first of all, there is the village of Great Haywood, but then you will see an area of green which is the Shugborough National Trust house and gardens and in fact, it is also the northern outcrop, if I can describe it thus, of Cannock Chase, an area of outstanding natural beauty, or AONB. So those are three very significant places; one human and two natural landscapes to the south.

164. But, to the north, is a place called Pasturefields. Pasturefields salt marsh is, and I’m afraid another environmental term, a special area of conversation, or SAC, which is a European designated site. Pasturefields is fed from the north, a diverse number of streams pass into it. Early designs of the route through here which considered going to the north couldn’t be pursued because the effect we would have, inevitably, on the way that salt marsh is fed.

165. So, our route is to the south of the salt marsh, where we don’t affect it at all. But north of the village and the National Trust properties. To do this, we then cross, in very short order, and you see there, the Great Haywood viaduct, Great Haywood being the village, rather than the greatness of the viaduct, four features. Basically in a very short order because there is a valley which really runs north south. In that valley, first of all is the A51, then there is the London to Manchester branch off the West Coast Main Line, so that’s the main line railway you would travel on if you travel between London and Manchester. Then there is the River Trent itself. And at that point, and I’m sure you will visit it, there is a marina. And we cross very close by the marina. Then finally,
there’s a more minor road. Those four things are crossed, all those four features are crossed, on a low viaduct called the Great Haywood viaduct.

166. There is another sensitive environmental area which is just beyond there, which is Ingestre Hall and Park, and that is being highlighted to you now. Again, because we have passed to the south of Pasturefields, we are also passing to the south of Ingestre Park and Gardens.

167. I’m sure, when you come to look at that area of route, you will be seeing the various challenging parts to fitting it into the landscape there.

168. MR MOULD QC (DfT): This is the area which is probably the most obviously historic in terms of landscape and acknowledged natural beauty along the route.

169. PROFESSOR MCNAUGHTON: You’ll see by the time we get to Ingestre Park, we are back into a decently deep cutting. But it is a sensitive area and I’m sure that this will detain you at some point.

170. MR WHITFIELD: Sorry can I just ask, is that Upper Haywood? Is that presumably a village that you’re going straight through, is it? Not quite a village.

171. PROFESSOR MCNAUGHTON: There are some buildings there. I think to describe it as a village, it’s not really a village; it’s a few buildings.

172. MRS MURRAY: It’s a hamlet, isn’t it?

173. PROFESSOR MCNAUGHTON: That’s not to trivialise it, but it’s not a village. I’ll leave to the chaps to just check that whilst we crack on, if I may. If we move to slide 5. Continuing in Mr Lefroy’s constituency, again, coming from the south, largely in cutting, but not always, we first of all, go underneath the main A518 road, if we can just highlight that. At that point, just before we get to it, and just to the north of the railway line, again if you could put a pointer on it, is the Staffordshire showground. Now, we avoided going through the Staffordshire showground, but we do go through it’s overflow parking. I mention that because we are in negotiation discussions about how we mitigate that. The suggestion that we buy other people’s land to replace that parking at the moment doesn’t find favour with those other people, who don’t want to sell their land for parking. It’s good agricultural land. And that will undoubtedly
feature when you come to consider this part of the route. I won’t labour the point too much, but that is the Staffordshire showground.

174. As we continue north, we’re then threading – and I am now beginning to overuse the word slightly – threading between immediately to the north of the line, the village of Hopton –

175. THE CHAIR: Sorry to stop you. Can you explain what threading actually is? I assume it’s a colloquial term for moving in and out, but you seem to be using it in a specific way. And I didn’t quite –

176. PROFESSOR MCNAUGHTON: I’m terribly sorry.

177. THE CHAIR: No, no, that’s fine. It’s just for clarity.

178. PROFESSOR MCNAUGHTON: I use the term simply to mean to pass between, I suppose.

179. THE CHAIR: Right. So, it’s not a technical term?

180. PROFESSOR MCNAUGHTON: It’s not a technical term. I’m trying very hard to avoid all technical terms.

181. THE CHAIR: Good. Thank you.

182. PROFESSOR MCNAUGHTON: In doing so, I may use slightly casual English. And do pick me up – do pick me up. We tended to use the term because when you look at the route as a whole, you see features of villages, features of villages, all over the place. You end up threading through it. And that’s where I’ve used the term from.

183. THE CHAIR: That’s great.

184. PROFESSOR MCNAUGHTON: I apologise if I was misleading you. Where have we got to? We got to Hopton. And we do pass close to Hopton in a cutting. And when you come to consider Hopton, you will be considering the amount of noise mitigation we’ve put in place there to protect Hopton from the railway.

185. Again, we pass underneath a B road – that is B5066 – before passing immediately to the north of another smaller village, the village of Marston. If we can bring the
pointer up to Marston? Yes. Marston. So, we have passed to the south west of Hopton and to the north east of Marston. And at Marston we go on to a low embankment. This is simply because it’s a very wet area with a number of streams and tributaries. But we then come to again a place I’m sure you’ll visit, which is Yarlet Lane – which is being pointed out to you now. Yarlet Lane, we are generally slightly above ground level, around six feet or so. But on Yarlet Lane there is St Leonard’s church. And we highlight that we have a significant impact on St Leonard’s church. We are very close to St Leonard’s church. You will consider that when the time comes.

186. I think we’re coming to at least more than halfway through the route, or certainly more than halfway through my presentation, so fear not. Picking up from the south again, as we’ve been doing – and I’ve mentioned Yarlet Lane – where the next major road we pass – because we’re cutting, we can go under the A34, which is a major road. At the point immediately to the north of the line, there is another school. It is Yarlet School. It is a private preparatory school. And again, that will I’m sure feature in your discussions about the effect we do or don’t have on that school. It is not as close to the line as the one we mentioned earlier but nevertheless I wanted to point it out to you for completeness.

187. We’re coming to another purple line. And just to position us, this is where we leave the constituency of Mr Lefroy and join the constituency of Sir William Cash. No sooner than we do that, do we approach the M6 in cutting, and then we approach the proposed maintenance base, which Mr Mould mentioned. We do so, just as we approach on – to position us geographically – this is also Stafford Services, on the M6. This is quite a busy transport place. I wouldn’t describe it as the most tranquil part of the route. Having said that, I should now describe the maintenance base a little bit. We have an image of the maintenance base, again cunningly taken from the north, rather than from the south, just to hopefully put me on my toes.

188. MR MOULD QC (DfT): This is the flythrough, isn’t it?

189. PROFESSOR MCNAUGHTON: This is from the flythrough, yes. We come out – I’ve been taking us from the south to the north. I’m sorry – I take us from the middle distance to the foreground.

190. THE CHAIR: It would be useful if we could change and have some consistency,
when we’re going from north to south to have all the plans in the future the other way around. It is quite disruptive moving between one and the other. I’m sure you’re very familiar with them, when we’re not. It doesn’t assist us in making good decisions. So, at a convenient point – we don’t expect the second part of the presentation to be altered clearly. But at a convenient point, if you could change those, I think that would assist us?

191. MR MOULD QC (DfT): Yes, I think you’ve raised already the possibility of having a flythrough from the south to the north. I think that’s something – we’re investigating that for you – because all of the plans themselves run from south to north. That seems the most obvious.

192. THE CHAIR: I think my nudge to you would be it was a request less for investigation and more for changing it.

193. MRS MURRAY: Yes.

194. MR MOULD QC (DfT): Don’t worry. I shall make the –

195. THE CHAIR: Thank you. Professor?

196. PROFESSOR MCNAUGHTON: I think message recorded and understood, is the best thing I can say at that point.

197. THE CHAIR: Thank you.

198. PROFESSOR MCNAUGHTON: The base is seeking to take both – I have to say it’s the ideal place for us. It’s halfway along the route. It’s where the maintenance of the whole of this route is done from. And the way we do maintenance on a high speed railway is not during the day time at all. People and high speed trains do not mix. Maintenance is done when the railway is shut and it’s done not from a fleet of people in white vans. It’s largely done by vehicles which run along the railway. It’s essentially quite mechanised. That enables us to achieve the right quality of maintenance. So, this is a maintenance base which trains at around midnight – small on-track trains – disappear north and south. So, it’s ideal for us to put it in the middle for two reasons. One is it reduces the travelling time – so we get the maximum amount of maintenance done in a night, which is not only efficient, but it means the number of nights we need to
do maintenance is reduced. The second is that it reduces the amount of running up and down we do – past villages in the middle of the night. So, it is quite important to us to have a base that is as centrally placed as possible.

199. The second is that this will be a construction base during the building of the railway – by building slip roads off the M6. This means that we can reduce the amount of lorry movements on local roads. It’s also well-connected, which is very, very important to us to bring in the future heavy loads in by rail, rather than by lorry. It’s also making use of an island of effectively between a motorway and the high speed railway. And the high speed railway is coming out of cutting to go over the top of the M6. And in that way, it can shield the surrounding area from any visual effects late at night and early in the morning and people leaving and joining the maintenance base. We’re effectively in the shadow of the M6 and in the shadow of noise from the M6. I’m not here to make the case for the base. I’m just really explaining that’s why we chose it.

200. Coming back to the railway. That probably shows even more graphically, it’s on a thin sliver of land between the railway as it rises to go over the top of the M6 and the M6 itself.

201. Having crossed over the M6, which is a not insignificant structure because of the angle we are at and the width of the motorway, we seek to get back down on to the ground again as quickly as possible before passing the village of Swynnerton. And then we move further north.

202. A last thing to say about the infrastructure maintenance base to try and give it more a sense of size is – while it’s thin, it’s over a mile long. It’s a long, thin sliver, which in total is around 100 acres. The reason 100 is also in my mind is that the base will create – after the railway is operational – around 100 skilled jobs. I should – in doing my advertisement for high speed rail to some degree – say the kind of people who maintain high speed rail are high-end artisan technicians and graduate engineers. It is not particularly a kind of wheels tap – as in shunting railway. We are maintaining a railway to plus or minus about a millimetre. It is a very different animal to traditional railways.

203. Cracking on. We leave the M6 behind and head towards the next area to the northwest. In this part, we are largely in cutting, slightly above ground for some small
part. We go underneath the A519. I don’t think there’s so much more to be said on this slide. Although, whilst I’m at it, I should point out a grey line joining us from the south. And this is when I talk about the West Coast Main Line. We are beginning to – having left behind the M6 – we are heading very much towards the corridor of the existing West Coast Main Line. I can’t resist saying this – which is actually the oldest main line in the world – main line in the world – opened in 1838. This area has enjoyed a main line railway for nearly 200 years.

204. We have sought a principle of where we can of trying to get closer to existing transport corridors – where we can. It’s not always possible. But in this case, we can. But in doing so, we come to probably the other major features that you will be considering in your deliberations, which is the area tunnels.

205. The existing West Coast Main Line you can see – because it’s not a high speed railway and was built by Robert Stephenson – passes through the middle of the village of Baldwin’s Gate and then heads up to pass through the middle of the village of Madeley. We seek to avoid both. Our railway comes up towards the A53 from the south in cutting and then goes into the first of our two tunnels, as shown on the current scheme, which is Whitmore Heath tunnel. It is an area of high ground and therefore the tunnel is necessary to go through it rather than over it. The tunnel is 930 metres long or just over about 0. 6 of a mile, if I try and stick to Imperial units where I can. And then comes out into a retained cutting. Retained cutting here means simply a run having any natural slopes to it. It has two vertical retaining walls or nearly vertical retaining walls.

206. And the objective here is to reduce the land take of the railway to the absolute minimum we can. Why? We’re passing through Whitmore Wood. This is ancient woodland and whilst at various points on 2A we touch and slightly affect various small areas of ancient woodland, this is the principal place on the route where we affect ancient woodland. In all, even though we reduce the width to not much more than that 35 feet I was talking about earlier – a little bit more than that – nearer 45 feet actually – the total take of ancient woodland here runs to something like 15 acres. So, this is a major feature that you will consider.

207. Once we’re passed through there, which would be the way that we kept away from Baldwin’s Gate and the villages also away to the north east, we then are back into the
corridor of the existing West Coast Main Line trunk railway, which is a 24 hour railway and nine car railway.

208. THE CHAIR: Can I just for clarity’s sake say that petitioners who are asking for there to be additional bored tunnel, it is simply the area of green, taking it beyond the wood?

209. PROFESSOR MCNAUGHTON: No. The alternative tunnel – and sorry I was going to mention it. I wasn’t going to be silent on the issue.

210. THE CHAIR: No, no, I –

211. PROFESSOR MCNAUGHTON: No, no – the alternative tunnel – we have Whitmore tunnel, which is there and to the north of it, about two and three quarter miles away is Madeley tunnel, which I’ll talk about on the next slide more. The alternative to these two short tunnels – but between them the wood and the viaduct over the main line railway, would be a tunnel from the south to the north – some four miles of tunnel, from the south of Whitmore tunnel to the north of Madeley tunnel. Everything you see on this map basically would be in tunnel.

212. THE CHAIR: Thank you.

213. PROFESSOR MCNAUGHTON: Clearly avoiding the effect on the wood and avoiding the viaduct over the main line railway. I suppose I should make a point, for balance, that where we build a tunnel, those adjacent to the tunnel will see a benefit – unsurprisingly – because the railway is now underground. Those immediately to the south and north may not see a benefit because the construction of a tunnel is the major thing. And I probably at that point should go to a slide which shows a tunnel going into a hillside. Once constructed the effect is not so great. But tunnel construction with the concrete batching works and the like, we will seek to explain to you more when you have a more detailed discussion about tunnels. What I’d just like to say is the act of creating a tunnel is not a small engineering issue and takes quite a lot of land at the points where the tunnel comes out.

214. Now, this is a different beast to a tunnel mouth on a railway that you might be familiar with – Brunel’s Great Western Main Line or similar to that. As a high speed
train goes into a tunnel there is a very high pressure wave impact. You’ve gone from open air to a confined space. Now, we avoid a bad effect on passengers by the size of the tunnel – the diameter of the tunnel. It’s much bigger than the size of the train itself so that it doesn’t pop people’s ears or even give them pain. That in itself is not sufficient though. At the portals, we have to have a gradation between open air and closed space. You will hear repeatedly the term ‘porous portal’. And I can see finding instant disfavour by using such a term without explaining it.

215. A porous portal is a bit like a graded tin whistle. There is a series of holes in a structure – from big holes to small holes – engineers will weep at this description, but never mind – and at the end of it, vice versa. So, that the train passes into the tunnel without creating a pressure wave that races through the tunnel. In the earlier days of high speed rail this wasn’t understood. And you can still find a tunnel in remote Japan where every train that passes through it creates a sonic boom at the other end – or something which you would think was a sonic boom – a bang that does disturb the horses and breaks windows, if you’re not careful. We avoid this with this engineered structure. But, where we do go into tunnel, that engineered structure is quite a big thing and it can be quite challenging for us to achieve a finished result – this is a real example in Europe – that’s not too unattractive. It is a balance between nice design for appearance and design that actually works.

216. I have laboured that but you will hear porous portal over and over again, I’m sure. That’s what one of them is. Thank you for your patience. If we come back to the map again? Here we are on the same map, but we’ve now explained a little bit about the tunnel. I’ve mentioned the ancient woodland. We pass over the Grand Central Railway, we became the West Coast Main Line, or is the West Coast Main Line.

217. Mr Mould has slightly taken my thunder on the potential alternative being put forward by petitioners for the maintenance depot in that he has mentioned it is out to the north – it’s being circled there – in Aldersley Rough. I have to be straightforward with you although clearly you will consider this properly when the time comes.

218. The depot which is remote from our railway, remote from the M6 – it’s not ideal – and it is some way north of the midpoint. It is however on a line which is a former railway. It is a disused railway, although I think when I last visited, people have not
bothered to take the old track up. It was part of a railway originally from Stoke to join the Great Western Railway to go some way to the west. In more recent times, it actually has just been a railway from Stoke to a colliery which was closed when collieries were closed in the 1980s. And that’s why it vaguely exists. But it is hasn’t been used as a railway for many a long year.

219. Having crossed the West Coast Main Line to keep away from the village of Madeley, we’ve taken a route slightly to the west of the existing railway. Again, cutting down into cutting to go underneath the A525, before going to the second short tunnel that this alignment causes us to take, which is Madeley tunnel.

220. MR MOULD QC (DfT): Just for the record, can I mention that the tunnel report that I told you had been published last Friday examined only a single tunnel option as an alternative to the scheme? I only mention that because you raised the question of extending the Whitmore tunnel to go beneath the ancient woodland. That further alternative is not one that has been considered in that report.

221. PROFESSOR MCNAUGHTON: Go back. Yes. I’ve taken us back – to place Mr Mould’s point. If we stayed sufficiently low to get underneath the woodland, then we can’t get up to get over the West Coast Main Line, so, we’d have to go under the West Coast Main Line. And basically, we’re so low down you don’t get up again before you get to Madeley tunnel. So, we couldn’t see a realistic way if you extended Whitmore tunnel to come out of ground, given that we would need to go underneath the existing main line railway sufficiently deep so as not to undermine it. Then, we’re in tunnel until we’ve gone through Madeley tunnel. So, the alternative that you’ll be considering is a four mile tunnel between the south of Whitmore and the north of Madeley.

222. THE CHAIR: Sherryl and I may come back.

223. MRS MURRAY: Yes, just very quickly?

224. PROFESSOR MCNAUGHTON: Yes.

225. MRS MURRAY: It’s about the alternative for the maintenance area. Surely it would create problems if you had to use that second line? It seems to be at right angles
to the –

226. PROFESSOR MCNAUGHTON: Yes.

227. MRS MURRAY: Would that not completely change the route?

228. PROFESSOR MCNAUGHTON: You’re absolutely right. Now, I made the decision that I wouldn’t labour what I perceived to be or considered to be the disadvantage of this site because the petitioners are not here and it doesn’t feel fair to do so.

229. MRS MURRAY: That’s fine. If you’ve confirmed that, we can go into more detail when we discuss it.

230. PROFESSOR MCNAUGHTON: Yes. The link lines that you would need will take quite a bit of that slide into railway use.

231. MRS MURRAY: Thank you.

232. THE CHAIR: Can I just pause you? Do you mind making the same point about the environmental impacts? I didn’t quite understand. Were you saying it was only partial for the tunnel?

233. MR MOULD QC (DfT): You raised the question with Profession McNaughton as to whether at least a tunnel alternative that was being put forward was that one that would extend the Whitmore tunnel northwards so that it avoided the need to take ancient woodland. And I was simply pointing out that had not been considered in the tunnel report that was published last week by HS2 Ltd. The only option that is considered in that report – other than the Bill scheme itself is the single tunnel option which joins up the Whitmore tunnel and the Madeley tunnel into a single feature. And the reason why a lesser alternative which extends the Whitmore tunnel so that the tunnel portal would emerge notionally to the north of Whitmore Wood is as is explained. That in engineering terms, given the presence of the West Coast Main Line, it simply doesn’t work.

234. THE CHAIR: We will return to this in great detail. So, I won’t labour. I have many questions but there are many hours ahead of us, but not today.
235. MR MOULD QC (DfT): Yes.

236. PROFESSOR MCNAUGHTON: I was adlibbing slightly to try and answer your question.

237. THE CHAIR: Thank you.

238. PROFESSOR MCNAUGHTON: If I’ve further confused it, I do apologise.

239. THE CHAIR: I’ll try to hold back from questions.

240. PROFESSOR MCNAUGHTON: No, no. I welcome them. We’re approaching Crewe. We come through Madeley tunnel, which is just under half a mile long, which is shown there. And we are not so very far from the West Coast Main Line. It’s effectively in the same corridor. We come to another purple line. At this point we say goodbye to Sir William Cash or more likely he says goodbye to us. And we enter the constituency of Ms Laura Smith. We are coming to the approaches to Crewe.

241. We then come to the point where our lines which will re-join the West Coast Main Line part from our future direct route to the north. This is the grade-separated or flying junction of which I mentioned slightly a little while ago. Essentially, just like on a motorway, there are high speed turnouts or points in old terms, which carry the lines off towards the existing railway. They go over the top of our future main line on the principle that the future main line has got the highest speed and the most trains and therefore we keep that low down. And the trains that are turning off to go into Crewe go over the top of it. Clearly, we’ve widened the trace at this point. Let’s go to slide 11.

242. I’ve got two or three slides about Crewe. I’m trying not to labour things too much. Coming from the south, in the green, is our future main line. And in this Bill, we carry it to the point of going into what would be a tunnel under Crewe, assuming that the Phase Two Bill, when it comes forward finds favour. We include in this Bill everything we need to carry on north of Crewe to Manchester and Preston in order to that when that was built, it could be built without interrupting the train service, which by that stage would be operating into Crewe. Alongside it are the two – what Mr Mould has called – spur lines but link lines – one for each track. One of which rises over the top of our main line and then they come onto the ground and join the West Coast Main
243. All the trains in Phase 2A – that’s the six trains an hour – will use those spur lines because it’s the only way to the north. Once Phase Two comes into being, then that sort of number of trains will use those spur lines and another six or so trains will use the main line at full speed down into the tunnel.

244. MR WHITFIELD: Sorry, can I just ask? This present Bill stops at the start of the black tunnel line or at the north point of the black tunnel line?

245. MR MOULD QC (DfT): It’s at the beginning of the black tunnel line.

246. MR WHITFIELD: It’s south?

247. MR MOULD QC (DfT): Yes.

248. MR WHITFIELD: Sorry, it’s at the beginning.

249. PROFESSOR MCNAUGHTON: Sorry, it’s at the beginning –

250. MR WHITFIELD: Sorry, yes.

251. PROFESSOR MCNAUGHTON: Effectively we build the portal and then if –

252. MR WHITFIELD: If the next phase –

253. PROFESSOR MCNAUGHTON: – the next phase comes along and finds favour, it will be tunnelled from north to south.

254. MR WHITFIELD: Yes.

255. PROFESSOR MCNAUGHTON: And then break out there so it would never be a construction site as such – because otherwise it would interfere with the existing railway. It’s, very, very close to the existing railway.

256. I want to explain that in railway terms and I do this with some trepidation though given the chairman’s comments about unnecessarily techy things. Please bear with me. If this works really badly, you will let me know, I’m sure. Let’s go for it. Here is a railway diagram.
257. THE CHAIR: Oh, my goodness.

258. PROFESSOR MCNAUGHTON: To the right is London and to the left is Manchester, and also to the left end is the tracks, the main tracks which run through Crewe station. Clearly, it is not to scale, it is diagrammatic.

259. The other things you’ll see here is some tracks to the lower part of this diagram, which break off the main line. What they do is they pass by the Basford Hall railway freight depot. Basford Hall is the biggest marshalling yard really left on the network. It’s where all the trains for Scotland, Manchester and Liverpool have come up the West Coast Main Line on the 24 hour railway. They are not re-marshalled – that’s the wrong – they pause there, before heading to Scotland, Manchester, Liverpool, wherever. So, it’s a very important freight facility. It’s essential to the rail freight industry.

260. And those freight trains don’t go through the middle of Crewe. They go past it in what are called for incredibly historic reasons ‘the independent lines’. I’ll come back to the independent lines because these are the lines we affect.

261. You’re smiling at me but I’m doing my best.

262. This is the existing railway – four track railway, unlike our two track railway. Now, we re-appear – cut to next slide – re-appear to the west, immediately to the west. And highlighted in this rather thick blue colour is our future main line. The solid blue is provided for in this Bill. And then there is a tunnel mouth created in this Bill. And then it would go off past, or just underneath, Crewe, in a tunnel. That is enough about that. Don’t jump ahead yet.

263. The red lines are our spur lines in diagrammatic form. And they land in the middle of the West Coast Main Line. In fact, you may as well go on to the next slide, which highlights those. We’ve been quite ambitious here. We’ve shown basically the path of HS2 trains until we build the next phase of the railway. They run into and through Crewe station. Therefore, in the Bill, in the cost of it, in the impacts of it, are the impacts necessary to Network Rail to make this possible. It’s pretty much all railway land. But there’s lots of work there.

264. We move around the freight lines, but we do so – fundamental reason – we are
producing a railway for new capacity. So, we can’t destroy the capacity that’s there at the moment. Some of the complexity of what we’re doing here is purely to ensure we have no effect on the existing or future capability of the existing network to carry more freight trains or passenger trains or whatever. There’s quite a lot of work there. And the last slide – a view taken from the north east. So, we’re a little – yes, I understand – we’ve had the discussion about north to south. The point has been fully taken. We’re coming from the top left corner, coming from the south, and we are passing – I mentioned the big freight yards – that is those there – Basford Hall. We come over the top of our railway and we dive down and re-join. And that’s the area which has been in the diagram that I’ve just been going through.

265. The other major work – Mr Mould did mention it – is on those lines which I called the independent lines, which are largely for freight trains. What’s being highlighted here is one of the many railways that comes into Crewe. And it comes from Shrewsbury – and trains from Cardiff to Manchester use it. In order to make sure those trains can continue in the future, when all our trains are passing through Crewe, we are doing work to those independent lines which is – no, if you highlight the shady stuff – yes. That’s where, as part of our Bill, is a new set of platforms so that trains like Cardiff to Manchester trains call at Crewe without conflicting with our trains. Otherwise we would have caused a problem. That is part of the Bill.

266. I’ve rather laboured Crewe but we are doing quite a lot in Crewe in a detailed form to make sure that we don’t affect the running of the railway whilst we construct HS2 and after HS2 is open. And I think you’ve been incredibly patient. We’ve got to the end of our railway.

267. THE CHAIR: Thank you very much. And thank you for – I’m grateful for doing it in not to complicated terminology for a layman. Now because we have a few minutes, any questions?

268. MR MARTIN: No. All I want to say is, have you got any plans or are there any plans that anyone is thinking of to completely re-build Crewe station at any stage in the near future?

269. PROFESSOR MCNAUGHTON: As part of the conventional network, Network Rail and the Department of Transport have many ideas and they’re not part of my Bill.
270. MR MARTIN: They’re not part of your remit. Okay.

271. MR MOULD QC (DfT): I think I briefly mentioned the Crewe hub vision, which was the subject of announcement a couple of weeks ago. We can certainly let you have a bit more information about that, which will shed some light on that point.

272. PROFESSOR MCNAUGHTON: Anything we’ve got in our Bill is compatible with any of the possible ideas that come forward. In the Bill is confined those things which we need to change to make HS2 possible without affecting any of those plans.

273. MR MARTIN: It’s just that having – it is already a very large station spread out. There is derelict-ish areas in Crewe station as it is. To have the additional platforms at some distance like that – I think unifying the whole thing in a single station would be a major benefit. But it’s not part of this Bill.

274. PROFESSOR MCNAUGHTON: No. The bit that is part of this plan is the thing called a deck, which is a flashy way of saying a very large pedestrian bridge that connects up the new platforms on the independent lines with the existing station. And the plan I know is to carry that – it’s not part of this Bill – is to carry that forward so that it ends up pretty much in the middle of Crewe Alexandra football ground. It does actually start to do exactly as you suggested, Mr Martin, which is to start to unify the area, the regeneration of which is at the heart of the ideas for the Crewe hub.

275. MR MARTIN: Thank you.

276. THE CHAIR: Martin?

277. MR WHITFIELD: Thank you. This is really to you Mr Mould. It’s about the planning situation. Am I to understand that the current Bill in essence prevents the planning authority from saying no to a planning application but empowers the planning authority to add conditions for the final design and things like that?

278. MR MOULD QC (DfT): For the railway?

279. MR WHITFIELD: For the railway, yes.

280. MR MOULD QC (DfT): Yes. That’s right. Upon enactment, the Bill will grant planning permission for the schedule but much of the detail of that scheme will be
subject to applications for approval to the planning authorities under schedule 17.

281. MR WHITFIELD: Yes, right. That’s alright. Good. Thank you. Could they impose planning conditions on it?

282. MR MOULD QC (DfT): They can impose conditions, but the conditions that they are able to impose are actually set out in schedule 17.

283. MR WHITFIELD: Right. So, they’re limited on their actual –

284. MR MOULD QC (DfT): They’re limited to a range of matters that one would expect to be the source of concern to them.

285. MR WHITFIELD: They can’t use it to block the –?

286. MR MOULD QC (DfT): They can’t use it as a means of blocking the railway overall. No. No. And they can’t use it to prevent scheduled works being carried out. What they can do is to ensure that the works in question land in a way that is acceptable within the scope of schedule 17, in amenity and appearance and other terms.

287. MR WHITFIELD: Right. Thank you.

288. THE CHAIR: Mr Mould?

289. MR MOULD QC (DfT): Just two things. You asked me, and you asked a question about Upper Hanyards. That was that settlement on the plan just north of Great Haywood. That is a farm. It’s known as Upper Hanyards farm. And we’re reporting in the environmental statement that the railway will require the demolition of the farm dwelling and also some livestock accommodation buildings. So, there is obviously a direct effect there. Yes.

290. The other thing is I’m afraid I’ve inadvertently misled you. The black line that we looked at, at Crewe, which terminates with the solid phase of the tunnel, that is part of this Bill. I was misled by the – I’ve got the roads wrong. But that’s the position. The Bill extends to the top, the northern end of that black line.

291. PROFESSOR MCNAUGHTON: Which is effectively the length of the porous portal.
292. MR WHITFIELD: Yes.

293. THE CHAIR: And we do actually know what you mean by porous portal now. We’re doing well. Thank you very much. It’s very exciting to be part of this bit of the process. I’m conscious the process has been going on for a little longer than our involvement. But thank you very much for making it as successful as possible and we look forward to doing our bit as part of this process. Thank you very much.