



# HIGH SPEED TWO PHASE ONE INFORMATION PAPER

## F3: RAIL FREIGHT OPERATIONS

This paper outlines the interfaces between rail freight operations and HS2 both during construction and after Hs2 Phase One is in operation.

It will be of particular interest to those potentially affected by the Government's proposals for high speed rail.

This paper was prepared in relation to the promotion of the Bill for Phase One of the scheme which is now enacted. Although the contents were maintained and updated as considered appropriate during the passage of the Bill (including shortly prior to the enactment of the Bill in February 2017) the contents are now historic and are no longer maintained.

If you have any queries about this paper or about how it might apply to you, please contact the HS2 Helpdesk in the first instance.

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# F3: RAIL FREIGHT OPERATIONS

## 1. Introduction

- 1.1. High Speed Two (HS2) is the Government's proposal for a new, high speed north-south railway. The proposal is being taken forward in two phases: Phase One will connect London with Birmingham and the West Midlands and Phase Two will extend the route to Manchester, Leeds and beyond.
- 1.2. HS2 Ltd is the non-departmental public body responsible for developing and promoting these proposals. The company works to a Development Agreement made with the Secretary of State for Transport.
- 1.3. In November 2013, HS2 Ltd deposited a hybrid Bill<sup>1</sup> with Parliament to seek powers for the construction and operation of Phase One of HS2 (sometimes referred to as 'the Proposed Scheme'). The Bill is the culmination of nearly six years of work, including an Environmental Impact Assessment (EIA), the results of which were reported in an Environmental Statement (ES) submitted alongside the Bill. The Secretary of State has also published draft Environmental Minimum Requirements (EMRs), which set out the environmental and sustainability commitments that will be observed in the construction of the Proposed Scheme.
- 1.4. The Bill is being promoted through Parliament by the Secretary of State for Transport (the 'Promoter'). The Secretary of State will also appoint a body responsible for delivering the Proposed Scheme under the powers granted by the Bill.
- 1.5. This body is known as the 'nominated undertaker'. There may well be more than one nominated undertaker – for example, HS2 Ltd could become the nominated undertaker for the main railway works, while Network Rail could become the nominated undertaker for works to an existing station such as Euston. But whoever they are, all nominated undertakers will be bound by the obligations contained in the Bill and the policies established in the EMRs.
- 1.6. These information papers have been produced to explain the commitments made in the Bill and the EMRs and how they will be applied to the design and construction of the Proposed Scheme. They also provide information about the Proposed Scheme itself, the powers contained in the Bill and how particular decisions about the project have been reached.

## 2. Interfaces with freight

- 2.1. This information paper highlights the interfaces between HS2 and rail freight operations as a result of the implementation of Hs2 Phase One. They can be

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<sup>1</sup>The High Speed Rail (London – West Midlands) Bill, hereafter 'the Bill'.

categorised under four broad headings (recognising that there is scope for overlap):

- temporary impacts arising as a consequence of HS2 Phase One construction activities;
  - changes to the classic rail infrastructure to facilitate the construction or operation of HS2 Phase One;
  - the operation of HS2 classic-compatible services on the existing rail network and the associated released capacity arising from the operation of HS2 Phase One services on their dedicated high speed infrastructure; and
  - the potential for rail freight operating on the new high speed infrastructure.
- 2.2. It is important to note that the Bill does not change the regulatory structure for the railway set out in the Railways Act 1993 (as amended by the Railway Act 2005). This means that the expectation is that the existing Network Code<sup>2</sup> arrangements to regulate works on the existing network and track access processes will apply once HS2 Phase One is constructed.
- 2.3. It is recognised that there are likely to be a number of detailed matters which cannot be covered appropriately in this more general information paper. HS2 Ltd anticipates further detailed discussion with individual operators to understand their concerns and explore possible measures that could be considered by the wider rail industry.
- 2.4. HS2 Ltd is working with all relevant parties – including the Department for Transport, Network Rail and Office of Rail and Road, as well as the specific freight operators and infrastructure owners – to properly understand and address the freight industry’s concerns, and to best take advantage of the industry’s detailed knowledge and experience.

### **3. Temporary impacts as a consequence of construction activities**

- 3.1. There are two related but distinct HS2 Phase One construction related activities that have the potential to cause impacts on rail freight operations:
- As a consequence of HS2 Phase One construction works, possession(s) of the railway may be required at discrete sites on the existing rail network. These works will vary in size and complexity, for example from the construction of a completely new station on the Great Western Main Line (GWML) at Old Oak Common, to a more simple crossing of HS2 on a new bridge over the existing railway at Wendover.

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<sup>2</sup> The Network Code is a common set of rules and industry procedures that apply to all parties who have a contractual right of access to the track owned and operated by Network Rail.

- As a consequence of construction, materials, primarily excavated material, being moved as rail freight on the existing rail network. Our preliminary analysis indicates that approximately 5 million cubic metres of excavated material will need to be moved by rail.
- 3.2. Where the nominated undertaker is undertaking works on or near the existing railway, the works will be either undertaken by Network Rail (NR) on the nominated undertaker's behalf, or will be managed in accordance with standard railway "asset protection" processes such that NR (and its customers) are appropriately protected and that works are undertaken in a way which minimises adverse impacts so far as is reasonably practicable. It is anticipated that NR's existing obligations, including their licence obligations, will influence the way such works are undertaken.
- 3.3. Where railway possessions are required in order to deliver the HS2 Phase One works, such possessions will be booked by or through NR in accordance with standard industry processes. NR's processes provide for appropriate consultation with the wider railway industry, including rail freight operators, to ensure that appropriate information is provided, that the possessions are secured in a strategic manner considering the wider railway, and that appropriate mitigation measures are put in place. Where compensation is due, it is anticipated that such appropriate compensation will be provided through NR in accordance with standard industry processes.
- 3.4. The following table provides an indication of the quantities of excavated material we anticipate will need to be moved by rail from the temporary HS2 railheads west of Ruislip and at Willesden Euro-Terminal, to temporary railheads at deposition sites outside the works.

Table 1.1

ID	Origin location of rail movements	Destination of rail movements	Insitu Volume (m <sup>3</sup> )	Approximate number of train loads (at 600m <sup>3</sup> /load)	Approximate maximum number of trains per day
1	Euro-Terminal sidings at Willesden, serving Old Oak Common	Deposition sites outside the works	3,409,636	5,771	13
2	Ruislip siding	Deposition sites outside the works	1,958,250	3,305	8
		Total by Rail	4,980,000	9,076	Peak (rounded)

NOTE: This report assumes that 600m<sup>3</sup> equates to a 1,200 tonne (net) freight train load, hauled by a class 66 (or equivalent) locomotive.

- 3.5. Our analysis indicates that peak quantum of loaded train flows to/from the railheads is as follows:
- from Euro-Terminal sidings – 13 per day;
  - from Ruislip sidings – 8 per day;
  - from both Euro-Terminal and Ruislip sidings at the same time – 21 per day;
  - to multiple rail fed deposition sites – 21 per day
- 3.6. Railway paths are also required for reciprocal empty train moves<sup>3</sup>.
- 3.7. Detailed route and path studies are currently underway with Network Rail identifying space on the network for freight trains to HS2 Phase One excavated material.
- 3.8. Once complete these route and path studies will form the basis of a freight customer track access agreement application through the Office of Rail and Road under section 18 of the Railways Act 1993.
- 3.9. Our analysis indicates that there is capacity on current NR infrastructure network to support the required number of excavated material train movements at predicted levels. However, this analysis is based on the current network, timetable, and known freight movements, and further work will be required as the construction phase of the programme approaches to ensure that the necessary railway paths are secured to meet the developing requirements of the project.
- 3.10. It is recognised that the production of excavated material from the construction of HS2 Phase One is unlikely to closely match the availability of rail freight paths, and hence the railheads are designed to accommodate appropriate stockpiles of excavated material to provide flexibility of the timing of the dispatch of HS2 related freight trains on to the railway network. It is also recognised that a conservative approach has been taken to the assumptions about freight loads. As construction planning develops we will work with the rail industry to understand whether there is an opportunity to increase loads, and hence decrease the number of train movements required.
- 3.11. We are working with the rail freight industry and Network Rail during the next stages of the project to further develop the preliminary routing identified above.

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<sup>3</sup> A railway path is the combination of route and timetable for a specific train such that it moves from origin to destination without conflicting with other known train movements.

- 3.12. We also anticipate that the classic railway will be used to support the movement of construction materials for both civil works and HS2 rail fit-out<sup>4</sup>. Typical materials could include aggregates and cement, and railway related items such as sleepers, rail and ballast. It is anticipated that such items will be moved from various locations within the UK, including various ports, to the HS2 railheads at West Ruislip, Calvert and Kingsbury Road.
- 3.13. The quantum of such rail movements is likely to be significantly less than that for excavated materials, and would occur at a later phase of the programme. There is also likely to be more flexibility regarding the time of operation of these trains. Hence it is likely that paths will exist to support these activities.
- 3.14. Indeed, the existing rail freight operating companies are well experienced in providing bulk freight movements in support of the construction and railway industries, and it is likely that HS2's requirements will be seen as a significant commercial opportunity by the rail freight industry. We anticipate working with the rail freight operators to establish appropriate detailed arrangements as the project progresses, such that construction of HS2 Phase One is able to maximise the benefit offered by rail freight.
- 3.15. The Bill does not seek powers to secure rail freight paths to support the construction of Hs2 Phase One on the existing railway. However, the analysis above, and the Environmental Statement which supports the Bill submission, assumes that the necessary paths will be available. There are a number of possible mechanisms by which the nominated undertaker could secure the necessary paths:
- by identifying free train paths within "white space" in the existing railway timetable, and negotiating a rail freight customer track access contract for such paths with NR;
  - by procuring freight services from the existing rail freight operators on a commercial basis; and
  - by exception, in the absence of negotiated agreement with relevant rail freight operating company, to seek the re-allocation of unused freight paths in accordance with existing industry processes.

## 4. Changes to the classic rail infrastructure

- 4.1. As a consequence of the construction of HS2 infrastructure, there will be a need to modify existing railway infrastructure to accommodate the Proposed

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<sup>4</sup> Civil works are construction activities of a civil engineering nature, but not including railway systems such as track, electrification, signalling, communications etc.

Scheme's proposals, which have the potential to impact on existing and future rail freight operations. Examples of such works include:

- creating a new junction between HS2 and the WCML at Handsacre, with associated track configuration changes between Handsacre and Colwich;
- closure of the Wycombe Single line between Old Oak Common and Park Royal; and
- creating a new station on the GWML at Old Oak Common, including increasing the number of through lines from four to six<sup>5</sup>.

- 4.2. The Bill does not seek to dis-apply the Network Code, and hence we anticipate that the standard railway industry processes of "network change" and "station change" will continue to be applied, together with the standard railway industry compensation processes. It is possible that the network change processes could include the "complex projects procedure" where appropriate. Hence the rail freight operating companies will be consulted on the details of the proposals in the normal manner.
- 4.3. However, the principle of the changes to the conventional rail network required to facilitate the Proposed Scheme is established by the Bill, and hence it would not be appropriate for the Network Code processes to be used to block necessary works. The Bill provides that the ORR shall treat the "objective of facilitating the construction of Phase One of High Speed 2" as an objective of the ORR. If appropriate, the Secretary of State could provide guidance to the ORR on this matter, in accordance with existing arrangements relating to the duties of the ORR. It is anticipated that, in the event that a "network change" necessary for the construction of HS2 Phase One is not being progressed, this guidance could assist the ORR to facilitate the change occurring.
- 4.4. The preliminary design undertaken to inform the promotion of the Bill has included operational analysis to confirm that the proposed changes to the classic rail infrastructure are consistent with the levels of freight identified in the Strategic Freight Network Forecast for 2019 to 2030. Future analysis will take account of Network Rail's 2013 Freight Market Study, which is one of a suite of market studies that will underpin its long term planning process. It includes NR's freight demand forecast for 2023, 2033 and 2043.
- 4.5. However, we recognise that both rail freight and passenger operators are likely to have aspirations to increase service levels, such that there is inevitable competition for any spare capacity.

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<sup>5</sup> The Secretary of State for Transport has confirmed, in a written statement to Parliament that he intends to remove from the HS2 Phase One Bill the proposed HS1-HS2 link, which would have required singling of the freight only Primrose Hill line between WCML and Camden Road Junction. He has commissioned a study into options for ways to improve connections to the continent.

## 5. The operation of HS2 classic-compatible services on the existing rail network

- 5.1. As stated above, the Bill does not seek powers to provide track access rights for HS2 classic-compatible services to operate on the existing network north of Handsacre. However, it is anticipated that such classic-compatible services will operate.
- 5.2. Hence it is anticipated that the rail freight industry would be consulted regarding HS2's use of paths on the classic railway in accordance with standard industry processes.
- 5.3. It is anticipated that up to seven HS2 classic-compatible trains per hour (tph) in each direction would join (and leave) the classic network at Handsacre Junction during Phase One of HS2. Predominantly this will be from existing long-distance services being "diverted" onto HS2.
- 5.4. Hence, HS2 will release significant capacity on the WCML between Euston and Handsacre. The use of this released capacity is expected to be determined via the existing industry processes (see Information Paper A2: Future Train Service Patterns on the West Coast Main Line Corridor). However, initial illustrative work undertaken by HS2 Ltd, DfT and NR on what a future train service might look like, once HS2 commences operation, suggests that it is not unreasonable to assume that between 20 and 26 additional rail freight paths per day could be made available on parts of the WCML.

## 6. Freight operations on HS2 infrastructure

- 6.1. The HS2 infrastructure has not been designed to accommodate traditional slow/heavy rail freight services. As a high speed, high capacity service, HS2 could not accommodate such traditional rail freight services without unacceptable detriment to capacity. A single rail freight path would require the removal of five high speed paths, or up to 5,500 seats per rail freight path.
- 6.2. HS2 Ltd has considered the possibility of more traditional rail freight services operating over the dedicated high speed rail infrastructure during the night time window, when HS2 passenger services are not intended to operate, in a similar manner to High Speed One (HS1). However, given the additional length of the HS2 infrastructure, compared with HS1 and the proposed daily service pattern proposed, it has been concluded that the amount of regular maintenance required to the infrastructure would preclude such a rail freight service from operating safely.
- 6.3. HS2 does not preclude the operation of relatively light / high speed rail freight services operating on a commercial basis outside the peak passenger hours. Such freight trains would need to be fully compatible with the HS2 infrastructure and classic rail infrastructure in a similar manner to HS2's proposed classic compatible fleet.



## 7. More information

- 7.1. More detail on the Bill and related documents can be found at: [www.gov.uk/HS2](http://www.gov.uk/HS2)