

TECHNICAL STANDARD REVIEW- ROADS (HS2-HS2-HW-STD-000-000001 P01) – by NCC, WCC, LBC, Herts CC, Highways England at 12th November				
Comments by:				
Chapter & Page	LA	Sub Section	Comment	HS2 response
P1, 2.2.4	HE	2.2.4 NOTE	Line 1, after 'private roads' add 'to'.	Comment incorporated
2 – page2	NCC	2.2.9	The current TSRGD is amendment 2 dated 2011	TSRGD 2002 is called up, no change proposed. The amendments amend the original regulation (in this case, 2002), therefore no need to mention amendments. However, the year will be updated when the new statutory instrument comes into force.
P7	WCC	Departures	We would like to see an explicit statement confirming that HS2 are responsible for Departures	Departures forms part of the information submitted under consents and approvals, as per Schedule 4 and Schedule 31 (Part 1) of the hybrid Bill. Refer to the 'Consents and approvals strategy – Permanent highway works' for details. 'Departures' are proposed to be a future highway-subgroup agenda item associated with 'plans and specifications'.
P2, 2.3.1	HE	2.3.1	Add fourth bullet: Midlands Expressway Limited, concessionaire for M6 Toll, where the Secretary of State for Transport is the highway authority.	Comment incorporated.
P2(or 9)	WCC	2.3.3	Document reference HS2-HS2-HW-str-000-000001 not viewed. It is not clear what consents and approvals are required (cf. 2.7.2 – An AIP is needed for structures but what other consents are required?)	The Consents and approvals strategy – Permanent highway works has been shared with the Highways Subgroup. Refer to this document for the types of Consents and Approvals required from the highway authority.
2- page 2	NCC	2.4.1	Principal road is any "A" road which is not a trunk road, and includes local authority Primary roads	Existing text is in agreement with comment, therefore no change proposed. Note that Clause 2.4.1 distinguishes between 'Primary routes and Principal roads'

High Speed 2 Phase 1:

Comments from Highways Subgroup on Technical Standard –Roads (HS2-HS2-HW-STD-000-000001 P01)

HS2-HS2-IM-CMT-000-000162 P01



P2, 2.4.1	HE	2.4.1	Add to the 'Motorway' bullet: 'or for M6 Toll, Midlands Expressway Limited'.	Comment incorporated.
2- page 3	NCC	2.4.1	Classified road should read Classified un-numbered road	Comment incorporated.
2 page 3	WCC	2.4.6	Insert "road" before name.	Text currently states street name, therefore propose to leave as is.
P3, 2.4.6	HE	2.4.6	Last line, change 'responsible to erecting' to 'responsible for erecting'	Comment incorporated.
2-page4	NCC	2.4.7	Technically a high load is not an abnormal load	Comment noted but not incorporated. The context of the text conveys the desired intent to the reader.
2 page 4	WCC	2.5.2	Typo Original to be "originally"	Comment incorporated.
P6, 2.6.1	HE	2.6.1	4 th bullet, change 'contacts' to 'contracts'.	Comment incorporated.
P6, 2.6.3	HE	2.6.3	Amend NOTE: Before 'Interim' add 'DMRB'. Also add year '69/15'. Should this lan not be included in the list of references?	Text 'DMRB' inserted. All DMRB standards and advice notes are called up as a singular reference in the 'References' table.
P6	L.B. Camden	2.7.1	All designs for new or amended roads should not be approved or amended until approved by the Local Highway Authority	Consents and approvals are as per Schedule 4 and Schedule 31 (Part 1) of the hybrid Bill. Refer to the 'Consents and approvals strategy – Permanent highway works' for details.
2-page 6	WCC	2.7.2	Note to LA's – clauses sets out approvals from Local planning authorities. ACTION – LA's need to see early draft GA's of structures at earliest opportunity.	See above response.
	L.B. Camden	2.7.6	Where new or diverted roads are to be provided utilities are to be installed within purpose-built utility tunnels.	New note added stating that combined utility conduits for new, realigned or diverted utilities should be considered where appropriate.
P7, 2.7.6	HE	2.7.6 NOTE	Last line, change 'access their' to 'access to their'.	Comment incorporated.
P8, 2.7.7	HE	2.7.7 NOTE	Penultimate line, change 'such school' to 'such as school'.	Comment incorporated.
P8, 2.7.8	HE	2.7.8	Line 2, change 'there' to 'they'.	Comment incorporated.

High Speed 2 Phase 1:

Comments from Highways Subgroup on Technical Standard –Roads (HS2-HS2-HW-STD-000-000001 P01)

HS2-HS2-IM-CMT-000-000162 P01



P10, 4.2.2	HE	4.2.2	The end of 4.2.2 should say 'Figure 1', but this has been formatted as a rogue 4.2.3. Also, the title of Figure 1 should be on the same page as the figure, instead of on next page.	Comment incorporated.
P10, 4.2.2	HE	General comment	The font size for Figure titles is too small – applies to all Figure titles.	Comment noted but not incorporated. Text size is as per HS2 standard document template.
4-page	WCC	4.2.5	Table 3 – Add Potential disadvantages of traffic light pollution Increase in traffic noise. (need to consider quite road surfacing at certain locations)	Assume comment was meant for Table 2 rather than Table 3. Table 2 updated to state: "Overbridge may have some visual and/or noise impacts due to vehicular traffic using the amended vertical alignment in the permanent situation"
	L.B. Camden	4.2; 4.3	The minimum of severance must be ensured during the design of replacement routes keeping replacement routes as close to the existing during construction and back at the original route once construction is complete. Where a replacement route is not on the original alignment evidence must be shown to the highway authority that the new route is SHORTER than the original.	Comment not agreed. There are many instances where a permanent realignment that is longer than the original alignment is preferred over the existing alignment. For example, impacts to vehicular accesses, severance, visual impact, environmental impact, etc. Sections 4.2 and 4.3 give guidance to the Designer on the balanced considerations required when selecting the alignment. Sections 4.2 – 4.4 are included to help guide the alignment of roads in other phases – this is generally not now applicable for the Phase One design as the alignment is governed by the limits of the Phase One hybrid Bill.
	L.B. Camden	4.4	The London Borough of Camden will not accept the combining of roads or footpaths as it will lead to significant congestion.	Sections 4.2 – 4.4 are included to help guide the alignment of roads in other phases – this is generally not applicable for the Phase One design as it the alignment is now governed by the limits of the Phase One hybrid Bill.
	L.B. Camden	4.3.4	Lighting would be required here and the embankment would need to be lit to BS5489	It appears that Section 4.3.4 has been misunderstood. HS2 is on a high embankment and the road would pass underneath in an underbridge (and therefore potentially requiring lighting).
	L.B. Camden	4.6; 5.3.4	Where temporary closures or diversions are required the London Borough of Camden will expect that the developer will apply and pay the associated fee to the Highway Authority for an order under S14 of the Road Traffic Regulation Act.	For aspects relating to consents and approvals, please refer to the 'Consents and Approvals strategy – Permanent highway works', which has been shared with the subgroup.

2-page15	NCC	4.6.1	Temporary stopping –up - is this HS2 terminology for road closure (ie 5.3.4) but is..... 4.7 Permanent stopping-up is this the correct use of the term “stopping-up”	The concept of ‘temporary stopping up’ is used in hybrid Bills and certain statutory instruments (e.g. orders made under the Transport and Works Act 1992), and enables a nominated undertaker to temporarily close a highway to vehicular and/or pedestrian traffic in a similar way to a temporary traffic regulation order made by a highway authority under the Road Traffic Regulation Act 1984. Refer to Information Paper ‘E14 – Highways and Traffic During Construction – Legislative Provisions’ for further details.
	L.B. Camden	4.7	Where a permanent closure or diversion is required the London Borough of Camden will expect that it will be served with a made special order (HS2 Railway Act) or application and fee for an order under S247 of the Town & Country Planning Act or S113 of the Highways Act. Only once the order is made will the Highway Authority permit works on the associated site to be undertaken.	Schedule 4, Part 2 of the hybrid Bill allows the nominated undertaker to permanently stop up those highways listed in Tables 1 and 2. Refer to Information Paper ‘E14 – Highways and Traffic During Construction – Legislative Provisions’ for further details.
P16	L.B. Camden	5.1.4	All routes should provide appropriate dedicated provision for cyclists to be approved by the Highway Authority.	Consideration for the needs of cyclists, including different options on the types of provision, is covered in Section 5.1. ‘Dedicated provision’ may not be an appropriate option for some classes of roads. The highway authority approves the ‘plans and specifications’ of new or altered roads under Schedule 4, Part 3, Paragraph 11 of the hybrid Bill.
P17, 5.1.5	HE	5.1.5	You could mention here provision of mounting/dis-mounting blocks, for equestrians who prefer to walk their horses across overbridges (may be covered in the Overbridge Technical Standard?).	Comment incorporated.
P17, 5.2	HE	5.2.1	It could be appropriate to mention the risk of potential suicide attempts at some higher risk locations, where additional protective measures/fences/parapets/CCTV may be required, in view of high speed railway.	Comment noted. The interface of roads with the HS2 railway is covered in Technical Standard – Errant vehicle protection. Appropriate fencing requirements will be developed during the design.
Page 24	HCC	A.1	Are the design guides for bridges referred to available?	Technical Standards for structures are proposed to be shared with the highways subgroup as a future agenda item.

High Speed 2 Phase 1:

Comments from Highways Subgroup on Technical Standard –Roads (HS2-HS2-HW-STD-000-000001 P01)

HS2-HS2-IM-CMT-000-000162 P01



P25, A.2.1	HE	A.2.1	This Technical Standard and a number of others referred to have not been shared with HSG, so we cannot comment on their acceptability at this stage.	Noted.
P25, A.3.1	HE	A.3.1	You could add here 'unless additional provision has been agreed to and funded by the highway authority' and cross-refer to Para 5.4.3.	Comment noted but not incorporated. If there are cases where the design year is different to the described (such as in the instance suggested), it will be dealt with through the departure process.
P25, A.3.2	HE	A.3.2	Please add 'and agreed with the relevant highway authority for both temporary and permanent alterations, including traffic management'. Early engagement would assist with eventual approvals/consents.	Comment noted but not incorporated, as the comment applies to all aspects, not just modelling. Agree that early engagement with highway authorities is preferred in helping receive consents / approvals. This is detailed in the document 'Consent and approval strategy – Permanent highway works'.
Page 26	HCC	A.4.1	To include 'where possible'	Comment incorporated.
Page 27	HCC	A.4.11	Provide reference to 'Conservation Areas'	Comment noted, but not incorporated. The use of conservation kerbs does not necessarily relate to being in a Conservation Area or not. Where agreed, local highway authority standard or guidance can be incorporated under Section 7 of this Technical Standard. The highway authority approves the 'plans and specifications' of new or altered roads under Schedule 4, Part 3, Paragraph 11 of the hybrid Bill.
P27, A.5.2	HE	A.5.2	Line 1, change 'consistent other' to 'consistent with other'.	Comment incorporated.

P27	L.B. Camden	A5.1-5.3	<p>The London Borough of Camden will expect all footways to be constructed to the following standard unless otherwise approved:</p> <p>Base: 150mm of ST1 concrete</p> <p>Bed: 25mm Sand cement bed (1 part cement to 5 parts sand approx.)</p> <p>Slabs: 75mm thick steel re-enforced Marshalls “Liverpool” slabs or similar</p> <p>All Kerbs are granite to match the existing in the area Cycleways should be made to full carriageway standard.</p> <p>The required lux levels to lighting required by the Highway Authority will vary depending on the classification of the road.</p>	<p>Comment noted. The Technical Standards include requirements and guidance that are common across the whole route – not particular to one highway authority.</p> <p>Where agreed, local highway authority standard or guidance can be incorporated under Section 7 of this Technical Standard.</p> <p>Consents and approvals are as per Schedule 4 and Schedule 31 (Part 1) of the hybrid Bill. Refer to the ‘Consents and approvals strategy – Permanent highway works’ for details.</p>
P28, A.5.5	HE	A.5.5	Line 1, change ‘should typically’ to ‘should be typically’.	Comment incorporated.
P28	L.B. Camden	A5.5	Only buff and red tactile paving should be used.	<p>Note that there is an existing note about consulting with the highway authority when using other colours.</p> <p>Where agreed, local highway authority standard or guidance can be incorporated under Section 7 of this Technical Standard.</p>
P28	L.B. Camden	A6	All Signage is to be the London Standard and to be approved by the Highway Authority. All Lighting designs should be approved by the Highway Authority to its most up to date standards. Standards will be provided upon request.	Where agreed, local highway authority standard or guidance can be incorporated under Section 7 of this Technical Standard.

High Speed 2 Phase 1:

Comments from Highways Subgroup on Technical Standard –Roads (HS2-HS2-HW-STD-000-000001 P01)

HS2-HS2-IM-CMT-000-000162 P01



P29, A.8.1	HE	A.8.1	Please add 'by agreement with the highway authority'.	All aspects including the provision of landscaping within highway boundaries is subject to the consents and approvals under Schedule 4 and Schedule 31 Part 1 of the hybrid Bill.
P29	L.B. Camden	7.1.1	The London Borough of Camden will expect that any designs will take into account the most up to date versions of the Borough's guidance. All plans must be approved by the Highway Authority. The required lux levels to lighting required by the Highway Authority will vary depending on the classification of the road.	Comment noted. Where agreed, local highway authority standard or guidance can be incorporated under Section 7 of this Technical Standard. The highway authority approves the 'plans and specifications' of new or altered roads under Schedule 4, Part 3, Paragraph 11 of the hybrid Bill.
P30, B.2.1	HE	B.2.1	Delete 'All urban streets should' at the start of Line 1.	Comment incorporated.
P31, B.6.2	HE	B.6.2 Table B.1 and all subsequent tables	Highways England has not reviewed the data contained in any of the tables in Appendices B, C, D which refers to reduced standards for roads with speeds less than or equal to 50kph, as these are not applicable to HE roads crossed by HS2.	Noted.
P32	WCC	B.6.4 & B.6.5	We think design speeds of 60 kph and above need to be designed to DMRB TD 9 (this also applies to C.6.27 and C.6.28)	Roads designed to the 'HS2 Urban street design criteria' is based on MfS / MfS2. MfS2 provides minimum radii for design speeds of up to 60kph. DMRB TD 9 is appropriate for trunk roads and motorways, therefore given the urban nature of these streets, the criteria contained in MfS2 is considered more appropriate.
P32	WCC	Table B.2	With a design speed of 60 kph a min radius of 64m is less than half the absolute min specified in DMRB. We don't think Manual for Streets is adequate justification for this speed in particular and have concerns with Stopping Site Distance if it is used!	Manual for Streets (MfS) was prepared by a variety of consultants on behalf of the Department for Transport, while Manual for Streets Two was prepared using a cross-industry steering group. Given the broad cross-section of industry, research institutions and government bodies that have contributed to creating these documents, it follows that the figures contained within the documents can be used with confidence.
P32, B.6.6	HE	B.6.6 NOTE	Change 'windy' to 'winding', unless this is meant to refer to adverse weather?	Comment incorporated.

<p>P34</p>	<p>L.B. Camden</p>	<p>B7</p>	<p>The London Borough of Camden will expect that all statutory utilities plant will be put within purpose built utility tunnels with fixed access points. The minimum standard for carriageway construction is:</p> <p>Carriageways should be constructed to the following standard.</p> <p>Base: 400 mm thick continually reinforced concrete CC37.</p> <p>Binder:50mm thick SMA 10 bin 40/60</p> <p>Surface: 50mm thick TSCS 14 Thin Surface course system</p> <p>Utility plant which needs to be in the carriageway should be located with the top of the plant a minimum of 700mm below the surface with 50mm sand on top and warning tape.</p> <p>In existing footways/ footpaths all utility plant should be located with the top of the plant a minimum of 400mm below the surface with 50mm sand on top and then warning tape.</p> <p>All designs should be approved by the Highway Authority.</p>	<p>New note added to 2.7.6 stating that combined utility conduits for new, realigned or diverted utilities should be considered where appropriate.</p> <p>The Technical Standards show requirements and guidance that are common across the whole route – not particular to one highway authority.</p> <p>Where agreed, local highway authority standard or guidance can be incorporated under Section 7 of this Technical Standard.</p>
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Page 33	HCC	B.6.9	K-values for all roads in Hertfordshire lower than TD9 standards to be 5.0 (Roads in Herts)	<p>The Technical Standards contain requirements and guidance that are common across the whole route – not particular to one highway authority.</p> <p>Where agreed, local highway authority standard or guidance can be incorporated under Section 7 of this Technical Standard.</p>
Page 38	HCC	C.3	This mandatory section appears to cover the same topic as the Technical Standard – Errant Vehicle Protection.	<p>Technical Standard – Errant vehicle protection deals with the interaction between the HS2 railway and roads / accesses. Section C.3 covers road restraint systems in general for rural roads.</p>
C-page39	WCC	C6	<p>Note to LA's-Section C.6 covers carriageways and Verge widths – This is a key section and part of the Technical Approval process</p> <p>C6.6.11 states that the verge width provided for the road shall continue across all overbridges and underbridges.</p> <p>C.6.20 We feel that bridge verge widths should be 3m where there is equestrian use to avoid the risk of "horse flight".</p> <p>See WCC note on verge widths which reflects speeds of road and length of structures.</p>	<p>C.6.6.11 – noted.</p> <p>C.6.20 – Note that Clause C.6.18 states a desirable minimum width of 3.0 metres for paths shared with cyclists and/or equestrians, which is consistent with WCC's comment.</p> <p>It is normal practice for equestrians to ride adjacent to parapets on bridleway overbridges and on road overbridges with a separate route for horses on the verge, so it is not considered necessary or appropriate to widen verges on road bridges where equestrians are using the carriageway or verge.</p>
C-page41	WCC	C6.19	1.3m is considered too narrow	<p>Comment noted. This dimension is for an unbound path running parallel with the road and the desirable minimum width is 2.0m. 1.3m is an absolute minimum value to be used on an exception basis where there is no shared use with cyclists or equestrians.</p> <p>Where agreed, local highway authority standard or guidance can be incorporated under Section 7 of this Technical Standard.</p>

High Speed 2 Phase 1:

Comments from Highways Subgroup on Technical Standard –Roads (HS2-HS2-HW-STD-000-000001 P01)

HS2-HS2-IM-CMT-000-000162 P01



P41	WCC	C.6.27 & C.6.28	We would like to see this changed so that rural roads with a design speed of 60 kph and greater are designed to DMRB (as stated above)	Roads designed to the 'HS2 Rural road design criteria' includes horizontal alignment for lower speeds for country lanes based on MfS / MfS2. MfS2 provides minimum radii for design speeds of up to 60kph. DMRB TD 9 is appropriate for trunk roads and motorways. Adoption of the horizontal radii given in MfS2 for 60kph rural roads will assist in achieving the Guiding Principles contained in Section C.2.
P41, C.6.22	HE	C.6.22	Line 1, replace 'between and path' with 'between a path'.	Comment incorporated.
Page 43-44	HCC	C6.38	K-values for all roads in Hertfordshire lower than TD9 standards to be 5.0 (Roads in Herts)	The Technical Standards contain requirements and guidance that are common across the whole route – not particular to one highway authority. Where agreed, local highway authority standard or guidance can be incorporated under Section 7 of this Technical Standard.
App C – page 47	NCC	C8.3	Lighting – Note the lighting authority in rural areas may be the local Parish council and not the Highway Authority.	Comment noted. A note has been added to Clause 2.7.3 stating that some Parish councils maintain road lighting in rural areas.
P47	L.B. Camden	C.8.3	If London Borough of Camden are to inherit these roads then they would be required to be lit in accordance with BS5489 LED Lamp source fully Telensa enabled manufactured by Philips.	Comment assumed to be made against Appendix B (HS2 Urban street design criteria) rather than Appendix C (HS2 Rural Road Design Criteria). HS2, like all public sector projects, has to comply with European procurement rules and therefore cannot specify individual products.
P47	L.B. Camden	C.8.5	Column replacements need to be like for like replacement, however luminaires must be Philips manufactured and the lamp source must be LED and Telensa CMS enabled.	Comment assumed to be made against Appendix B (HS2 Urban street design criteria) rather than Appendix C (HS2 Rural Road Design Criteria). HS2, like all public sector projects, has to comply with European procurement rules and therefore cannot specify individual products.
	L.B. Camden	C.8.1	All sign installations should be in accordance with the new TSRGD document 2016 (draft document at the time of writing).	The impending release of TSRGD 2016 is covered in Clause 2.2.9.