

EH Subgroup Minutes

Meeting date	5 February 2020, 13:00 to 15:30
Meeting location	Mary Ward House, London, 5-7 Tavistock Place, WC1H 9SN.
Meeting title	Environmental Health (EH) Sub Group Meeting #30
HS2 contact or group	planning.forum@hs2.org.uk
Stakeholder	Environmental Health Sub Group to Planning Forum

External Attendees

Independent Chair

Planning Forum Chair

Nominated Undertaker Attendees

Phase 1 Head of Environment – HS2 Ltd

Noise and Vibration Construction Lead – HS2 Ltd

Phase 1 Town and Planning Lead – HS2 Ltd

Head of Noise Assessment – HS2 Ltd

Head of Occupational Health and Wellbeing – HS2 Ltd

Air Quality Lead – HS2 Ltd

Head of Environment Construction South – HS2 Ltd

EH Subgroup Secretary – HS2 Ltd

EH Attendees

Representative from London Borough of Camden (LBC)

Representative from London Borough of Brent (LBB)

Representative from Stratford upon Avon District Council (SDC)

Representative from Aylesbury Vale District Council (AVDC)

Representative from Chiltern District Council/ South Bucks District Council (CDC/SBDC)

Representative from Solihull Metropolitan Borough Council (SMBC)

Representative from Warwick District Council (WDC)

Representative from South Northamptonshire Council (SNC)

Representative from Staffordshire County Council (SCC)

Representative from North Warwickshire Borough Council (NWBC)

Representative from Lichfield District Council (LDC)

Representatives from London Borough of Hammersmith and Fulham (LBHF)

Representative from London Borough of Ealing (LBE)

Representative from Cherwell District Council (CDC)

Representative from Wycombe District Council (WDC)

Item 1 - Welcome and Introductions

The Chair called the meeting to order, welcomed attendees and introductions were made.

Item 2 - Review of Action Log and Minutes from Previous Meeting

The October 2019 EH Subgroup minutes were reviewed. A follow up action was discussed for Item June 2019 8A - The public facing note explaining how we mitigate noise and vibration from our works and the differences experienced between people and buildings in order to ease concerns from residents has been produced however we have not been able to obtain permission to issue to the EHO subgroup for feedback due to the ongoing development of the Prolonged Disruption Scheme. HS2 have published a public facing note on air quality that has been distributed to the local communities. HS2 to issue the EH Subgroup with a copy of the note (February 2020 2A action).

The October 2019 EH Subgroup minutes were reviewed and agreed during the February 2020 EH meeting.

General – HS2 Ltd, as a requirement of the General Data Protection Regulations, will redact names of individuals from the EH Subgroup minutes that will be published on gov.uk.

Page 6 – A presentation on how Design Joint Ventures (DJV's) are deriving noise predictions and the outputs from the DARN tool is to be included in the action log.

Page 7 – HS2 confirmed after discussion with the Department for Work and Pensions (DWP) that the Prolonged Disruption Compensation Scheme is considered capital income, and therefore, will impact benefit contributions. HS2 to provide the EH Subgroup with a presentation on measures to protect vulnerable people following a presentation given at Planning Forum on the subject.

Action 2A: HS2 to provide the Local Authorities with the published public facing note on air quality.

Action 2B: HS2 to provide the Subgroup with a presentation on noise predictions and the DARN tool.

Action 2C: HS2 to provide the Subgroup with a presentation on measures to protect vulnerable groups.

Item 3 - Air Quality Update and Alternative Energy

The Chair welcomed HS2's Air Quality Lead to provide a Phase One High Speed Two update on air quality across the route.

All compliance dashboards are updated on the Local Authority SharePoint and the latest monthly air quality reports have been published at gov.uk. The 2019 Annual Air Quality Monitoring Report is in process and,

pending receipt of the national diffusion tube adjustment factors, is aimed to be published in Summer 2020. The report will also include the baseline monitoring data for Phase 2a.

The personal exposure monitoring for the HS2 Non-Road Mobile Machinery (NRMM) emission reduction Innovation Project (refer to June 2019 Meeting Minutes) has been completed. The results from the experiments concluded that work exposures contribute to approximately 66% of participants total exposure of black carbon, with demolition workers and excavator drivers being exposed to the highest concentrations, of those who were monitored. Further monitoring will be undertaken, during subsequent project phases to identify opportunities to minimise worker exposure on-site and the outputs will be shared across HS2 Contractors.

The Mini-Portable Emissions Measurements System (PEMS) testing (refer to July 2019 Meeting Minutes) on NRMM will commence within the next month and an update will be provided at subsequent EH Subgroup meeting. HS2 is working with manufacturers on available technologies to test if retrofitting Stage IIIB can reach Stage V compliance. Once developed, fitted and will be tested on an HS2 site.

Additional innovation projects that HS2 are supporting include the University of Birmingham's (NERC) experiments to develop a new national design standard green infrastructure to improve air quality. The experiments will be undertaken at the Interchange Station site and will monitor if green infrastructure can improve air quality adjacent to the M42 motorway. HS2 is supporting the Clean Air Gas Engine (CAGE) project with OakTec, which will test the real-world emissions from a Stage V emission certified bio-LPG generator against an equivalent diesel generator.

As of January 2020, the HGV Euro 6 requirement was extended outside of London across Phase 1 and the LDV Euro 6 (Diesel) and Euro 4 (Petrol) requirements enforced across the full Phase 1 route. HS2 presented the vehicle emission compliance figures for December 2019 and year-to-date across Area South, Central and North. There has been a notable increase in compliant vehicle since January 2020 when the requirement came into force.

An industry update to the group was made that a retrofit system for the Scania P Series construction tipper truck, developed by Eminox, has become the latest system for a heavy goods vehicle to be accredited under the UK's Clean Vehicle Retrofit Accreditation Scheme (CVRAS).

HS2 presented the NRMM compliance figures for year-to-date across Area South, Central and North with compliance remaining between 97% - 100%. The non-compliances noted were generally attributed to non-compliant plant arriving to site for a day prior to being identified and removed from site and replaced with compliant plant. The Energy Saving Trust undertook an annual independent review to identify if there is enough plant currently available to extend the Stage IV requirement from the Central Activity Zone to the rest of route from 2021 and enforce Stage V within the Central Activity Zone. The review concluded that there unlikely to be sufficient plant available. HS2 are therefore considering extending the Block Exemption to include 2021. However, HS2 will continue to work its Contractors to encourage and support use of Stage IV-V and Hybrid plant.

An independent review was undertaken by C&D Demolition Consultants Ltd to determine if HS2's demolition methods are compliant with current British Standards and if the dust suppression techniques being used are in line with industry best practice methods. The review concluded that the demolitions are compliant with British Standards and best practices dust suppression techniques are being undertaken. The review also highlighted some recommendations which HS2's Contractor have enacted where reasonably practicable. LBC noted that they have contested some of the conclusions from the independent review. HS2 discussed the use and learnings of hydrogen fuel cell mobile lighting towers on HS2 construction sites – the results found that the lighting towers were efficient in urban settings (reduced noise and emissions); however, in rural sites, the lights produced insufficient luminosity. HS2 noted that A-Plant held a workshop on hydrogen fuel cell technology in October 2019 and the slide from the workshop will be made available on SharePoint. A follow-up workshop from A-Plant will be held in Spring 2020 – once a date is confirmed, this will be shared with the group.

HS2 trialled seven zero carbon cabins that use a combination of solar energy and hydrogen fuel cell technology to generate electricity. It was reported that the solar absorption was high during the trial and the hydrogen fuel cell only activated a battery re-charge 9 times which used 4.5 bottles of Hydrogen in total. In comparison if there was a standard 6kVA diesel generator running 8 hours per day, then over 9,000 litres of diesel fuel would be used.

It was noted that technology such as the used or hydrogen fuel cell technology and the use of electric and hybrid equipment is fast becoming the norm across the industry (including HS2 sites across Phase One).

Item 4 – Operational Noise – 2018 HS2 Measurements from High Speed Trains in Spain

The Chair welcomed HS2's Head of Noise Assessment to present work undertaken by HS2 in 2018 measuring noise from High Speed Trains in Spain.

The presentation provided to the EH Subgroup was produced for the 13th International Workshop on Railway Noise (<https://kuleuvencongres.be/iwrn13>). For further information on the study and the reported results, will be published in a special journal of Notes of Numerical Fluid Mechanics and Multidisciplinary Design (Springer) later in 2020.

The aim of the research was to identify if there is a better methodology for measuring noise from a high-speed train and if trains can be designed to minimise noise.

Trains across Europe must comply with TSI (a single measure of noise as a train passes by); however, high-speed trains have additional challenges compared to traditional trains because of the multiplication of noise sources, complex source mechanism and aerodynamic noise. Because of the limitations with the TSI testing standard (ISO 3095), improvements to rolling stock specifications, rolling stock noise predictions and noise mitigation measures cannot be specified.

The research project looked to identify a new methodology for measuring noise that would be easy to understand, repeatable in different places and able to produce results without complex processing. Several different measurement methodologies were explored but the methodology that was considered the most suitable was the 'close to the perimeter' measurement using a catenary portal. Further information on the 'close to perimeter' measurement approach was provided to the Subgroup.

The experiments were undertaken in February 2018 and comprised 79 tests using four different types of rolling stock at various speeds. The experiments included a dedicated pass-by of a Siemens Velaro at different operating speeds ranging from 250 km/h to 350 km/h. In conjunction to the noise measurements, the rail roughness and rail vibration decay rates were also measured.

The results from the experiments showed that all the trains studied were lower than the current TSI limit and that there was very little variation of noise levels between the different trains.

The initial results from the upper part of the catenary frame microphone indicated that better noise source discrimination is achieved compared to standard measurements at 7.5m and 25m and that the noise signatures from different train set-ups (such as pantographs and inter-coach gaps) and the directivity can be identified. This information can be used to optimise the noise barrier design.

AVDC enquired if this methodology will be used for HS2's operational testing. HS2 responded that it will be considered but that procurement of the rolling stock is required first before identifying the operational testing methodology. CDC/SBDC enquired if this research will be used to change the input source terms to the noise model. HS2 confirmed that there are no current plans to change the input source terms because the terms in the ES are more conservative. HS2 discussed that the value in this research was that it validated the assumptions in the ES.

The Independent Chair enquired if different results would be expected because the experiments were undertaken on a ballast track rather than a slab track as HS2 proposes. HS2 answered that the results are comparable between ballast and slab track. Furthermore, HS2 discussed that experiments from Southampton University which compared noise from ballast track against slab track and concluded that there was no significant difference due to the high decay rate of the slab track. Further noise reduction measures, such as increasing the noise decay rate of the slab track and decreasing roughness will be specified by HS2.

Item 5 – LANC Assurances

The Chair welcomed HS2's Head of Environment, Phase One, to discuss LANC Assurances.

HS2 responded to an enquiry from CDC/SBDC on the LANC assurances, as follows:

Assurance 1026:

- *“In line with PFN 14 we intend to support our assessments with validation statements regarding prediction uncertainty. As you are aware all MWCCs are using the Hybrid Bill Model (often referred to as Train Noise Prediction Method TNPM). TNPM was extensively validated during its development. This validation, including a declaration of uncertainty, was presented in an Appendix to the ES and will be included in the Noise and Vibration Demonstration Reports that accompany Schedule 17 submissions. As the Main Works Civils Contractors (MWCCs) are the designers for this element of the project and are responsible for gaining Schedule 17 approval, they are best placed to provide this information. However, as the noise performance of the rolling stock and track are yet to be confirmed, HS2 has provided the MWCCs with reasonably foreseeable worst case assumption for these elements of the noise calculation. HS2 continues to validate these assumptions through, for example, measurements of European trains and through further engagement with our rolling stock supply chain.”*

Assurance 1025:

- *“Also in line with PFN 14, noise demonstration reports will include statements around our reasonably foreseeable worst case assumptions and the effect these will have on the predicted results. You are correct that there are some assumptions that will require refinement between 17(3) and 17(9) approvals. Because of the need to make more assumptions at 17(3) stage (e.g. rolling stock noise and track noise levels) and the fact that reasonably foreseeable worst case assumptions have been made, we can be confident that predicted noise levels will be lower than predicted by TNPM in the majority of situations. We will make a statement to this effect in our noise demonstration report. At 17(9) stage we will have refined our assumptions and expect predictions to better reflect noise levels from the operation of HS2.”*

CDC/SBDC commented that they would prefer for HS2 to discharge these assurances rather than the Contractor. HS2 responded that whilst each Contractor is responsible for providing the relevant evidence, HS2 remains accountable for the discharge of the U&A which has to be agreed with the DfT.

AVDC requested written confirmation from HS2 that the Contractors are using the same noise model and input terms as those used in the ES.

Action 5A: HS2 to issue the EH Subgroup with a letter that confirms that the Contractors are using the same noise model and input terms as those used in the ES. See post meeting note below – Closed.

Post meeting note – HS2 has considered the request and instead of issuing a letter as these minutes are a matter of public record can confirm here that the Contractors are using the same noise model (with the same prediction uncertainty) as that used during the production of the Phase One Environmental Statement.

Item 6 – Occupational Health Update

The Chair welcomed HS2’s Head of Occupational Health and Wellbeing to discuss occupational health in construction.

Health by design is a new topic in designers mind – safety continues to dominate when considering the health and safety (H&S) risks. However, HS2 continues to embed health as part of the design process and is starting to see the benefits of having occupational health professionals at the design stage, for example, separating out health in the risk assessments and making designers consider how to mitigate the risk through smart design.

In September 2019, HS2 held a H&S conference to educate designers on health by design, raise standards and share best practices. To increase awareness with designers, the conference organised a keynote speaker to demonstrate the life-limiting outcomes of exposing lungs to dust.

The conference was a 'dragon' style event with 64 entries received across the supply chain with approximately 15 entries specifically relating to health. The entries were shortlisted to eight and entrants were required to pitch their submissions and answer questions to a distinguished panel of judges. The winner was Skanska Costain Strabag for their entry on demonstrating how precast solution for fixing slabs to pile walls at Euston Approach would cut out the need for extensive drilling and eliminate the risks of exposure to noise, hand/ arm vibrations, dust and other hazardous substances.

HS2 acknowledges that much more work is needed by the construction industry to mitigate health risks, including wellbeing and mental health, and HS2 continues to challenge its designers by having the continually involvement of occupational health professionals at design stage.

HS2 presented a slide on the NRMM emission reduction Innovation Project, which has been discussed previously in Item 3.

HS2 discussed the Eave Trial Hearing project that HS2 Innovation Team is supporting. Eaves have developed a new hearing protection (digital ear defenders) which protect workers' hearing at the same time as gathering noise data but still enables the site workers to hear conversations without need to remove their hearing protection. The trial is also collecting real time site worker noise exposure levels that can be used for noise mapping assessments, i.e. identifying areas where hearing protecting is or is not required on a site, and for planning mitigation in other similar sites. The trial is still in its infancy, but HS2 will share the outcomes of the trial to the EH Subgroup once available.

HS2 will continue working with its Contractors to feed this information from innovation projects to others across the route and will work to change behaviours and drive new construction H&S standards.

Item 7 – HS2 Phase One and Phase Two Update

The Chair welcomed HS2's Head of Environment, Phase One, to discuss HS2 Phase One and Phase 2a updates.

The Oakervee review findings into HS2 have yet to be formally released. HS2 notes that we have been instructed to continue working whilst we await the outcome of the review.

HS2 discussed the 2020 Indicative Programme: enabling works, such as habitat creation and vegetation clearance, are ongoing; Main Work Civil Contractors are increasing works in preparation for Notice to Proceed in March; the stations (Old Oak Common, Curzon and Interchange) have submitted their Schedule 17 application; and, the construction partners in south have been awarded.

HS2 presented a progress update on the number of trees planted and mitigation sites created across Phase One and several pictures of habitat creation sites were shown to the EH Subgroup.

A potential henge has been discovered in Buckinghamshire, which may be of National Significance.

Item 8 – Planning Forum Feedback

The Chair welcomed HS2's Town Planning Lead, Phase One to provide feedback on the Phase One Planning Forum held on 23 January 2020.

- HS2 Environment & Town Planning Director, provided the Planning Forum with an overview of the HS2 restructure and its move to integrated project teams with the Contractors and their Design Joint Ventures. It was noted that the Town Planners will now sit in Infrastructure Directorate;
- The public engagement for the Common Design Elements (CDE) finished on 31 January 2020. HS2 is working through the responses, grouping them into themes and will respond in due course. The next stage is to produce an Engagement Report which will be shared with the Local Authorities;
- The High Court has issued a judgement, in response to a Judicial Review of the Secretaries of States' appeal decision in relation to a Schedule 17 application refusal. HS2 has issued details of the decision to the Planning Forum.

CDC/SBDC noted that CDE for noise barriers needs to be concerned more about performance rather than aesthetics. There was an action on HS2 to demonstrate that the noise barriers will perform as expected during detailed design. This will be done through the noise reports submitted with relevant Schedule 17 applications.

The Planning Forum Chair noted there was a Landscape Design Strategy presented at the Planning Forum and there was an action to hold a separate meeting on SLAs. The Planning Forum Chair clarified that the HS2 helpline number is not to be used by Local Authorities for Schedule 17 enquires.

Item 9 – Ongoing Construction and S61 Experience

The Chair welcomed feedback from Local Authorities regarding the S61 experience and HS2 activities.

- CDC/SBDC discussed several of their concerns: advanced notification of potentially noisy works; no flexibility in compensation when residential houses are just below the trigger limits; the availability of the Prolonged Compensation Scheme when close to the trigger limits; Contractor's noise monitoring to be issued directly to the Local Authorities; and, what information Local Authorities can issue to the public. CDC/SBDC are to send the above points with further detail to HS2 and HS2 will respond accordingly. An update will be provided at the March EH Subgroup meeting.
- NWBC discussed the poor notification that Local Authorities receive regarding potentially noisy works and NWBC not receiving the risk assessments with the Statement of Intent. HS2 recognises the problem with poor notification and is working with its Contractors to address this issue. HS2 will continue engaging with Contractors to ensure that risk assessments are provided when required.

Item 10 – Forward Plan / Meeting Agenda Items

Items for next meeting:

The next meeting is scheduled for 31 March 2020. The Independent Chair is to liaise directly with HS2 to schedule the upcoming meeting dates for the year.

Presentation items for next subgroup:

- How DJV's are deriving the noise prediction and on the outputs from the DARN tool;
- Protecting vulnerable groups;
- Construction Best Management Practices – A Contractor's Experience;
- Update on HS2 new structure.

New Actions

- Action 2A: HS2 to provide the Local Authorities with the published public facing note on air quality.
- Action 2B: HS2 to provide the Subgroup with a presentation on noise predictions and the DARN tool.
- Action 2C: HS2 to provide the Subgroup with a presentation on measures to protect vulnerable groups.
- Action 5A: HS2 to issue the EH Subgroup with a letter that confirms that the Contractors are using the same noise model and input terms as those used in the ES. Noted in Minutes. **Closed**