Slab Track

When HS2 was presented to the Parliamentary Select Committees the proposed track construction was the traditional "ballasted" approach, where individual sleepers supporting the rails can move vertically as the rails flex with passing trains. Horizontal movement is controlled by stones called ballast which needs to be maintained as the stones wear due to friction. The alternative is "slab" track, where sections of track are formed on large concrete slabs. While having a higher initial cost, slab track is generally more cost effective over the lifetime of the railway.

One disadvantage of slab track is noise reflection from the slabs, and classically in the 1995 DfT Calculation of Railway Noise memo (CRN) an allowance of 2dB needs to be added compared to the levels experienced with ballasted track.

When the decision was made to use slab track, the HS2 "source terms" in the ES for the Phase 2a legislation were introduced including this 2dB allowance. Subsequently Arup investigated how the 2dB premium could be removed; and concluded that three things would be needed:

- That the trains would need to have disc brakes, rather than rim brakes that could wear and distort the wheels. HS2 reported that they would not specify disc brakes, but just seek an overall noise performance from the train manufacturer. Provision for wheel lathes at the Washwood Heath depot suggests that wheel roughness is still an issue for the future train operator.
- That the rail roughness would need to be maintained with regular grinding. This will be an issue for the track operator.
- That the rails would need to have two stage fastening to allow flexing. This is expected to be included by the track vendor to avoid cracking of the slabs.

What we conclude from this is that none of these issues has been committed by HS2, so the anticipated 2dB improvement may not actually materialise throughout the life of the railway. HS2's view is that all these factors will be covered by the 3dB standard noise error included in the ES.