

Subject: Notes on Ms Tilbrook's Rebuttal 32/4/2 (Plus reference to Design Brief NR12)

Date: Thursday, 18 October 2018 at 12:39:29 British Summer Time

From: David Glass

To: Merrow Golden

CC: 'Eugene Suggett', 'Alistair Williams'

Dear Merrow,

As requested here are the notes on my calculations.

NR12. Para 3.5.1.2 Proposed works

Figure 60 shows the proposed works

2.5% gradient means path on the north side of the underpass will be 50mm higher than current ground level. ($0.025 \times 2000 = 50\text{mm}$). At 1m from the north side of the underpass it will 25mm higher than current ground level. ($0.025 \times 1000 = 25\text{mm}$). This assumes at its lowest the path is level with the ground which is unlikely. If at its lowest it is 25mm above ground level then you can add 25mm to the above figures.

The finished height of the underpass will be the current height minus the mesh depth and path depth.

Ms Tilbrook stated the current underpass height is 1.95 metre, and with the mesh 1.9m.

However I dispute the available headroom is as much as 1.95m. Figure 60 shows an evenly distributed fixing arrangement. However each of exposed boxed metal support structures are at an angle to the horizontal varying from a headroom of about 1.9m to 1.97m. If you take an average I can see you possibly may get to something like a headroom of 1.95 m. (In all cases the support box structure appears to slope to the middle of the tracks. The outside measurement lower than the internal measurement.) The mesh must fix to the lowest point which is 1.9m. In that case with a 50mm depth of mesh you have 1.85m without the path. With the path the available finished headroom will be 1.8m to 1.85m. If you assume at its lowest the path will be 25mm higher than current ground level this reduces to 1.775m to 1.825m.

A headroom of 1.775m (5ft 10in) to 1.825m (6ft) is neither "suitable" nor "convenient".

This is far from the 1.95m acceptable to HCC noted in NR32-2 Tab 5 in a meeting with HCC on 20th October 2016.

(This will be easy enough to demonstrate now. All you need is a long length of plank / wood with a depth of 50mm to represent the mesh and place against the support structure and measure the height across the underpass open length.)

Additionally from Fig 60 it looks as though the mesh is fitted to the underside of the supports and also to the underpass side wall by brackets. A pretty static and robust structure. I have observed trains going over the underpass and the track flexes in the vertical. They flex sufficient to notice and looks to be possibly 20mm to 30mm. A check on a different day appeared less and possibly 10mm to 20mm. (Trains travelling at different speeds?) I accept that this is by visual estimate and not by measuring, however what cannot be disputed is that the tracks flex in the vertical. If that is the case can the mesh be fixed to both the side walls and the support structure? Would it not fracture over time? Should the mesh be even lower to allow for the movement of the sleepers / line as the trains go over? Say another 25mm or more off the figures above? I.e. a possible finished headroom of 1.7m to 1.8m.

Regards

David