



## Bridge of the Month No79, July 2017 Framwellgate, Durham



Let's begin with a bit of news this month. My planned seminar in Altrincham fell through but there will be a day at the Scottish Lime Centre in Charlestown, Fife, on 24th August and one in London at Alan Baxter Associates office in Cow Cross Street on 3<sup>rd</sup> October. Further plans for one in the Manchester area and one on Newcastle are in progress. This year's program is:

- 09.30 Registration, discussion, coffee
- 10.00 Recent work of Bill Harvey Associates
  - A medieval bridge
  - Monitoring outcomes
  - Viaduct piers
  - Railway loading
- 10.45 Testing and "The Rules" – a review of the 1980's tests
- 11.15 Break, coffee, discussion
- 11.45 Frozen thinking – "what's wrong with the codes"
- 12.30 Hidden Defects
- 13.00 Lunch
- 14.00 The future of Archie
  - New version
  - New distribution model
  - Tablet edition for field use
- 14.30 Further Advances in 3D Modelling
- 15.00 User's issues
- 16.00 Coffee and close

Please contact Philip Denning ([philip@obvis.com](mailto:philip@obvis.com)) to book.

If you live near Chester, there is still time to get to [my IStructE talk there on 3<sup>rd</sup> August](#).

And now to the magnificent Framwellgate bridge. If you don't know [Durham](#), it is well worth an outing with two big medieval bridges and magnificent cathedral, plus a railway viaduct that will feature here soon. The two bridges, Elvet and Framwellgate carry a now pedestrianised road across the narrow neck of land which isolates the castle and cathedral in a loop of the River Wear. Elvet has a row of modest pointed spans but [Framwellgate](#) crosses the river in two enormous segmental arches declared to be 26.5 and 25.1m span. There is actually a third, much smaller, span on the city side which is now hidden by surrounding buildings (to the right in this picture from the upstream side). Even in early summer it is impossible to get a complete view of both main spans.



The downstream side shows rather more interest than upstream, at least initially.



I am sorry that, in a hasty visit, I managed to decapitate the cathedral but note the rise and fall of the string course here. This clearly follows the medieval road line.



A closer look shows an even lower change in construction of the spandrel walls. Could it be that the bridge was originally severely humped? Or is that just the top of the solid masonry?

Some of the history is recorded on a plaque. And that leads to perhaps the most interesting feature.





The arch ribs are chamfered on the outer face only. The inner ribs are square edged.



So where is the widening and why is it not visible.

One indicator is the infill between the ribs. In the older part it is of random shape and size stones.



Beyond the join the stones are much larger, but the joint is actually visible here and the rib at the olde edge (right) is square edged.



Look up to the crown and it becomes even more interesting.



Look closely and it is obvious that the original ring was removed and replaced to be reused on the new downstream face, preserving the appearance of the bridge as much as possible.



Well, it has been an utterly manic month and I think that will have to do. I may return!