



## Bridge of the Month No54, June 2015 Irthlingborough



On 27th and 28th June I had the great joy of joining a conference of Mediaeval bridge nerds of the newly formed International Bridges Group. On Sunday we had a tour of bridges led by Peter Cross Rudkin. A few of them will crop up in the coming months but Irthlingborough will do as a starting point. The bridge is at <https://goo.gl/maps/BRZ9Z> and it is worth zooming out a bit to see the surroundings. This road was the A6 until the 1930s.

What a fascinating mix of very old, not so old almost new. Look at the plan first. They were going to double it then changed their mind and built a high level bypass. Zoom out in Google earth to see that. The plan view from Google looks really strange but it is decipherable as we will see shortly.

First thing to note is that the road has been widened on both approaches as though the bridge was to follow. Indeed on the south side it is actually bridge that has been widened. At some point, though, they decided to build a bypass and there is a 1930s reinforced concrete bridge climbing to some height over the river to the south west. Then there is the fact vthat the parapets run straight and parallel through five spans from the north then the refuges disappear and the bridge takes a modest kink. We will see that from below shortly.

Looking from the SE corner (below) it is clear that there have been many changes over the years including a high level very flat brick arch presumably put in for navigation. Through to there, though the arches are all pointed and ribbed and the cutwaters look at least similar. The banding in the masonry is surely intended.





To the south of the high span, the ribbed arches return but have further brick arches in front of them.



And the further south we go, the wider the new part is.



The brick extension in the flood relief zone is wider yet, and here we can see through to a substantial widening on the other side.

Some engineering notes due here. Notice that horizontal crack in the spandrel wall that matches with a line of lime on the intrados. There is a second such line (crack further up and a third over on the other side).

Above the horizontal crack the wall is leaning out slightly but I am almost certain, too, that there is a bit of articulation in the arch itself.





Here on the west side, standing on the very wide extension we can see that the old arch has also been widened but on this side they get wider to the north. The band of stone immediately below the copes on here must be different. Tremendous growth of lichen.



That is because the kink in the bridge is new. The white lines below show the original bridge (approximately). Have a look at the bridge from the top of the bypass at <https://goo.gl/maps/1U5Ws> and you will see that we have only looked at the main river crossing and ignored the long causeway running up to it each side. One day I will get back and give the bridge the day it deserves rather than 20 minutes or so.



So, is there anything else significant here?

Well one thing I had never thought of before is the way those extensions spring from the sides of the cutwaters. That means the span gets greater, the further from the original bridge. Then on the outside edge there is a wall adding a bit more weight. The result is slow creep causing the extension to tip gently away from the parent arch. No wonder there is commonly a crack in the pavement along that line.

Then there is the issue of what are the ribs for? For many years I have thought they were probably a way of saving on centring. Make a single centre, build the ribs one at a time, then fill between them. An alternative cropped up here. The ribs can be built very quickly. It would be perfectly possible to put a rib together and bang in the key stone in a single day. Once complete the rib would be much more resistant to flood damage than a partially completed arch. Perhaps it was the only way to minimise flood damage.