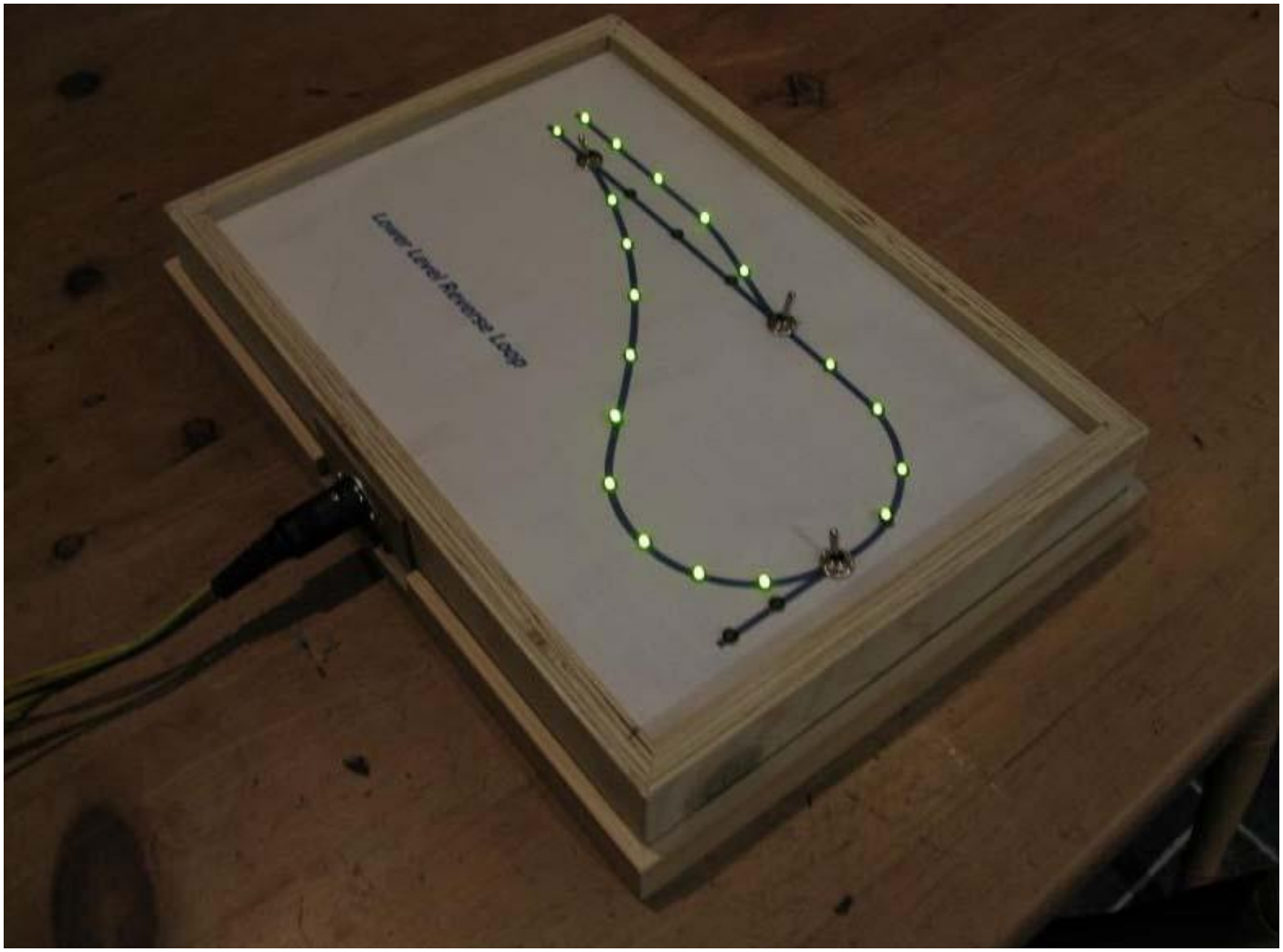
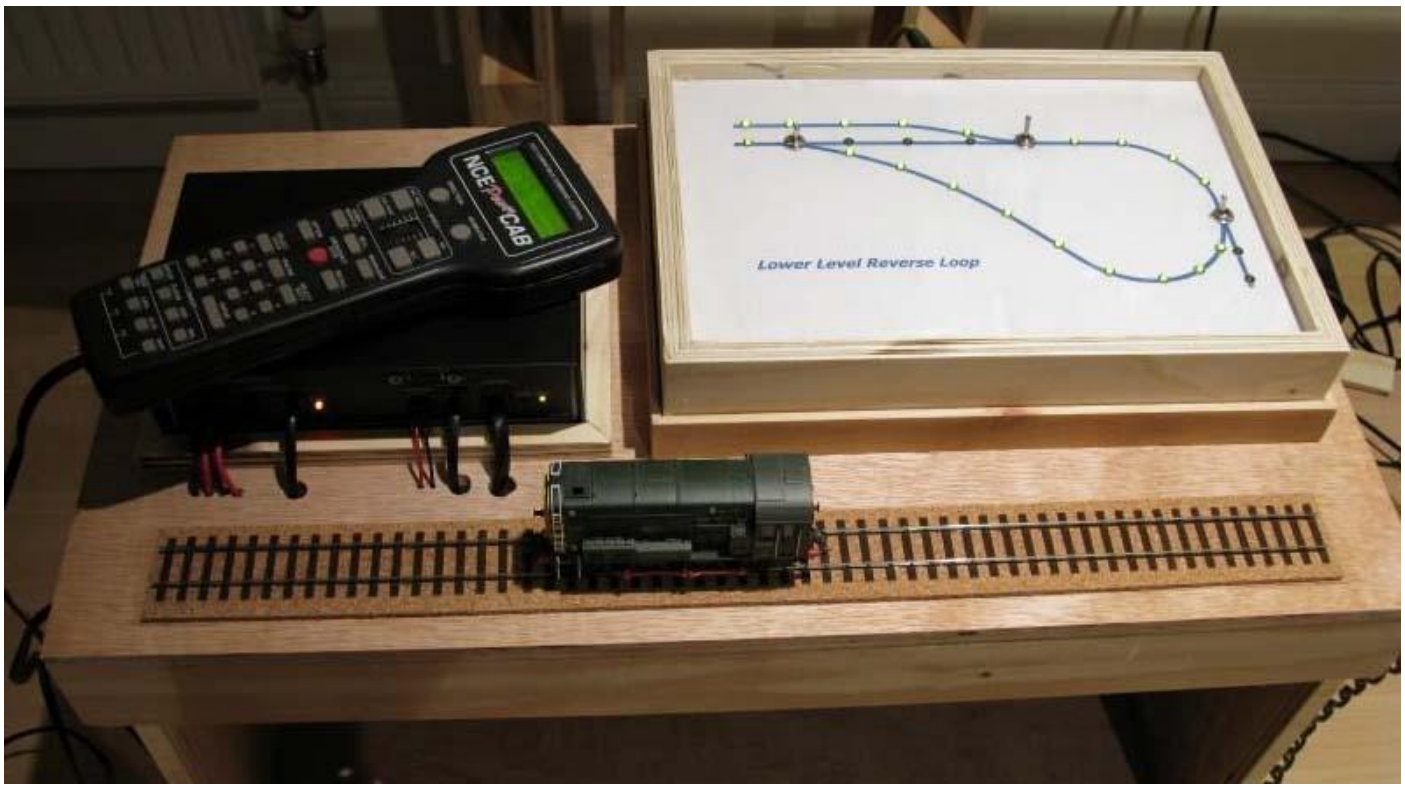
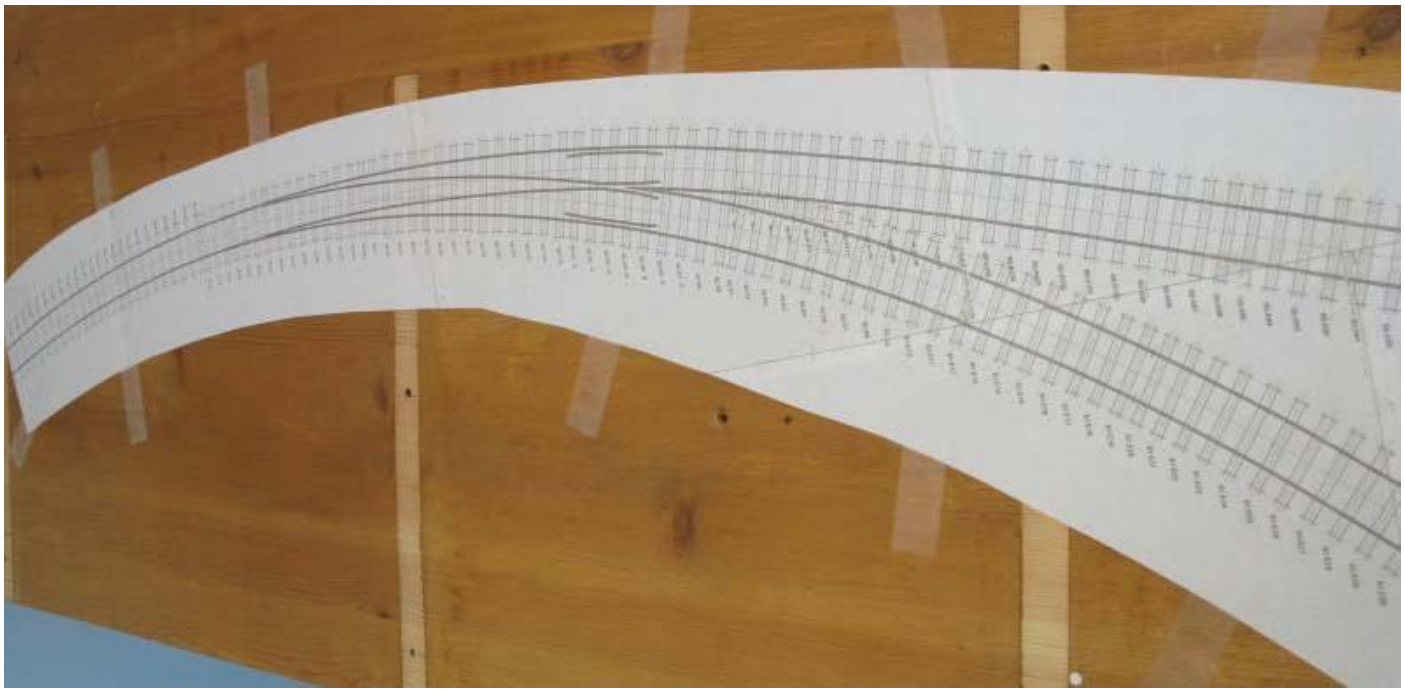

Lower Level Reverse Loop


NCE PowerCAB
Lower Level Reverse Loop

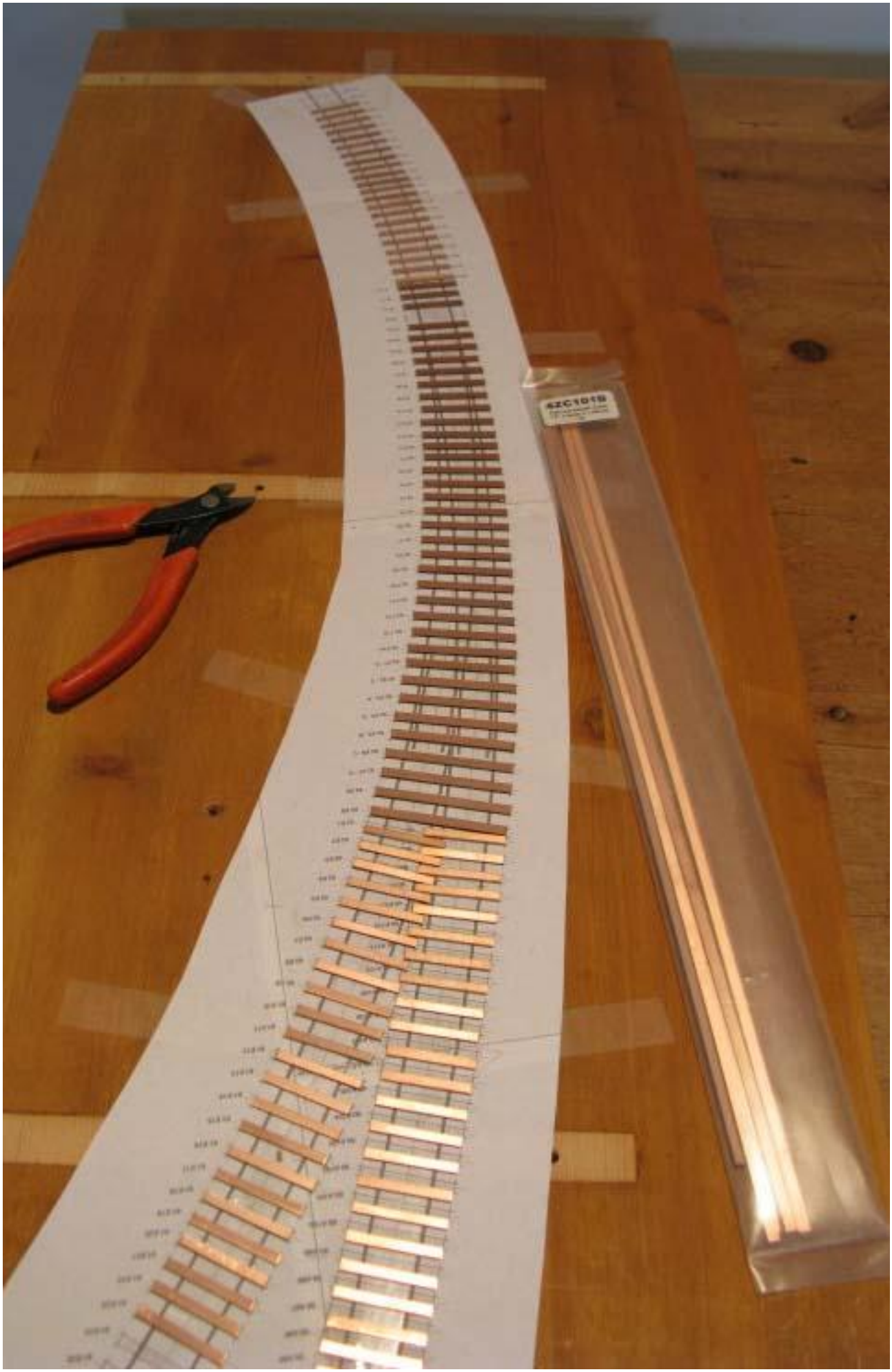
Had a few hours spare today, so set about the redesign of a troublesome piece of pointwork that forms the access to my hidden reverse curve. My way of testing trackwork is to take a reasonable sample of my loco's and then run them at various speeds up to full whack. I'm looking for no derailments at any speeds and will adjust my trackwork until that can be achieved. One of the beauties of pcb track is that you can tweak various component parts of turnouts until you can get 100% reliability. Of course the other part of the equation is back to back measurements and I check all my stock before it is allowed on the layout. With a known B2B and check rails that are accurately set, you should be able to eliminate most issues.

The other problem behind derailments is the transition from straight to curve track and that was the root cause behind this problem area on my layout. There was a 3' radius curve with an integral curved point with the inner road continuing that 3' curve. The other route was straight into an S curve and then onto a straight. This sudden change of direction was proving too much for certain locos, so I set about resolving the problem.

First stage was to open my Templot plan and change the transition area. Having arrived at a much smoother transition, the templates were printed off and stuck to my 18mm baseboard.



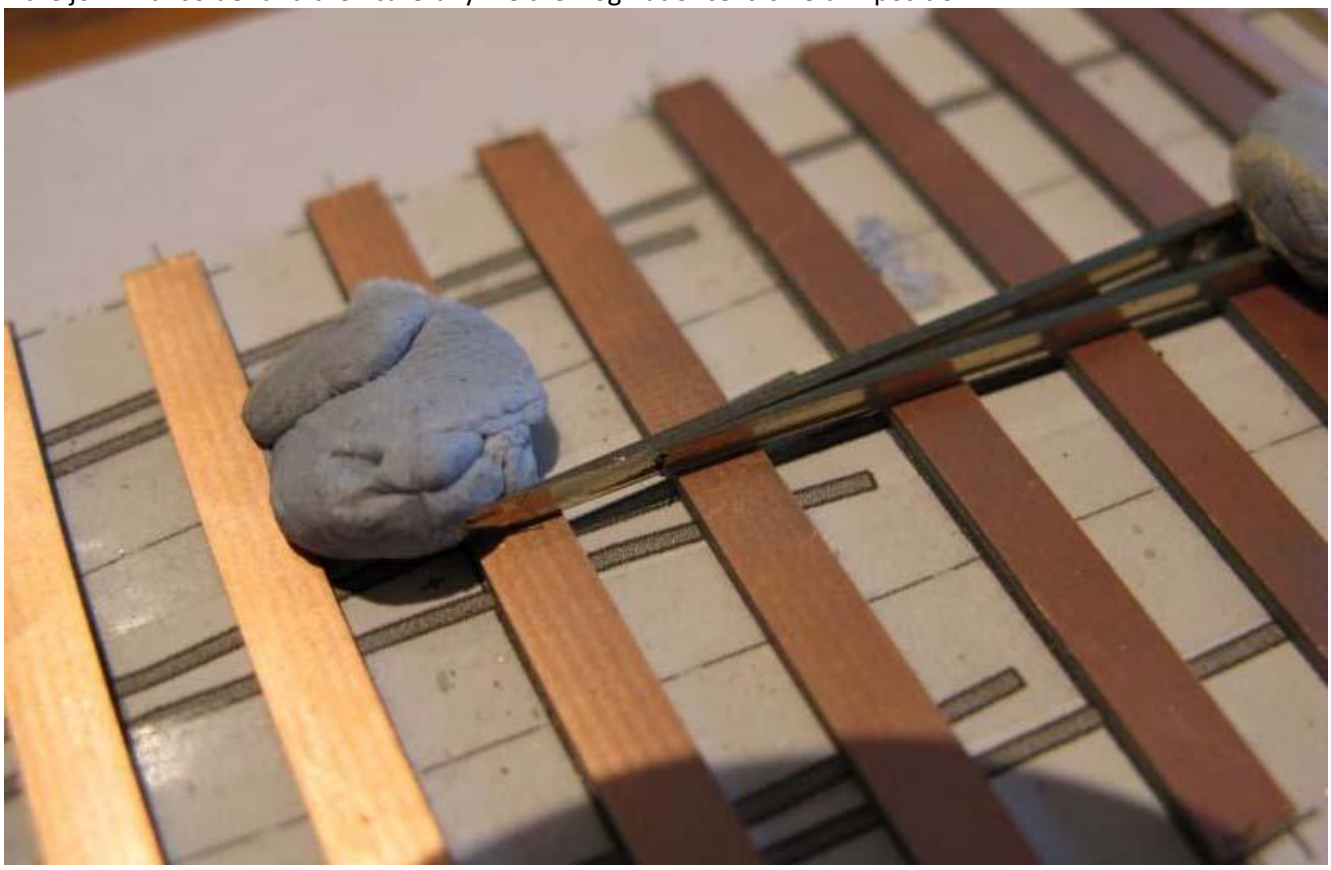
I always try to extend the basic turnout into the next piece of track, particularly on a curve, as the last thing you need is a rail join right in a transition area. I use 3mm SMP plain sleepers for plain track and C & L 4mm strip under turnouts. The plain sleepers are pre cut and I use an old Xuron track cutter to cut the strip to the correct length to suit. Once the plan is fixed firmly in place, I lay double sided tape on the plan to hold the sleepers in place. I always dab this with a dry tea towel to remove some of the adhesive strength and make it easier to remove the finished track from the plan.



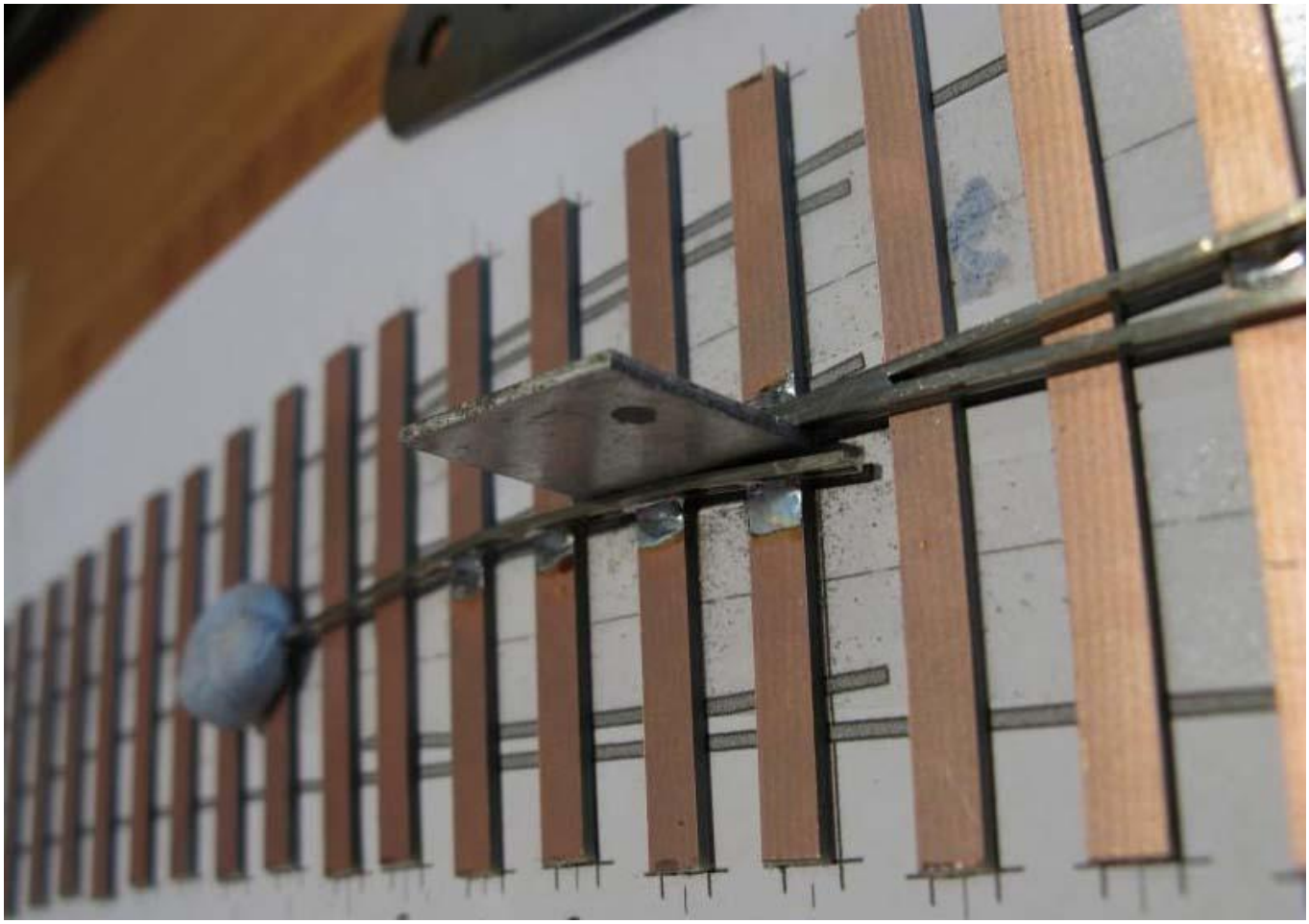
I picked up some point filing jigs from Scaleforum one year and these are invaluable for filing up the frog. Simply

select the required crossing angle and file away. I have two jigs to cover 5,6,7,8 and 9,10,11 & 12 crossing angles. The rail is held in place and filed in the hardened steel block. You can also use the jig to solder up the frog, but I prefer to make them in situ.

Once the rails are filed to the correct angle, I place them on the plan and hold them in position with Blutac. I tend to fill the join with solder and then carefully file the frog flat once it is held in position.

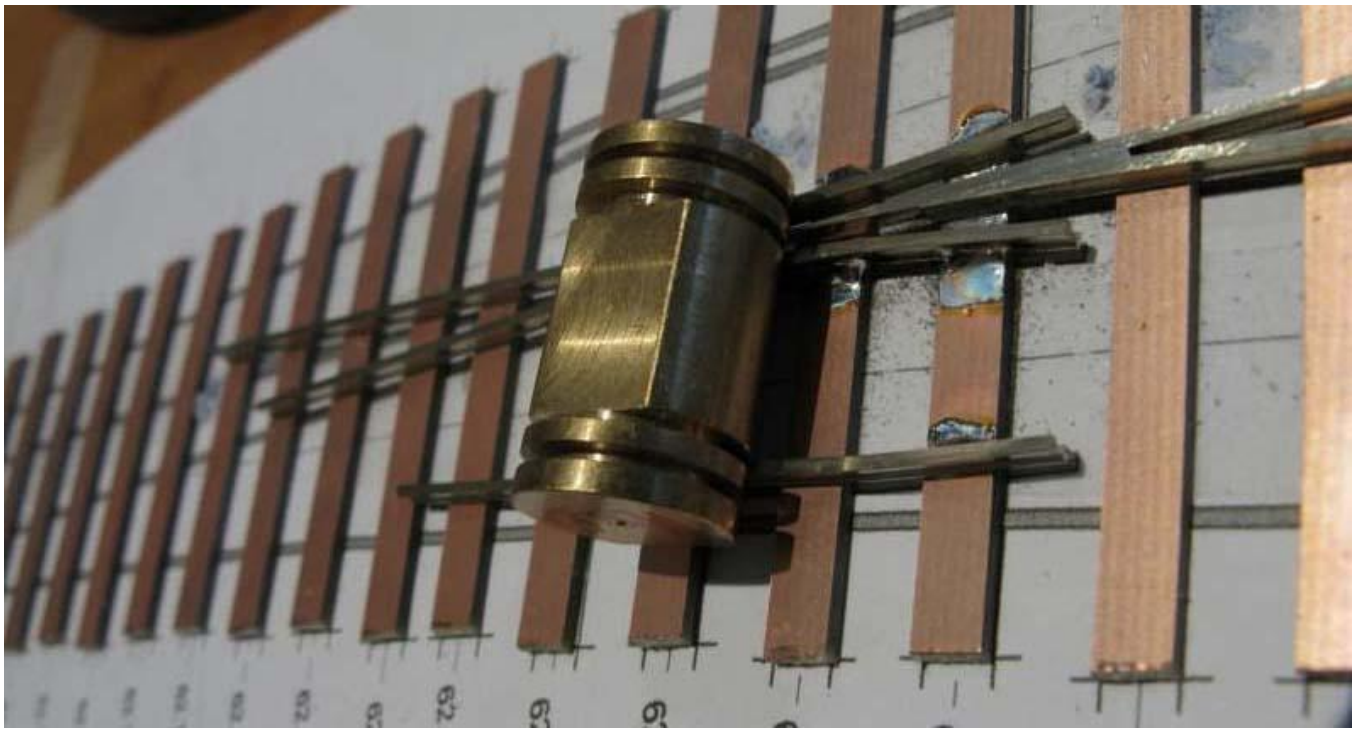


The first crossing rails can now be cut to length, bent to shape and soldered in position. I use a 1mm shim to set the gaps and once again, Blutack to hold it.

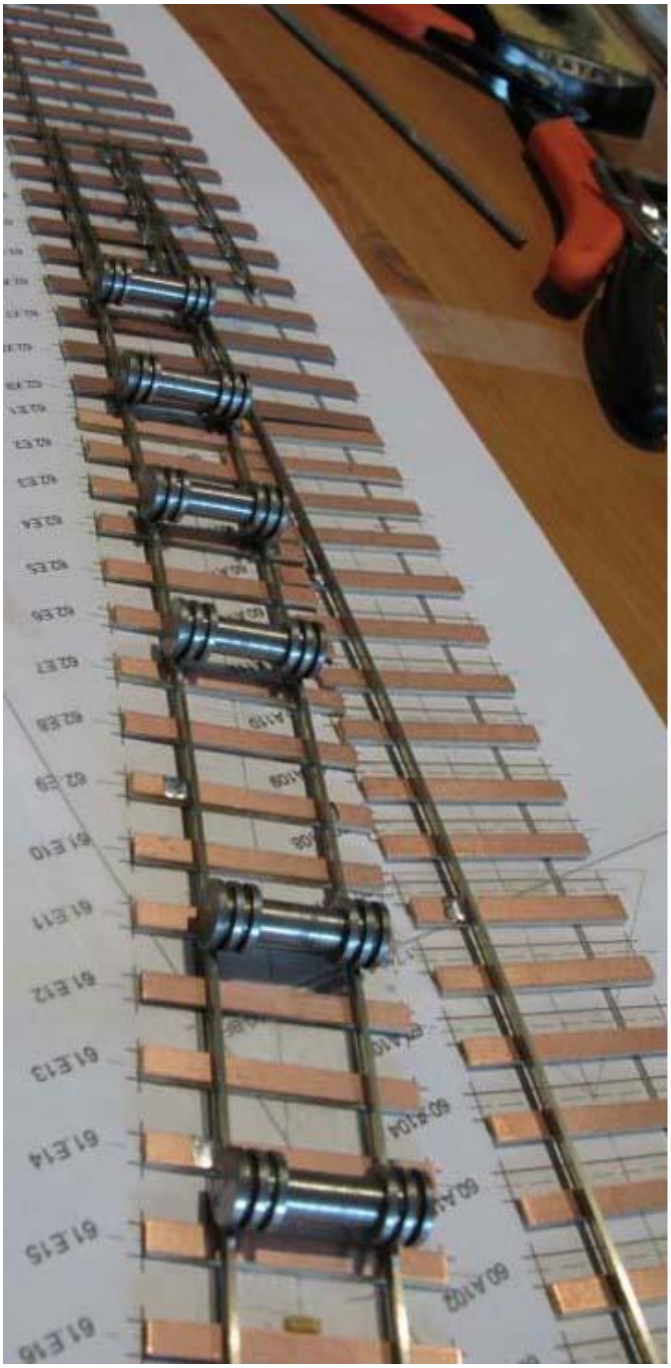


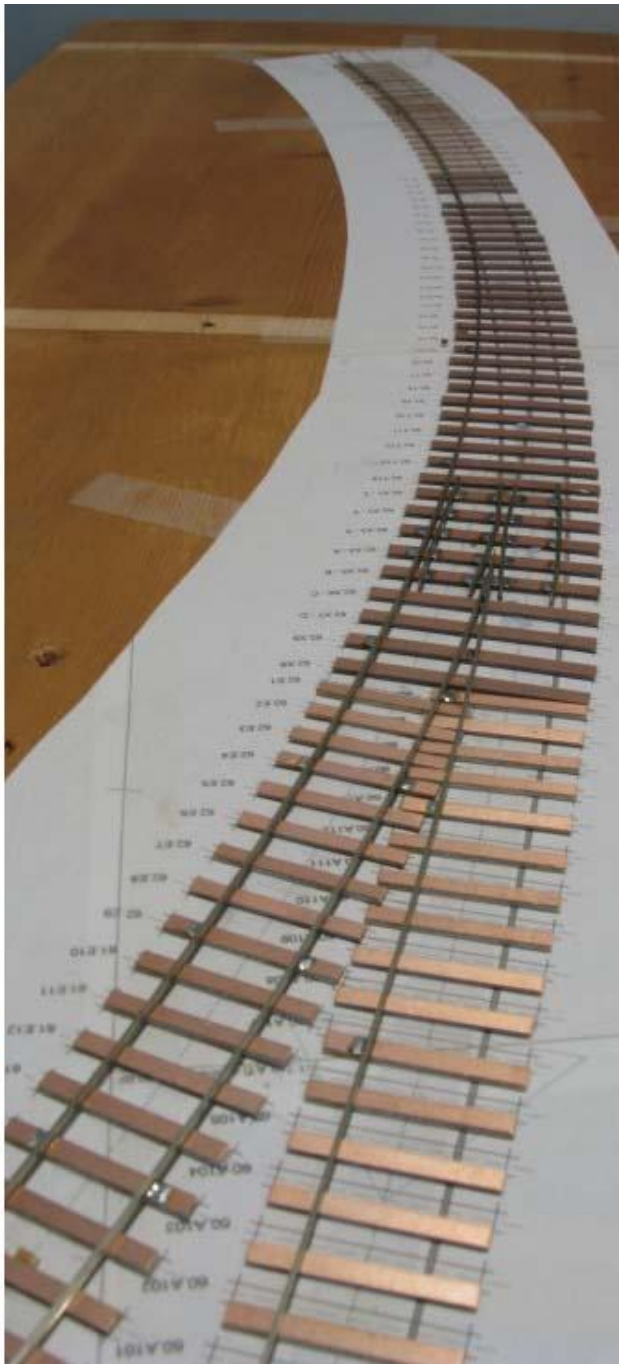
Once you are happy with that one, the second rail can be soldered in place using exactly the same method.

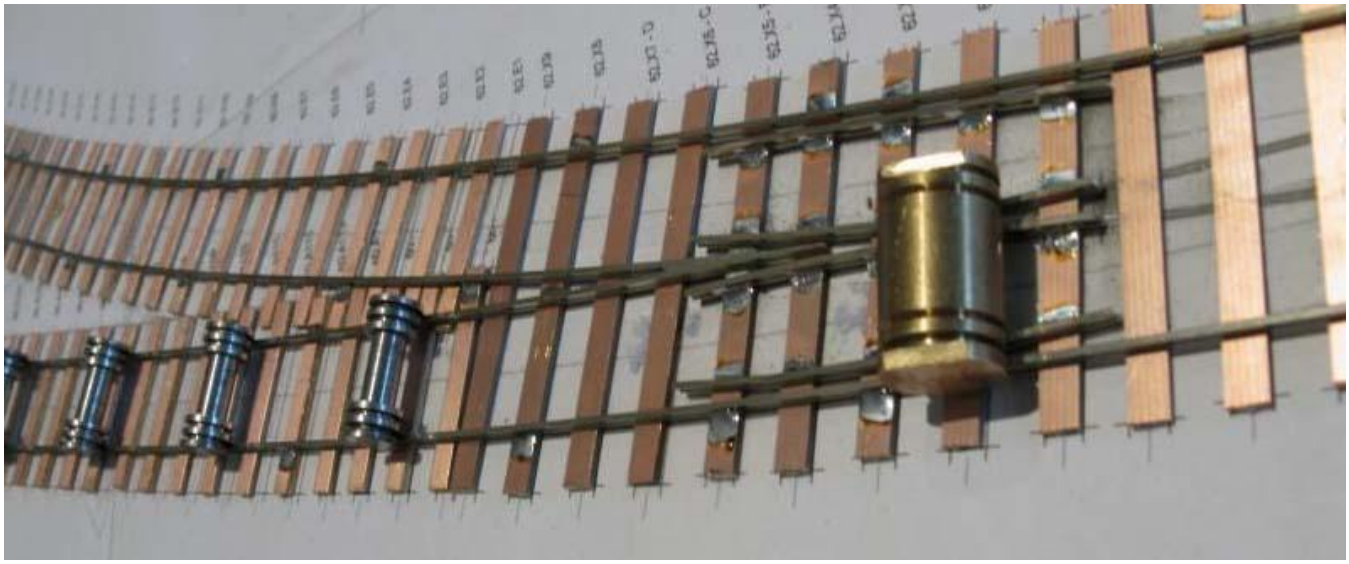
Now, there are several ways of making pcb track and this is the one that works for me. I'm not suggesting that this is the right way and it's not intended as a teaching exercise. I said at the beginning that the critical part of a turnout in my experience is the check rail distance from the crossing and not the actual track gauge. When I first started making my own track, I was gauging the outer rails from the crossing and then setting the check rails from the outer rails. Having now read a lot more about track issues, I changed my assembly method to set the check rails first, so the next thing is to cut and form the check rails and then gauge them from the crossing rails.

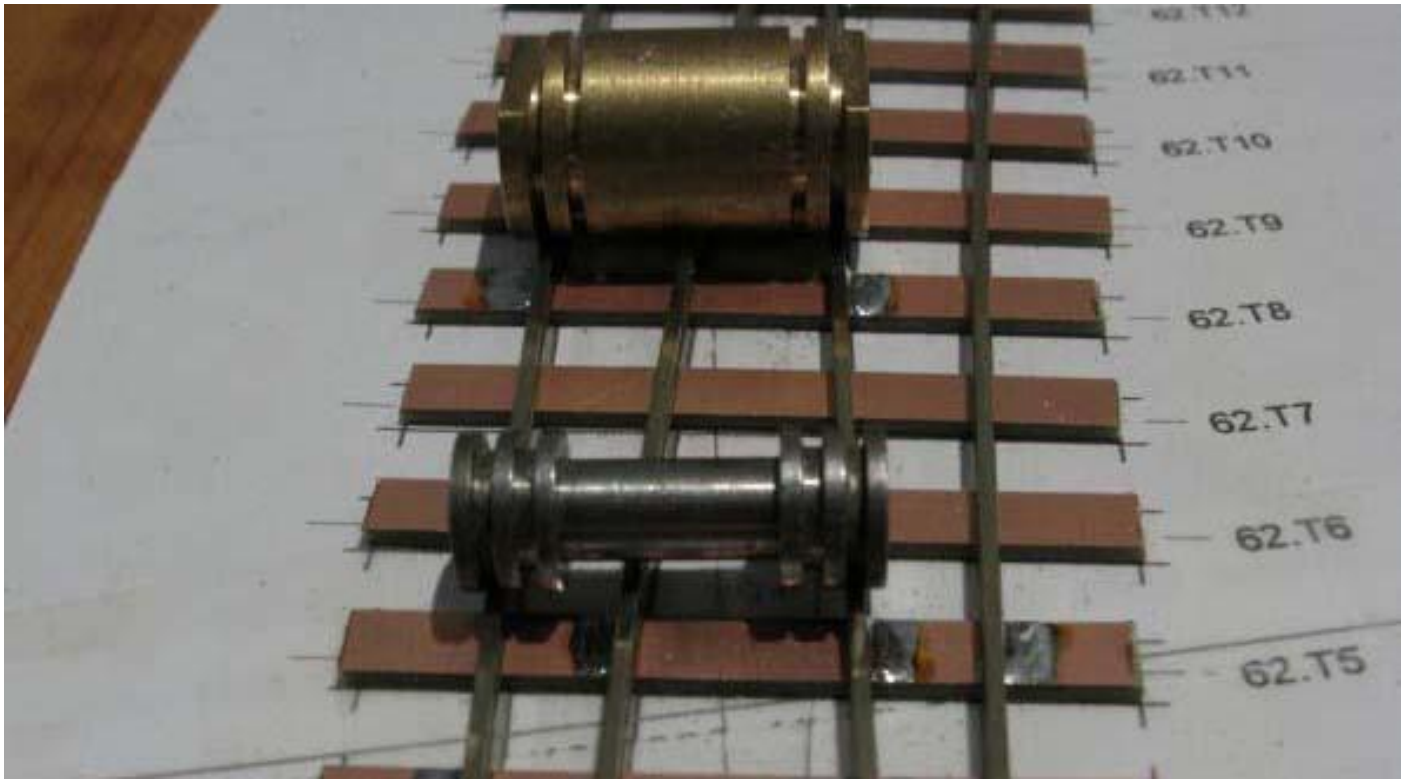


The next stage for me is to now add the outer rails. The important thing for me is the smooth flowing lines of any trackwork and whilst Templot is very good, I also use my own eyes to check that the rails are in a nice flowing curve and do not have any minor kinks. I only tack solder every few sleepers at this point in case something is not quite right.

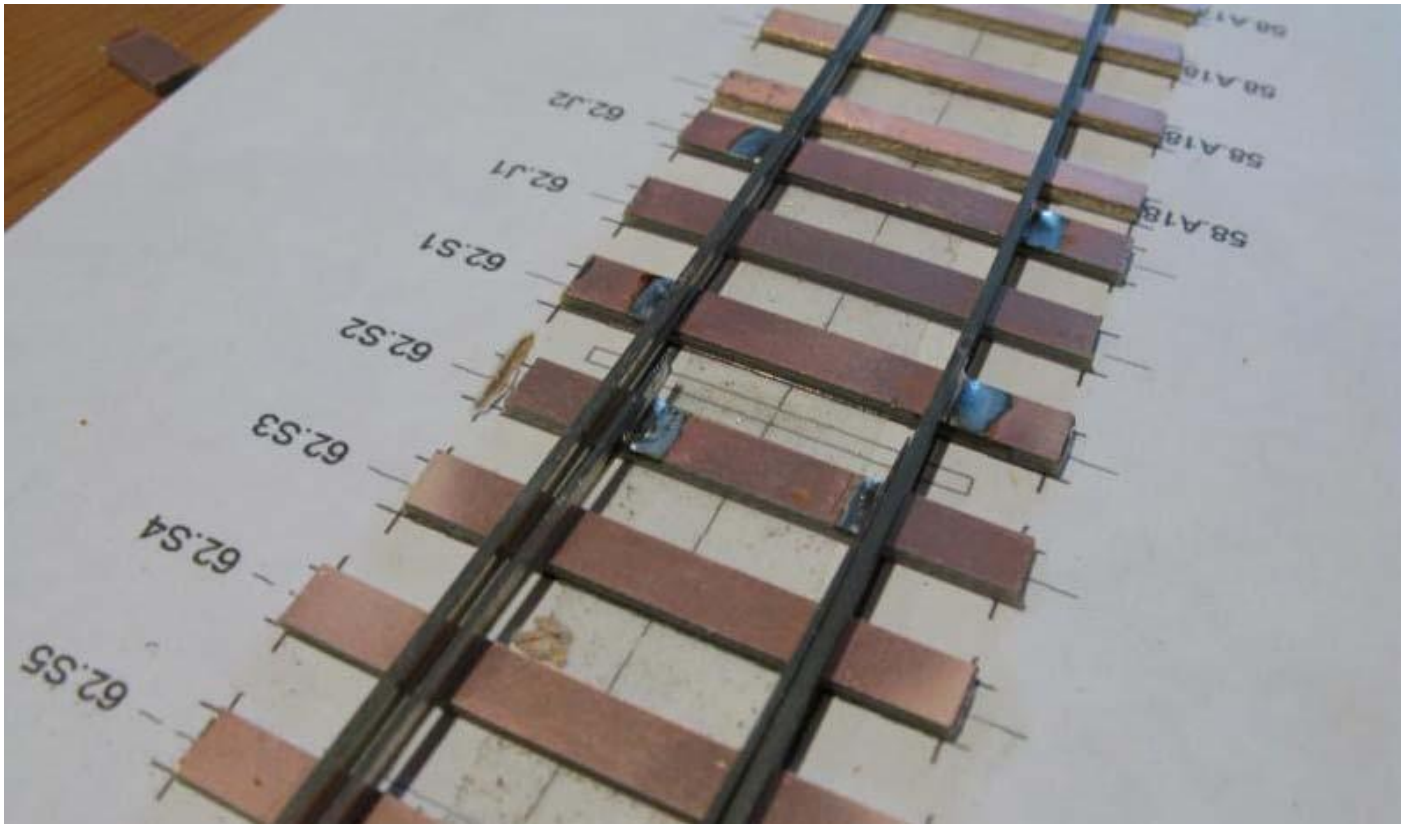




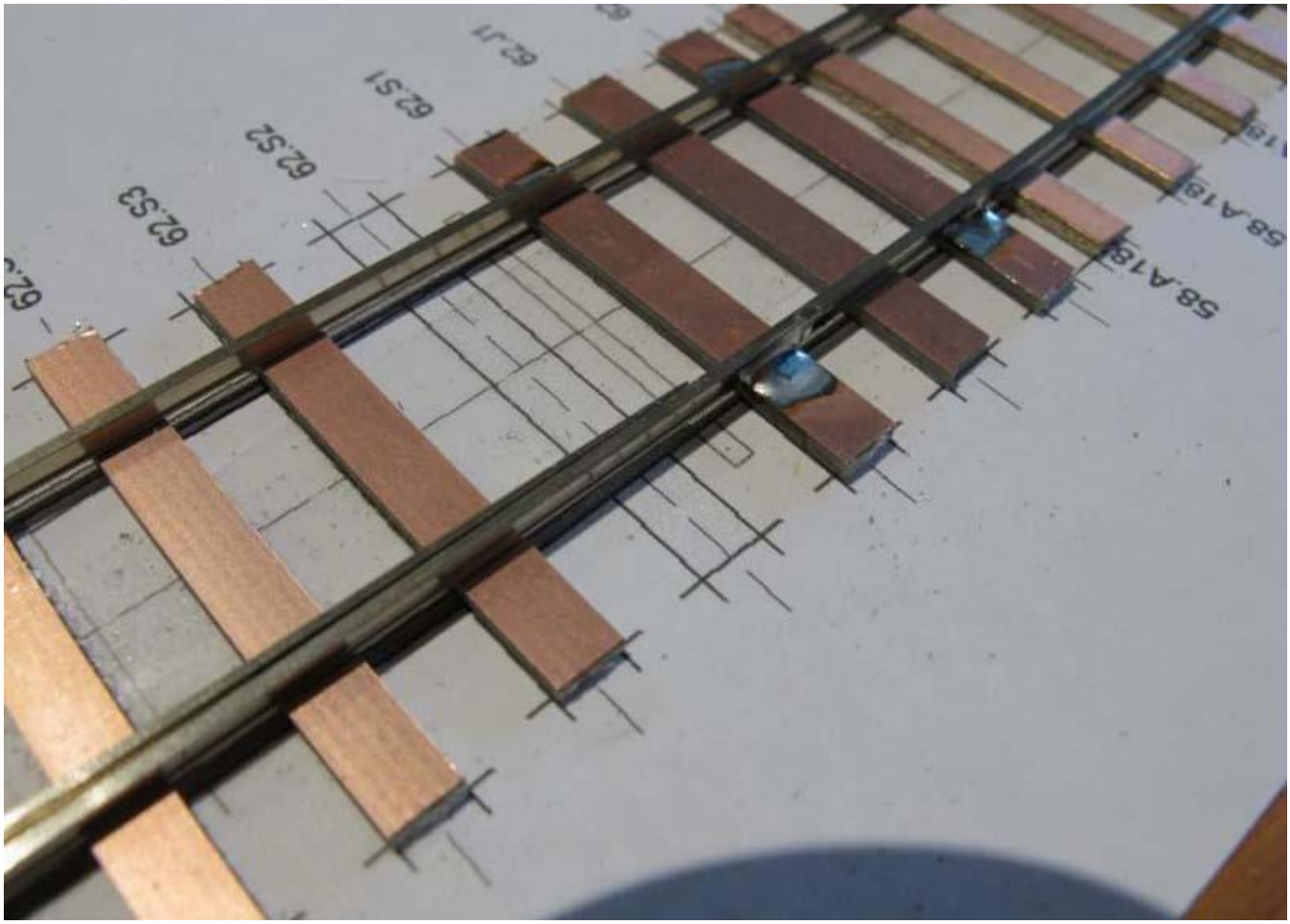


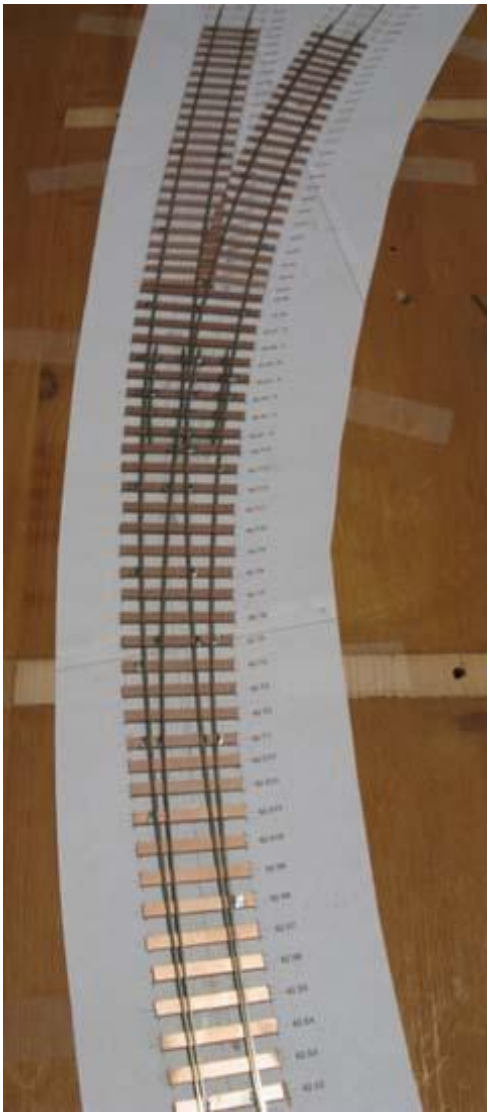


So that just leaves the point blades to be filed. These are done by hand using a needle file. Once formed and cut to the correct length, these are gauged from the outer rails. To simplify things, particularly on hidden turnouts, I just use PCB strip as a tie bar, replacing one of the normal sleepers. The ends of the blades are carefully gapped using the 1mm shim and then soldered to the tie bar.



.....and basically that's it. A custom built curved turnout that cost a fraction of a RTR one and took less than 3 hours to build. The last job is to check all is OK and then solder the rest of the sleeper/rail joins and lighly cut through the copper strip with a slitting disc to isolate both rails.





Making pcb track is not that difficult once you have the right tools. A set of gauges, a decent soldering iron and a bit of patience is all that is required. It's a great way to spend a few hours and very rewarding once you have finished.....Add to that the cost savings that can be had and the freedom it gives in layout design and it scores all round.

Go on, give it a try....

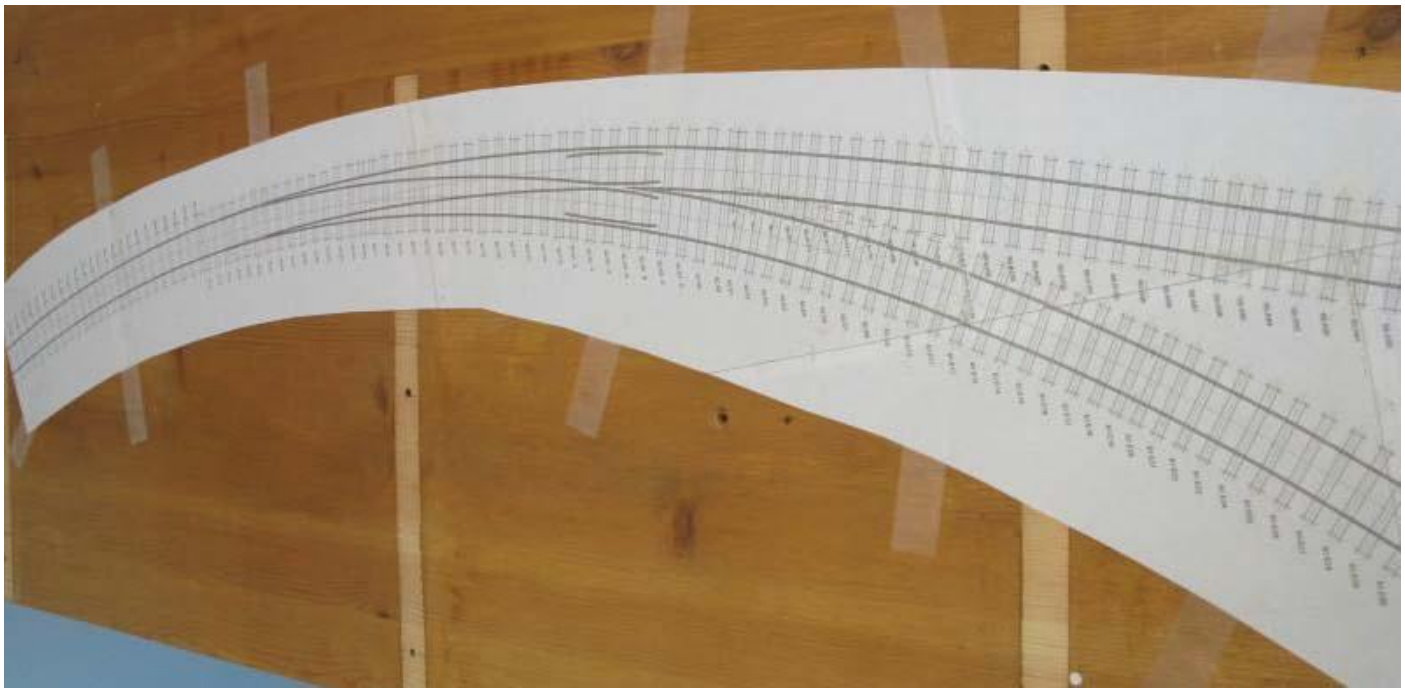
This modelling business seems like two steps forward and one step back at times and that's exactly what has happened over the past few weeks. I bought a Fiatrains model of the LMS 10001 about a year or so back and it is truly a beautiful model. It was built by Ajin in Korea and is of brass construction. However, smooth as it was, it wouldn't run through one particular turnout without derailing. The problem is partly to do with the wheels and the rigid 6 wheel bogie and I have ordered some new wheels from Ultrascale to solve that issue. Still not feeling comfortable with this particular turnout as it will be hidden from view on a lower level of the layout, I bit the bullet and decided to rebuild this particular section of the layout.

Construction of the turnout is covered in a separate post, but I have been asked about my slightly unusual baseboard construction, so will cover that as part of this update. Previous attempts at building multi layer layouts have failed on various things, gradients being one, but accessibility being the other. I wanted to ensure access to hidden levels was as easy as possible, so did away with conventional boards and came

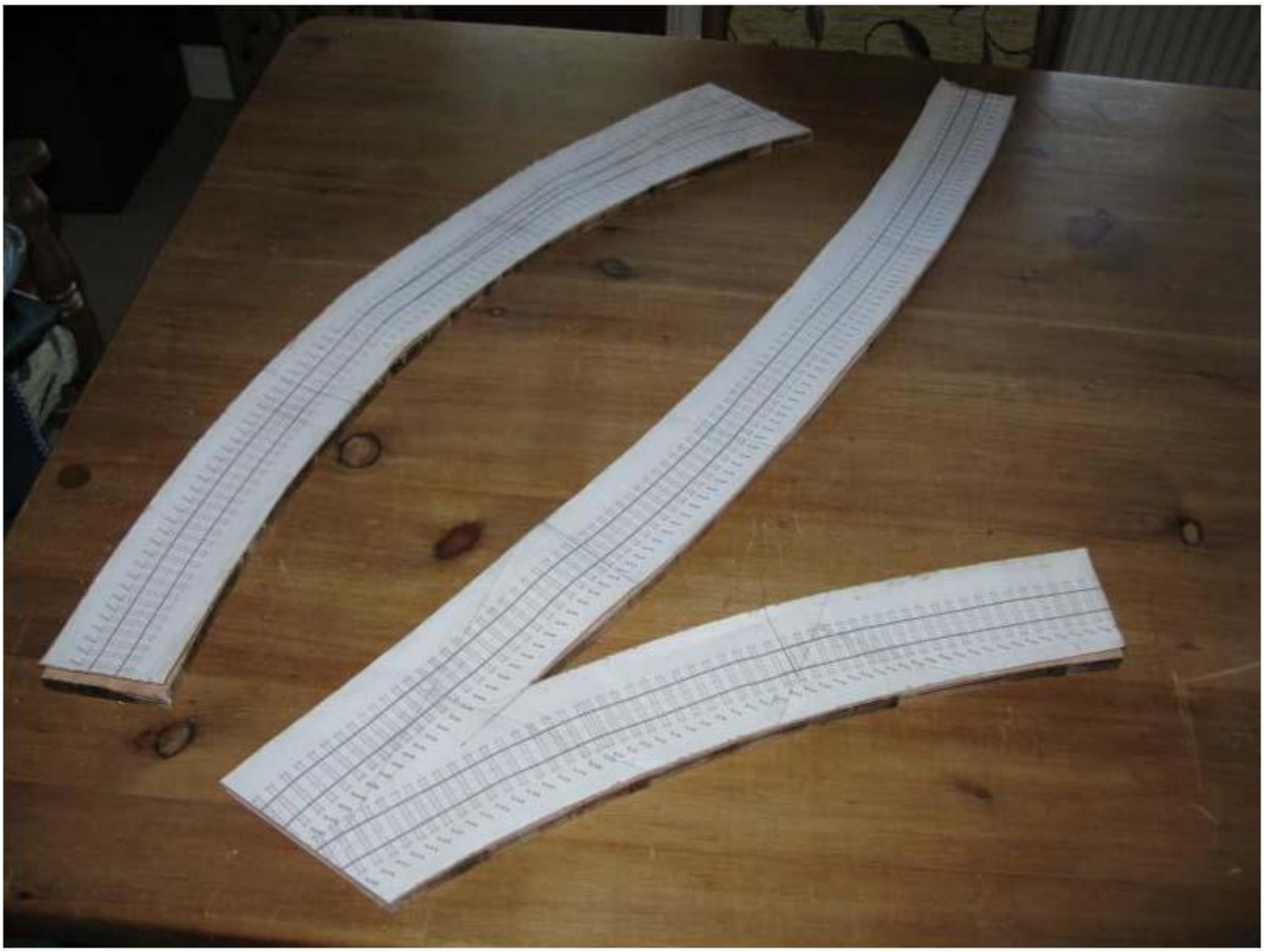
up with this idea of skeleton boards which can be easily reached and will also allow easy access to the underside of the higher level boards at the same time.

I will be adopting this construction method for the open plan trackbed on the upper levels but will only fit "girders/siderails" to the underside of the boards. I will increase the depth from 25mm to probably 40mm to ensure rigidity is maintained. The lower levels have to have upper siderails to hold the trains on the track in the unlikely event of a derailment. There is no room for error with narrow boards like these and the thought of one of my favourite loco's crashing three feet to the floor was keeping me awake at night....

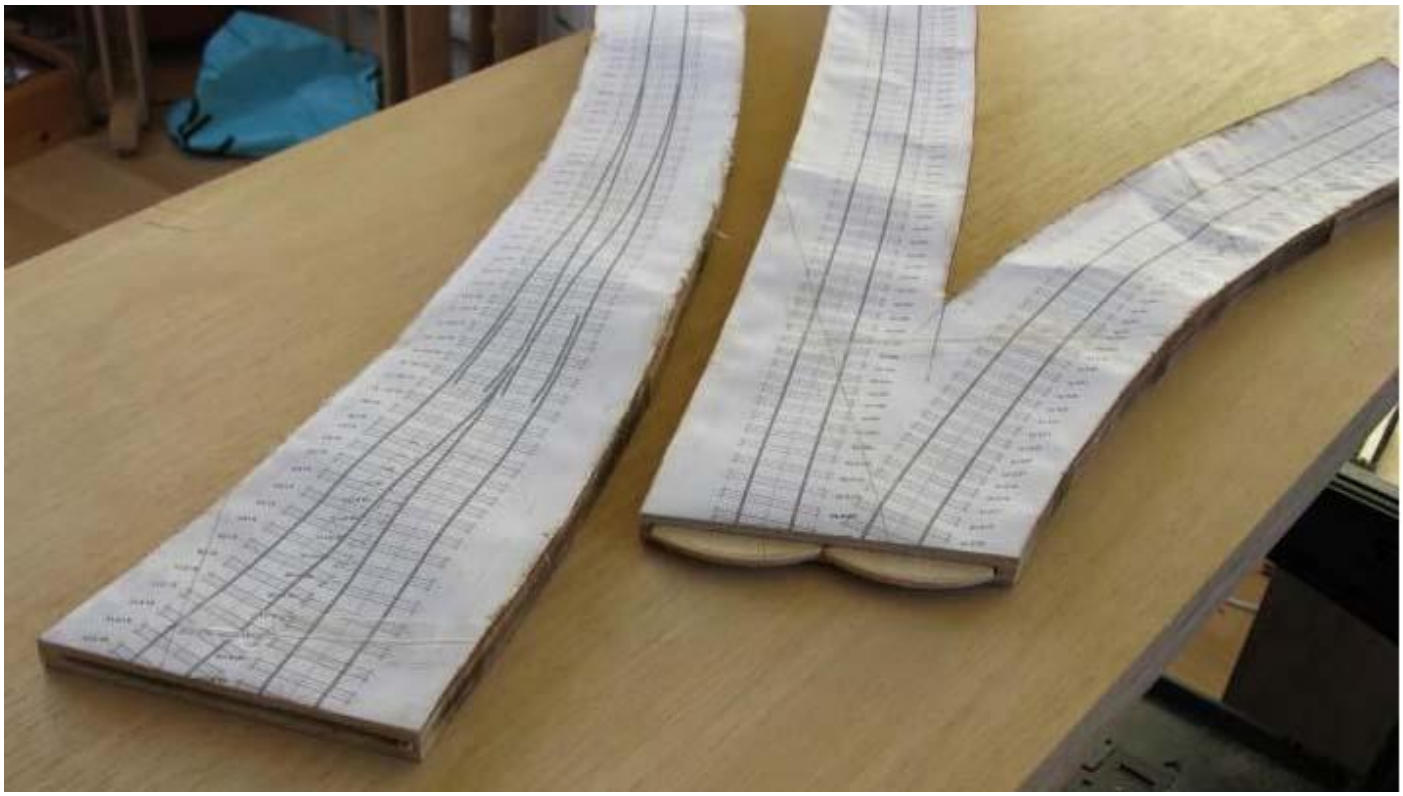
OK, starting point for me is Templot. No link to Martin's software at all, but I am a convert. It has enabled me to completely plan out my layout and try things out on screen before cutting a single piece of timber. The software has been invaluable for track construction but in my case, it goes further than that. So this is the starting point, my junction template, which you will have seen earlier in this thread.



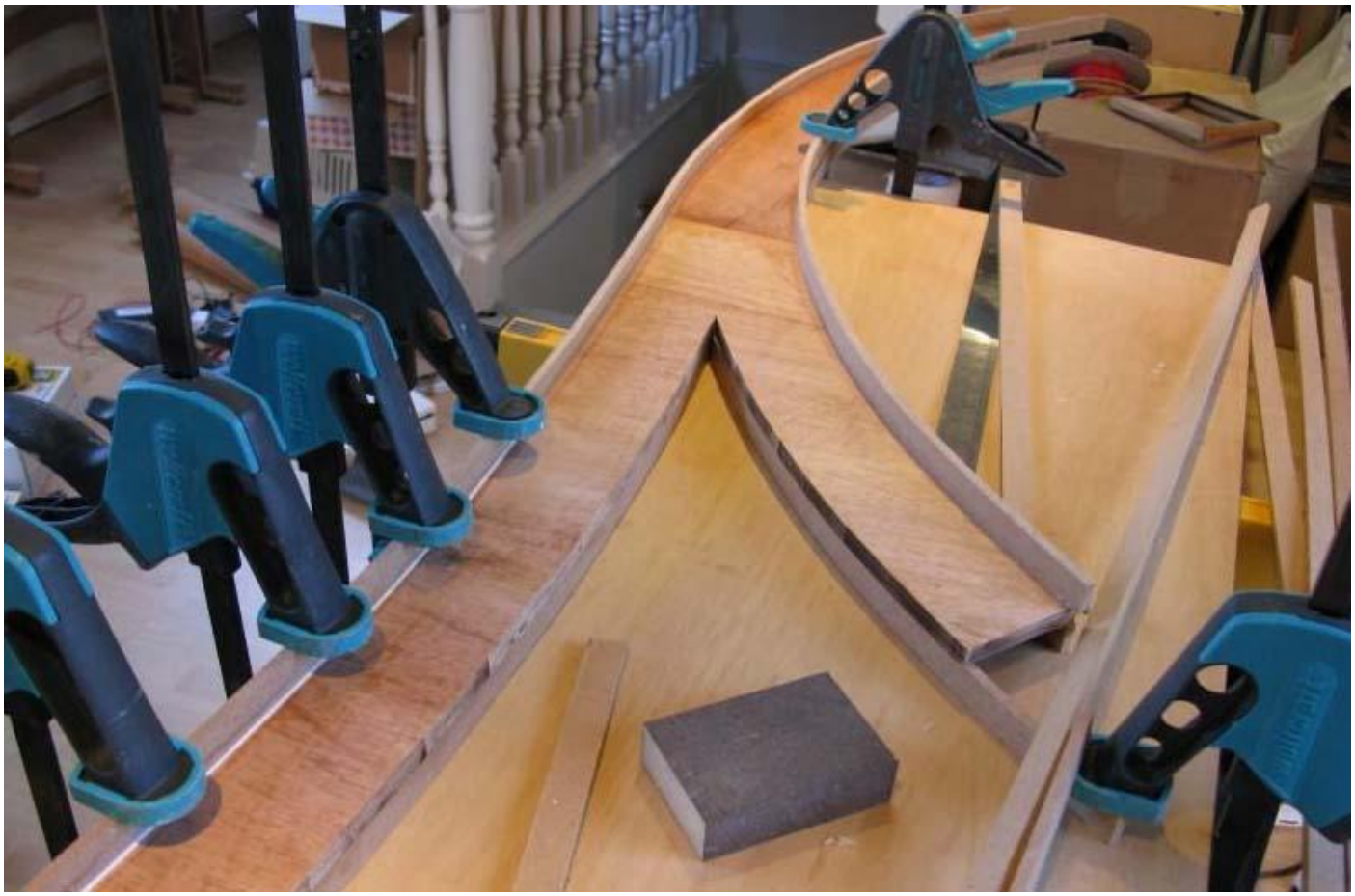
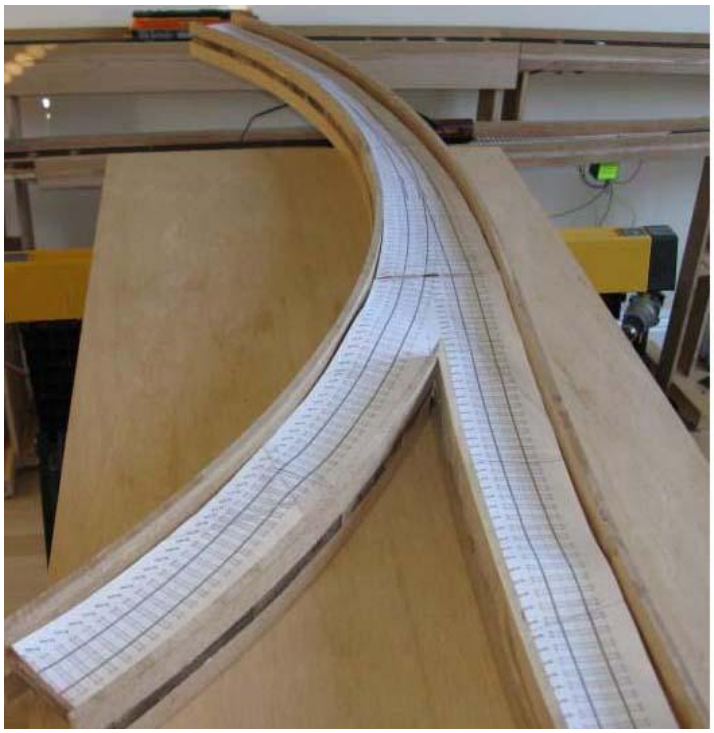
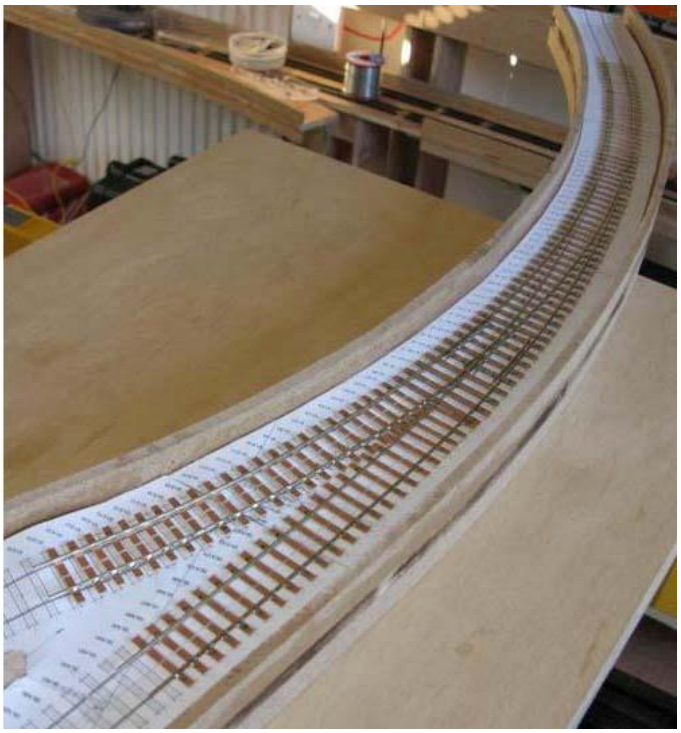
I print two sets of templates. The first to build the turnout and second to make the baseboard. Once I have the baseboard template put together, I mark out points 40mm either side of the centre line and then cut out that shape. I stick the template on to a sheet of 12mm ply or if it is a complex shape such as this, I may use two or three pieces, which are aligned by their straight edges. Stick the plan across all three pieces and then cut through the plan with a scalpel. In this case, I used two. Once the plan is stuck down, I just cut out the shape with a jigsaw. Judging by the burns on the side of the pieces, it looks like I may need a new blade....



The joints between the two pieces of cut ply are made using routed slots and "biscuits" which are small oval shaped pieces of wood. These are glued into the slots and the two pieces joined together. The glue makes the biscuit swell and makes a very strong joint.



The side rails are made from 25mm strips of 6mm mdf. Once stuck on either side of the 12mm ply they give a very light, rigid panel. As I said earlier, I will use this method on my open plan boards on the visible sections of the layout, but will use 40mm strips on one side only. To ensure the skeleton board is flat, I stick the side rails on with Evo Resin W and clamp the whole thing together on a strong flat board. Each rail has to be glued on in sections and you have to wait for the glue to dry before unclamping and moving onto the next piece. This process takes abot 20-30 minutes per rail and it took most of the day to complete this section. I'm in no rush though, so get on with other things whilst the glue is drying.



Once this is finished I will cut the ends accurately with a bench saw to make sure everything is square. The next stage would be to drop in the track plan to see exactly where the turnout fits and then place the track to check everything is OK. As you can see, the beauty of Templot is that it is an engineering tool that will allow you to build something that will fit. The last pic shows how well this new piece will replace the first one.