

A BRIDGE IN TIME

SCUNTHORPE-BASED INTAKE TRANSPORT TOOK UP THE CHALLENGE TO TRANSPORT A COMPLETE STEEL FOOTBRIDGE FROM SCOTLAND TO THE MIDDLE OF LINCOLN AND PLACE IT ACROSS A MAIN RAILWAY LINE WITHIN A RIGID TIME FRAME. **BOB BEECH** CAUGHT UP WITH THE TEAM FOR THE LAST PART OF THE OPERATION.

PHOTOGRAPHY: **TOM CUNNINGHAM**

Moving any oversize load by road invariably takes a lot of planning, route checking and careful organisation, also the greater the distance to be covered matters and multiple loads mean that there are far more factors to be taken into account. Add a city centre delivery point and a strict deadline - the cargo has to be positioned and assembled across a main railway line within a rigid time frame dictated by the closure of the track late on a Saturday night. Then the haulier, along with the other service providers, have really got their work cut out to ensure that everything goes exactly to plan. Scunthorpe-based Intake Transport was faced with just this dilemma when it won the contract to move a complete foot

bridge from the Scottish manufacturer Miller Fabrications, based in Wishaw, to a site in the middle of Lincoln. The loads also had to be taken to a suitable location as close as practical to their eventual destination, so the fabricators could carry out additional assembly work on the structures. This was essential so the finished bridge could be lifted into place and completed when the track could be closed to rail traffic. In addition, the extra work carried out on the bridge sections required the fitting of glass balustrades and stainless steel handrails - the fragile nature of this material created another potential issue for the transport and installation operation.



Fortunately, this was not the first time that director John Burgin, his brother/co-director Richard and the team at Intake has undertaken many projects of this nature and they were able to call upon their previous experience in both the planning and execution of the contract. The company has specialised in the transport of long and oversize steel fabrications for many years. The original operation was based in Sheffield and concentrated upon the transport of steel in its many forms, hence the slogan 'Built on Steel' that graces the front of the vehicles.

The relative decline in steel manufacture and other heavy industries in the Sheffield area prompted a move to Scunthorpe to be nearer to its core customers some years ago. The company still has some trucks based in Sheffield, along with additional out-based vehicles in other areas. An increase in the volume of over-length traffic led

to the purchase of extending trailers, including those with power steering. This in-turn led to the company moving steel fabrications of all types, often for companies that it already delivered new steel stock to on a regular basis. Over time the company both developed the skills and obtained the equipment to carry out bigger projects similar to the featured operation. In recent years Intake has transported the steelwork for railway stations, football stadiums, bridges, schools and other large construction projects.

In addition to the transport operation, Intake has established separate divisions that offer a range of interconnected services - these include steel handling and storage services, cutting and drilling services, along with shot blasting and specialist painting services. These allied services create additional workload for the transport operation.

The new footbridge is part of a large-scale regeneration project in Lincoln's city centre. The area around Brayford Waterfront has seen considerable development in recent years, a number of the new buildings in the area are part of Lincoln University Campus, where striking new buildings and redeveloped older industrial premises have transformed the area.

The waterfront is part of one of the oldest inland harbours in the UK and its origin goes back to Roman times, when the River Witham was first widened to facilitate the transhipment of goods. In addition, a major railway line runs through this part of central Lincoln and the nature of the terrain means that there are two very busy railway crossings in the area.



Concerns for pedestrian safety and a desire to reduce inconvenience due to the high frequency of trains using the line, led to a plan by Network Rail to build two new footbridges. The first bridge in the High Street was completed a year or two ago and this second bridge at the Brayford Wharf East crossing is the final part of this project. It was considered vital that the design of the new bridge complimented the prevailing style and architecture of the area. This requirement is completely understandable, but the bespoke nature of the design certainly created a unique set of challenges for both the transport and installation teams.

Intake had loaded the three sections of the bridge at the manufacturer's premises earlier in the week. Two of their Scottish-based drivers Lloyd Anderson and Garry Pirie handle a lot of the oversize loads, particularly fabrications produced in Scotland and the North of England. Anderson was responsible for shifting the main bridge section which weighed just over 40 tonnes, with an overall length of close to



24m and 6.1m wide. The structure had a continuous curve from end to end, while it was a fairly gentle angle, it did increase the width and make it difficult to place on the trailer without making it wider still. Also, the overall height was a further concern requiring the use of an extendible trailer with the lowest practical running height.

A five-axle Broshuis SL2 step-frame with a laden running height of 850mm, pulled by a Volvo FH16.650 6x4 plated for 120-tonnes GTW, provided the ideal means for the job - keeping the height around 4.9m, well beneath the motorway overall height limit. The triple-extending trailer with live neck and power steering provided ample support for the structure. The exceptional 360mm suspension travel of the hydraulic wishbone suspension gives excellent stability for the wide load and the 57° steering angle makes a big difference when manoeuvring in the confines of congested urban streets. Also, the design of the bridge meant that it required support at either end to ensure that the structure wasn't subjected to excessive stress or strain. The deep central spine sections of the extending trailer kept deflection to a minimum. Great care was taken when loading and a heavy steel plate was used to spread the imposed load between the sliding bolster and trailer neck.

The other two sections of the bridge posed their own problems - each set of stairs were built to meet



the physical limitations of the location and provide a suitable approach angle for pedestrians using the bridge. In practice this meant that each stair was split into sections of multiple angles, which made it impossible to lay the fabrication on the trailer beds and either section had an opposite bias to the other piece. It took quite a bit of time and deliberation to arrive at a suitable form of mounting to support either load. They were transported on a pair of Broshuis tri-axle straight-frame triple extenders from the Intake fleet and pulled by a pair of Scania R580 6x2 tag axle tractors. The company runs a number of these plated for use at 80 tonnes and fitted with hub reduction drive axles – their flexibility allows them to be used for both STGO Cat 2 operation and normal Construction and Use operation as required.

One of the advantages for a haulier working closely with a team of skilled designers and fabricators, is that it can invariably build exactly what is required to support the load on the trailer – the net result was two frames that supported either section via their mounting points. The loads were then able to ride safely on either trailer, but each structure needed to be offset to find their centre of balance, with a length of 24m, a width of 5.4m and weighing 25 tonnes. Each piece was narrower and lighter than the main section, but most of the side projection



was at the very rear of each load, but on opposite sides, creating additional problems for the drivers and crew.

The three loads were transported down from Scotland to a holding point at Newark Showground, just off the A46. Getting out of the manufacturer's site at Waterloo, near Wishaw proved a challenge. But careful planning, moving at night and the assistance of a police escort helped, in addition the very experienced Intake escort team headed up by Liam Anderson, son of Lloyd, handled the job with ease. The loads were then able to travel down the M74/M6 when south of Cairn Lodge with just the company escorts, but police assistance was required again when crossing the two-lane section of the A66 diversion to avoid the weight limits on the M6 in Cumbria.

HeavyTorque caught up with the team for the last part of the operation, when the loads had to be taken from Newark to their final destination in Lincoln. The additional work carried out had



increased the overall height of each load – the main bridge section was now well over 5m high. The route had been checked very carefully with particular attention paid to tree branches and other obstructions, given the fragile nature of part of the structures. The drivers had been able to relax and take their required breaks, so they were able to start at the appropriate time as dictated by the closure of the rail line at the site. The load security, markers boards and warning lights had been re-checked, along with the trucks and trailers to ensure that nothing was left to chance. An extra team of escort vans and their drivers were assembled, along with a fully equipped workshop van and mechanic to ensure that any issues with the vehicles, loads or street furniture could be dealt with straight away. The extended team included Barrie Bowler, Scott, Lee Lake (Piddle) and of course Liam Anderson.

Once the call was given for the first load to head to Lincoln, they got to work. The first stair section was pulled by one of the Scania's driven by Shaun



Sweeney, who has worked for the company for many years. Anderson acted as team leader controlling the operation via the two-way radios and the first load headed out towards the A46 in the late afternoon.

The first obstruction was getting out of the Showground gates, but this was dealt with easily, the traffic was held back at every junction and roundabout, as the load headed North from Newark. The side projection meant that Sweeney had to sit in the middle of the road even on the dual carriageway sections, but the convoy moved at a steady pace keeping congestion to a minimum.

The two-lane road into the city required use of all of the road and the right turn onto the main inner ring road could only be made by driving straight across into the road opposite, on the wrong side of the lights and then reversing back into the other carriageway, which required manual steering of the trailer. It was then a straight forward run up to a major roundabout, then left over a bridge and a further left into Brayford Wharf East with the trailer steered manually once more. The operation to lift the three sections into position required two mobile cranes. The plan was for the first stair section to be driven over the rail crossing into the northern part of the street, this was carried out and the first crane was reversed into position and made ready for the lift later that night.



The team then headed back to Newark and Anderson was ready to hit the road with the main section, it was a much tighter fit through the gateposts, but it made it through without drama. There was a brief halt as the extra wide extensions supporting the outline marker boards were put in position and then the load was ready to go. Once around the first roundabout onto the A46 the load picked up speed, the absence of overhead obstructions was a blessing, but care needed to be taken at every junction because the widest point of the load was virtually in the centre of the bridge and beyond the driver's line of sight.

Careful observation by the escort drivers and a steady exchange of information on the radios made all of the difference, some of the trees on the road into the city had to be treated with extreme care, but it made it without problems.

The right hand turn onto the dual carriageway was more difficult because of the extra width, but the father and son combination of Lloyd driving and Liam steering made it look easy, just a quick shunt



to re-align the trailer and it was round. This time the load had to be reversed into the site, which required a blind side reverse. Steel plates had been laid to protect the pavement and timber to protect the trailer tyres from the kerbs. Once again, the team made it look easy and the load was soon in place. The last section was brought into the city later on that evening with Pirie at the helm. The sections were lifted into place during the night when the railway line was closed. The job went without a hitch to the credit of all concerned, proving the effectiveness of careful planning, good equipment and skilled personnel.

While our knowledge of modern architecture is pretty limited, we were quite impressed when we saw the bridge in place. We weren't quite sure when the sections were on wheels, but it definitely fits in with its surroundings. If you find yourself in the middle of Lincoln go and take a look - the bridge certainly won't be going anywhere for a very long time.

