

Bridges over the Tees

This leaflet provides an insight into the unusual, impressive and noteworthy structures across the River Tees.

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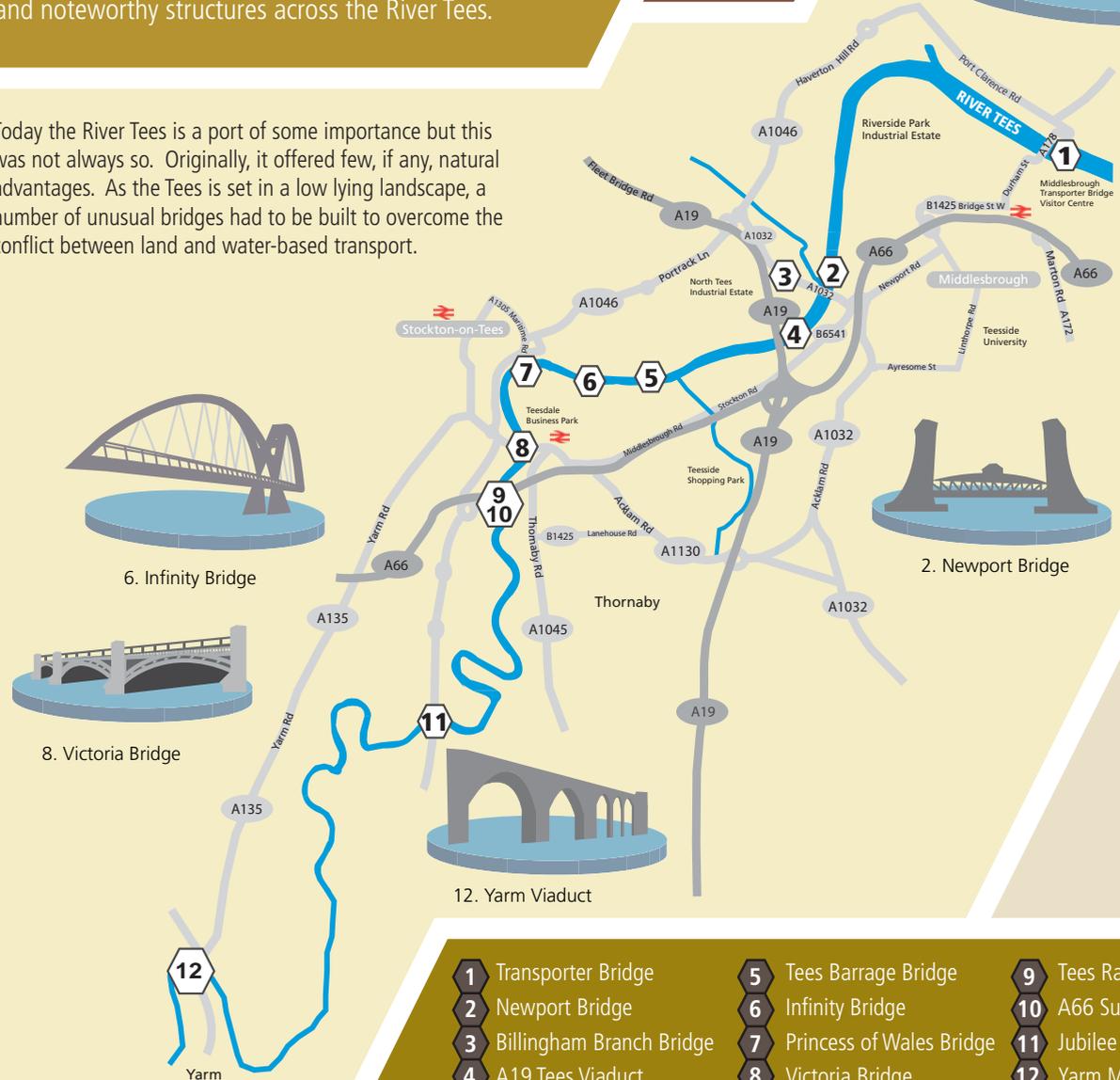
Teesside's unusual, unique and historic bridges

Sites and locations to visit

1. Transporter Bridge



Today the River Tees is a port of some importance but this was not always so. Originally, it offered few, if any, natural advantages. As the Tees is set in a low lying landscape, a number of unusual bridges had to be built to overcome the conflict between land and water-based transport.



6. Infinity Bridge



8. Victoria Bridge



12. Yarm Viaduct



2. Newport Bridge



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1 Transporter Bridge, 1911

Opened on 17th October 1911, the Transporter Bridge at Middlesbrough is one of eight survivors of similar bridges built between 1893 and 1916. Prior to the age of the motor car, it represented a valid solution to the problem of providing headroom of 48.8m and a clear span of 174m to accommodate the sailing ships using the river. Designed by G.C. Imbault of Cleveland Bridge Engineering Company, Darlington, it was built by Sir William Arrol and Company Ltd of Glasgow.

Vehicles and foot passengers are carried by means of a gondola suspended from an upper carriage that runs on rails attached to the underside of the structure. It remains the largest of the transporter bridges operating worldwide and provides a valuable public transport service crossing the river in two minutes.



The Transporter Bridge has become a symbol representing the areas' past engineering achievements. It is a fine sight when illuminated and on a clear winter's night it can be seen from up to eight km away. Due to its historical importance, in 1985, it was designated as a Grade II* Listed Building.

Although the volume of use is declining, the bridge is becoming a tourist attraction for extreme sports events such as bungee jumping and abseiling.

2 Newport Vertical Lift Bridge, 1934

Built by Dorman Long & Co Ltd, the bridge provided 36.6m headroom and 76.2m clear width of water when raised. The machinery for raising and lowering the bridge was located at the centre of the 2,876 tonnes lifting span. The decline in shipping eventually led to the lifting span being fixed down in 1990, giving a clearance of 6.4m above high water. Although the bridge looks the same, it is no longer capable of opening.

3 Billingham Branch Bridge, 1934



Built as part of the northern approach road to Newport Bridge, this was the first all-welded portal frame bridge in the world. It has a central span of 19.6m with 14.6m and

8.5m spans on each side. When it was built electric arc welding was a new process and it was not generally used for fabrication of structural members until twenty years later.

4 A19 Tees Viaduct, 1975

This major crossing has an overall length of 2.9km with 68 spans of varying construction. The section over the Tees has nine spans of varying length; the longest being the 117m river span. The reinforced concrete deck acts compositely with the welded steel plate girders having a maximum depth of 4.88m at the supporting piers. The clearance over the river is 20.73m.



5 Tees Barrage Bridge, 1995

Constructed by Tarmac Construction Ltd between 1991 and 1995 at a cost of £50m, the barrage was built to maintain a raised water level upstream as far as High Worsall. The bridge which passes over the top of the barrage is supported on the concrete piers of the barrage. It has four 17.5m arches with two identical 17.5m arches on either side. These arches have a rise of 5m to give sufficient clearance to the navigation channel. Some 350 tonnes of high strength steel were used for the tubular members together with 280 tonnes of plates and cast steel.

The fabricator was Westbury Tubular Structures Ltd of Wetherby, although the smaller cast steel rings were made at the Blackett Hutton Foundry in Guisborough. The barrage was built by diverting the river to enable the foundations to be constructed directly on boulder clay of high bearing capacity that was found to exist at this point.



The main priority of the barrage is to control the flow of the river, protect the surrounding areas from flooding, and prevent any other effects of tidal change.

This steady control means the water above the barrage is permanently held at high tide, making the river here perfect for a number of activities and events, such as canoeing, jet skiing, and dragon boat racing. The barrage also incorporates a 1km rowing course.



6 Infinity Bridge, 2009

The footbridge over the River Tees, built at a cost of £15m, was opened on 14th May 2009 and named the Infinity Bridge on account of its shape when reflected in the river which resembles the mathematical symbol for infinity. The design, by Expedition Engineering and architect Spence Associates, was chosen from the entrants for a Royal Institute of British Architects design competition in 2003. Constructed by Balfour Beatty Civil Engineering with steel fabricator Cleveland Bridge & Engineering Co and project managed by White Young Green, the bridge was commissioned by Stockton Borough Council. It is intended to provide a pedestrian and cycle access to aid the development of a 28 hectare site on the north bank of the River Tees facilitating the expansion of the University of Durham's Stockton campus.

The bridge consists of two asymmetrical tied arches, measuring 120m and 60m. The highest point of the arch is 40m above the River Tees. The arches are of welded tapered steel box sections with the 4m wide deck made from precast concrete segments post-tensioned together by horizontal high strength steel cables that also tie the feet of each arch together.



In 2009, the bridge was awarded the Institution of Civil Engineers' Robert Stephenson Award; Institution of Structural Engineers' Supreme Award for Structural Excellence; North East Constructing Excellence

Awards 'Project of the Year'; Concrete Society Civil Engineering Award and in 2010, the Structural Steel Design Award 2010.

7 Princess of Wales Bridge, 1992

The bridge was opened on 23rd September 1992 to give access to the reclaimed industrial area of Thornaby. It was built by Tarmac Construction Ltd at a cost of £3m. It has a central span of 40m and two side spans of 30m which are continuous over the piers. The four steel plate girders are composite with the reinforced concrete deck. Steel 'H' piles were driven down to the sandstone bedrock to support the abutments and piers.



8 Victoria Bridge, 1887

The elegant Victoria Bridge, built between 1882 and 1887, replaced an old masonry arch bridge built in 1769. It has three parabolic arches each consisting of eight ribs of wrought iron, the centre arch has a span of 33.5m and two side arches spans of 25.9m. Designed by Harrison Haytor and Charles Neate and built by Whitaker Brothers of Leeds, it was funded by local councils with contributions from the Tramway Company, North Eastern Railway and the Water Board.

The bridge was formally opened on 20th June 1887 and was named to commemorate Queen Victoria's Golden Jubilee. The Victoria Bridge was used by trams until 1931. The overall width is 18.29m and it is still capable of carrying the heavy loads imposed by modern traffic. Signs of damage to the cast iron parapets can still be seen; these occurred during the Second World War as a result of an air raid. In 2010, the Victoria Bridge of 1887 was designated at Grade II.



9 Tees Rail Bridges, 1830, 1844, 1882, 1906 & 2008

On 23rd May 1828, the Stockton and Darlington Railway company obtained Parliamentary powers to build a branch line to Middlesbrough. To enable the railway to cross the Tees just upstream of Stockton, a suspension bridge spanning the full width of the river was built. Unfortunately, when tested, it failed to carry loaded coal wagons and had to be propped.

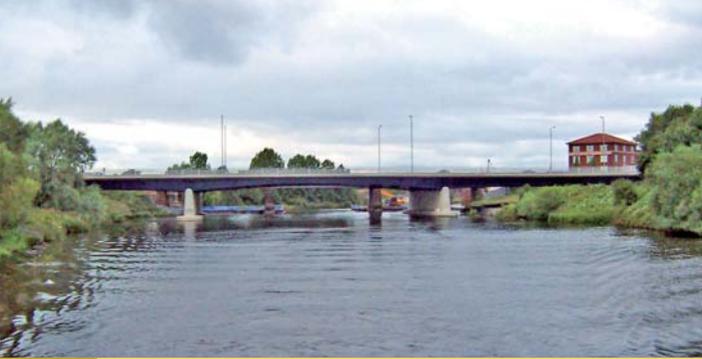


The bridge, built by Sir Samuel Brown, at a cost of £2,300 was opened on 27th December 1830. To commemorate the opening of the world's first railway suspension bridge, a medal was struck.

In 1844, the suspension bridge was replaced by a five span bridge with cast iron girders designed by Robert Stephenson. In order to add a further two tracks, a wrought iron plate girder bridge was built alongside in 1882.

In 1906, the cast iron girders of the Stephenson Bridge were removed and girders of mild steel were erected in their place. The new girders were supported on the original masonry piers of the Stephenson Bridge and it is still in use today.

In 2009, when the 1882 bridge was replaced, the foundations of the original suspension bridge were uncovered. The replacement scheme, constructed by Network Rail; Carillion Civil Engineering and designers HBPW Partners, received a commendation in the Institution of Civil Engineers' Robert Stephenson Awards 2010.



10 A66 Surtees Bridges, 1982 and 2007

12a Yarm Masonry Bridge, 1400

The first Surtees Bridge was built by Cementation Construction Ltd to carry the new A66 over the Tees at Stockton. The 125m long bridge had five spans of 1.5m deep girders fabricated from weathering steel which meant that they could be left unpainted. The £14.3m contract to rebuild the bridge was completed in 2007 by Edmund Nuttall Ltd providing three lanes of traffic in both directions and has a length of 145m.

Built on the orders of Bishop Skirlaw of Durham around 1400, the bridge has been much altered and now has five arches, ranging from 9.15m to 18.3m. On the upstream side, two of the original pointed arches can be seen in the centre of the bridge. During the Civil War, a drawbridge in the north end was included to prevent Parliamentarians in Yarm from attacking the Royalists who held Stockton. This was removed in 1785 and the northern arch was rebuilt in semi-circular form with an increased span.



11 Jubilee Bridge, 2002

12b Yarm Viaduct, 1851

The Jubilee Bridge, which opened on 20th April 2002, was built as part of the £8.5m first stage of the £31m South Stockton Link Road scheme to link Ingleby Barwick with the A66 and Stockton town. The 106m long three span balanced cantilever bridge was built by Birse Construction Ltd with the steelwork provided by Cleveland Bridge of Darlington. Steel 'H' piles were used to support the abutments but the river piers were founded on 914mm diameter concrete-filled steel tubular piles.

At Yarm, the railway viaduct dominates the town. Over two thirds of a kilometre long, it strides across roof tops, 22m above the river. It has 43 brick arches which have spans of 12.2m and two 20.4m masonry spans over the river which are skewed at 20 degrees. It was built by the Leeds Northern Railway between 1849 and 1851 at a cost of £44,500. The large plaque which can be seen on the downstream side of the river pier records the engineers the superintendent and the contractors.

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