



# SHARD NEW BRIDGE



Shard Toll Bridge

## CROSSING THE WYRE

The tidal estuary of the River Wyre which extends from its mouth at Fleetwood as far as St Michaels on Wyre, some 14 miles upstream, has from the earliest times formed an effective barrier to the movement of pedestrians, animals and vehicles between the western Fylde and the "Over-Wyre" district. Before the middle of the 19th Century, ferries existed at various locations including Knott End, Wardleys and Aldwath.

In 1861 local interest in increased markets for agricultural products and cattle trade resulted in a company being formed to promote the building of a road bridge at Aldwath Ford the site of the original boat ferry.



## SHARD TOLL BRIDGE

The construction of the Shard Toll Bridge was authorised by a Private Act of Parliament. The Bill was presented to Parliament and signed by Queen Victoria on 30 July 1862 as the Shard Bridge Act 1862. The Act enabled the Shard Bridge Company to charge tolls for passing over the bridge and approach roads, and among the seventy six sections of the Act, Section 49 provides an interesting catalogue of the toll charges and the classes of traffic using the bridge.

Shard Toll Bridge comprises two end spans of 19 metres and fourteen intermediate spans, each of 18.3 metres, giving a total

*... For every Horse or other Beast drawing any Coach, Stage Coach, Omnibus, or Van, Caravan, Sociable, Berlin, Landau, Chariot, Vis-à-vis, Barouche, Phaeton, Chaise Marine, Calash, Curricule, Chair, Gig, Whiskey, Hearse, Litter, Chaise, or any like Carriage, Sixpence:*

*For every Horse or other Beast (excepting Asses) drawing any Waggon, Wain, Cart, or other like Carriageway, Threepence:*

*For every Horse or Mule, laden or unladen, and not drawing, Twopence:*

*For every Ass, laden or unladen, One Penny: For every Ass drawing any Cart or other like Carriage, One Penny Halfpenny:*

*For every Ox, Cow, Bull, or Neat Cattle, One Penny, or One Shilling and Sixpence per Score:*

*For every Calf, Pig, Sheep, or Lamb, One Farthing, or Fourpence per Score: ...*

Shard Bridge Act 1862

length of 294.4 metres between abutments. The bridge deck consists of two main longitudinal wrought iron rivetted plate girders, 1.240 metres deep at 7.01 metres centres between which are provided a 5.30 metres wide carriageway and a 1.35 metres wide footway. Spanning between the main girders are wrought iron rivetted plate cross girders 300 millimetres deep at 1.22 metres centres, which support dished wrought iron plates over which there is a reinforced concrete slab extending the whole length of the bridge.

The intermediate piers consist of twin cast iron cylinders of 390 millimetres diameter which are believed to be supported on screw piles.

The bridge was opened to traffic in 1864. Since that time, the weight and volume of traffic has increased considerably and strengthening works have been added to the bridge over the years including the fixing of reinforcing plates to the girders where heavy corrosion had eaten deeply into the metal.

The bridge is currently subject to weight and speed restrictions of 7.5 tonnes and 20mph respectively.

The Shard Bridge Act of 1975 repealed and amended outdated provisions of the original 1862 Act, and empowered the Shard



Shard New Bridge - Artist's Impression

Bridge Company to prohibit, restrict and regulate the use of the bridge by all traffic or any class or classes of traffic allowed to use it and allowed the Company to introduce a new toll structure.

Bearing in mind the weight and volume of traffic which has used the bridge in the 129 years since its opening, and in view of the great contrast between present day traffic and the traffic envisaged at the time of its construction and the highly corrosive marine environment it is clear that the Shard Toll Bridge has served well the people of Wyre and Fylde Districts and beyond.

## SHARD NEW BRIDGE

Proposals for a new road crossing of the lower reaches of the River Wyre date back for many years. As long ago as September 1949, a report to the former County Council's Highways and Bridges Committee noted that the question of a new crossing "has formed the subject of many conferences over an extended period between representatives of local authorities on either side of the River Wyre."

Early considerations were for a crossing immediately north of Wardley's Inn which became known as the Wardley's Ferry Route.

A report to Committee in July 1976 considered the Shard Bridge and Wardley's Ferry crossings and further considered the position which would arise if a major failure should occur to the structure of the existing bridge, concluding that the County Council should put itself into a position to undertake at short notice a new crossing of the Wyre.

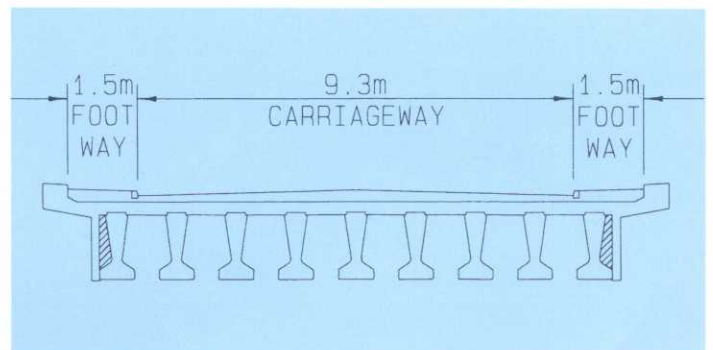
The scheme for a new bridge at the present site was accepted by the Highways and Transportation Committee in December 1976 with full support from Blackpool, Fylde and Wyre Borough Councils and the local Parish Councils.

The County Council's proposed design for the Shard New Bridge received planning permission in October 1982. It had previously been submitted to the Royal Fine Arts Commission who welcomed "the simple robust design which they felt would sit unobtrusively in the landscape." A modified planning consent to preserve the right of passage over common land along the north foreshore of the river was granted in June 1986.

Following a Public Inquiry in January 1991, the Secretary of State confirmed the Side Roads Order and Compulsory Purchase Order and Special Parliamentary Procedure in June 1992.

The Shard New Bridge provides a crossing some 135 metres downstream of the existing Toll Bridge. It extends between the south and north banks of the river from points some 95 metres and 165 metres respectively from the existing bridge. The approach road starts on Shard Road, A588 480 metres north east of the junction of Shard Road and Mains Lane, A585(T) and the northern approach road rejoins the existing Shard Road at the bend adjacent to Bank House Nursing Home. The new bridge will be toll free and will not be subject to any special weight or speed restrictions.

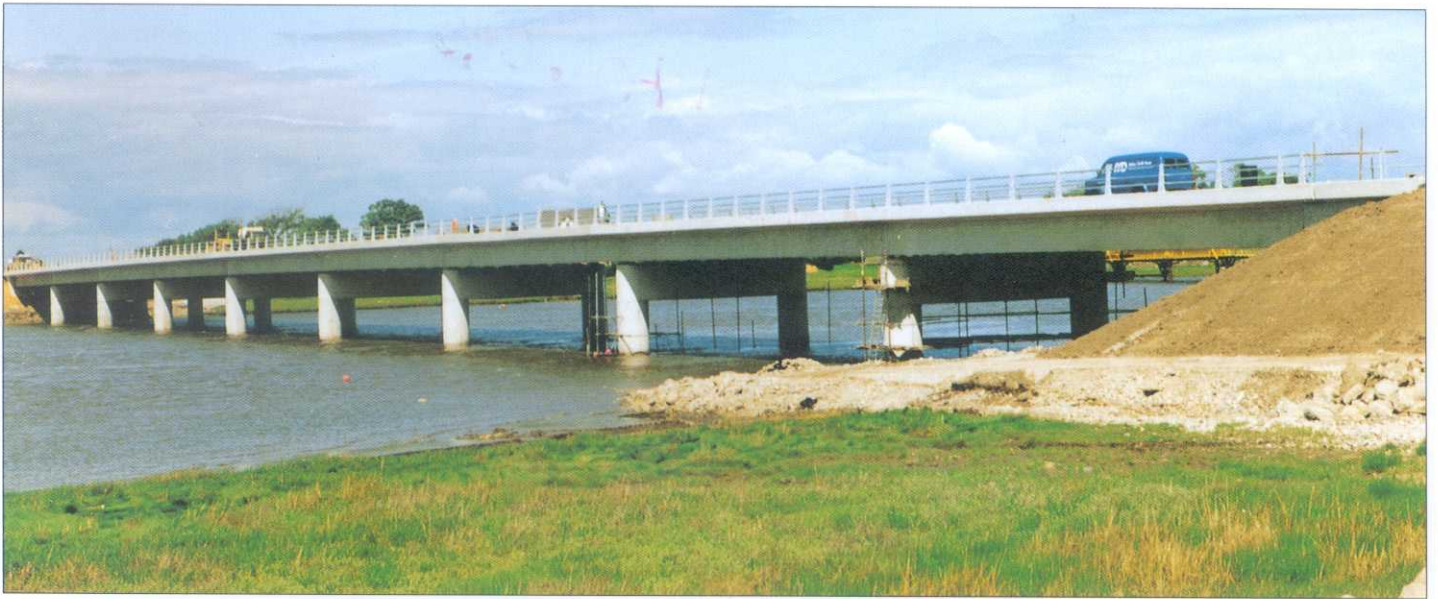
The County Council's agreement with the Shard Bridge Company to take over part of their existing approach road on the south side has enabled the scheme to be built with minimum disturbance to the local environment and with minimum severance and disturbance to land users.



## DESIGN AND CONSTRUCT CONTRACT

When in December 1991, the Department of Transport accepted the Shard New Bridge scheme for funding from the 1992-93 bridge structural maintenance programme, a design and construct contract - the first of its kind for a highway scheme in Lancashire - was drawn up in order to allow some modifications to the scheme prepared in 1982 to meet the latest design standards, to take advantage of recent developments in concrete beam manufacture and durability measures, and to allow construction to start as soon as possible in the 1992-93 financial year.

The Shard New Bridge as now constructed has not changed externally in any significant way from the 1982 design. It comprises a nine span structure some 243 metres between abutments, carrying a 7.3 metre wide carriageway, two 1.0 metre wide hard strips and two 1.5 metre wide footways.

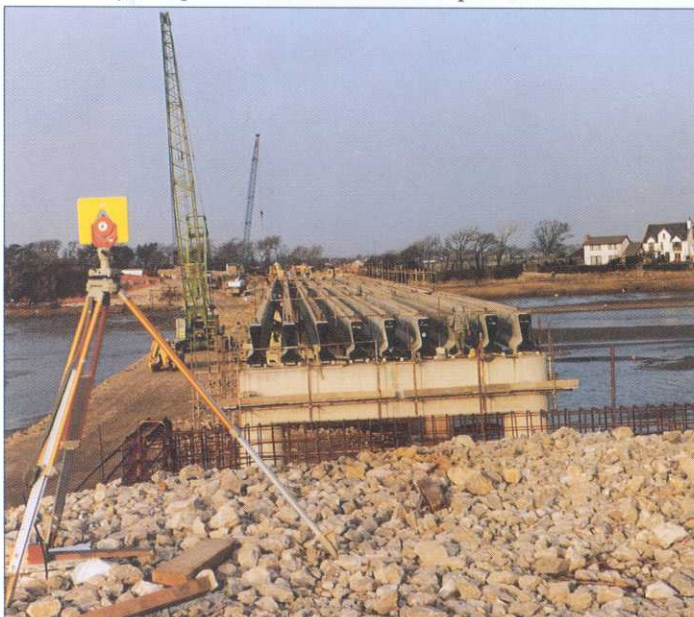


The reinforced concrete deck is carried on prestressed concrete Y beams (in lieu of box beams proposed in 1982) spanning between intermediate piers at 27.25 metre centres. The piers comprise twin circular reinforced concrete columns and cill beam supporting the main longitudinal beams. Each column is supported on a large diameter pile.

The tenders for the scheme required the successful contractor to nominate his own consultant to design and independently check the revised deck design using a new prestressed concrete beam - the Y beam - recently developed by the precast bridge beam manufacturers to produce economical beams from a standard type of shutter and to check the design of the bridge substructure to accommodate the revised deck.

In view of the severe marine environment, the standards and parameters specified in the contract required the deck to be designed for extra concrete cover, and for the concrete to incorporate blast furnace slag cement replacement and polypropylene fibres to minimise any shrinkage cracking - all to ensure full design life for the new bridge with minimum maintenance.

The £3M contract was awarded to the Morecambe based contractor Harbour & General Works Ltd. The works commencement date was 20 July 1992, and the contract has been successfully completed within the contract period of 12 months.



The design, contract preparation and supervision have been the responsibility of three County Surveyor & Bridgemasters. The original design was prepared by HL Yeadon BSc Tech FEng FICE FIMunE FIHT, the preparation of the design and construct contract and the initial supervision by MF Callery OBE BE CEng FICE FIHT FIEI and the supervision completed by Graham Harding BEng CEng MICE FIHT MIMgt.



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