

# Replacement of A161 Dutch River Swing Bridge at Goole



## Client

Birse Civil Engineering for East Riding of Yorkshire CC

## Project Description

The road over Dutch River is of paramount importance, as the only alternative route requires a 38 mile diversion. The existing 1890 swing bridge was in poor condition and suffered from substandard highway geometry – narrow and with poor forward visibility. This was addressed by construction of a new cable stayed swing bridge providing increased deck width for vehicles, pedestrians and cyclists and additional navigation clearance when open to shipping. It has a fixed approach span of variable width to accommodate the highway junction splays on the south (Old Goole) side of the river.

## Cass Hayward Role(s)

- Design for Contractor's tender
- Detailed design for construction of structures and foundations
- Design liaison with mechanical and electrical designer/supplier

## Project Statistics

- Completed December 2005
- Contract Value £4.75m
- Navigation span 26.5 , counterweighted back span 13.5m
- Navigation clearance width 15m - of unlimited height

## Special Features

- Approach span of integral construction without bearings for low maintenance
- The bridge operating machinery is located in a two-storey machinery and control building on the north bank
- The swing spans are additionally supported by spiral wire cables anchored to tapering steel towers with unbalanced loads accommodated by tail counterweight
- Substructures are founded on steel tubular piles end bearing on competent sandstone and of moderate diameter to provide flexibility for positioning around existing piles. River piers are protected by tubular steel fender piles with a hardwood faced capping beam and two other lines of hardwood beams
- The bridge slews using rack and pinion drives attached to the underside of the movable deck. Jacking facilities ensure the pintle bearing only carries load during slewing

## Awards

- ICE (Yorkshire and Humberside) Awards. Regional Project of the Year 2007