



## By Royal Appointment – Almost!

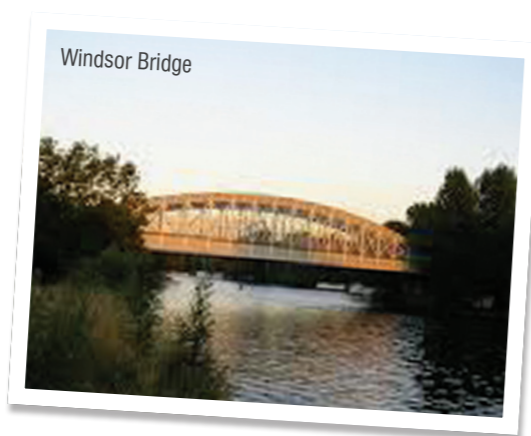
**Isambard Kingdom Brunel's Grade II listed bridge, which forms part of Windsor Viaduct in Berkshire, is being given a new lease of life thanks to the 21st engineering skills of HBPW.**

Opened in 1849, Windsor Railway Bridge is a wrought iron 'bow and string' bridge and, as well as being one of the British engineer's masterpieces - it is the World's oldest wrought iron bridge still in regular service - it is also in eye shot of HM the Queen's London residence at Windsor!

Paul Withers of HBPW, said: "In the normal course of bridge assessments, Network Rail considered that certain elements of the structure had deteriorated as a result of corrosion, and needed strengthening to cope with the on-going demands of rail traffic using the line. The existing timber deck also needed replacing as part of the project."

HBPW completed the drawings whilst AMCO Rail Ltd has been carrying out the work.

The entire structure was encapsulated in



scaffolding which, in turn, was also covered with a membrane, so that the structure could be grit blasted and re-painted.

The bridge, which is a single-span structure comprising three bowstring trusses, carries the ex-GWR branch line from Slough to Windsor into Windsor and Eton Central station. It crosses the River Thames on the reach between Romney Lock and Boveney Lock and was Grade II listed in 1975.

**Client:** Network Rail  
**Contractor:** AMCO Rail Ltd



Windsor Bridge

CONTINUED FROM PAGE 1

collapsed, putting Network Rail into overdrive, and threatening to wipe millions of pounds off the local economy.

Rail services in the South West were cut off from the rest of the county and prompted one of the biggest media flurries for some time! The weather has been varied to say the least!

Ironically, as the economy in the South West takes an unexpected battering, fortunes in the country are getting much better with a prediction that the wider economy will finally surpass its pre-recession peak in the second half of this year.

That probably goes some way to explaining Jay Fox's editorial in this edition, which outlines how demand for qualified staff is increasing as large and small consultancies struggle to resource checking teams charged with approving contractor designs.

You can also read about how we gave Greenergy, the UK's leading provider of road fuel, a helping hand as they battled to overcome obstacles to expansion on the East coast.

I feel sure that 2014 hasn't yet revealed its full agenda! Like the weather, change is afoot! Keep an eye on the HBPW blog to see what we've been up to ([www.hbpw.co.uk](http://www.hbpw.co.uk)).

Meanwhile enjoy the read!

**PAUL WITHERS**  
MANAGING PARTNER  
HBPW CONSULTING

## Welcome



Paul Withers - Managing Partner

This edition of the HBPW newsletter cannot be allowed to pass without mention, yet again, of the inclement weather and the impact it has been having on certain aspects of engineering in the UK.

Less than a year ago I was bemoaning the worst snow-ridden winter for 50 years and, just three months later, applauding Britain's blistering summer.

Now the rain is having its turn and has dumped enough water on our shores to last a lifetime, certainly in Somerset.

Rising groundwater levels are causing problems for the construction industry and are resulting in an increased requirement for dewatering of excavations, whilst also affecting ground stability.

The excessive precipitation also took its toll in Dawlish, between Exeter and Cornwall, when part of the seawall under a coastal railway line

CONTINUED ON BACK PAGE

## Land Ahoy! Inventive Design At Immingham



The freed up land adjacent to ABP's shortened building, and ABP's new shortened building & access road

**The UK's leading provider of road fuel has HBPW and the Murphy Group to thank for its expansion in North Lincolnshire.**

In 2012 Greenergy, which owns and operates a biodiesel production processing plant on Associated British Ports (ABP) land at Immingham, supplied 13.5 billion litres of petrol, diesel and biofuel – about a third of all the road fuel sold in Britain.



However, expansion plans were faced with difficulty because the company's existing site is bordered on one side by the River Humber and options to expand in the opposite direction were limited.

Associate, Paul Jacklin, said: "The only possible solution was to work with ABP in

demolishing part of a 90m x 155m transit shed which they used as a storage facility, in order to free a piece of land adjacent to Greenergy's existing site."

Principal contractor, J Murphy & Sons Ltd, asked HBPW to prepare a report to assess the feasibility of the proposed scheme.

"Initially we carried out an inspection of the existing building to ensure that it could be part demolished without affecting the stability of the remaining building."

The report gave the scheme the green light, Murphy's were instructed and then asked HBPW to design the modifications to the building.

"The steel framed building fronts onto Henderson Quay and we demolished 92 metres of the structure to create a bespoke warehouse for ABP measuring 90m x 63m. As part

of the work we created a new 90 metre long gable elevation to the reduced structure, effectively freeing up a piece of land for Greenergy," added Paul.

A new road was also designed as part of the scheme, to facilitate access for maintenance and emergency vehicles.

Greenergy's plant was built in 2007 and now produces, exclusively, biodiesel from waste oils and fats. The additional land will enable it to expand its North Lincolnshire operation.

**Client:** Associated British Ports  
**Contractor:** J Murphy & Sons

# Holy Orders At Monk Fryston!



**A century old bridge got 21st century treatment when HBPW's 3d modellers used hi-tech software to show Network Rail how engineers planned to give their structure a new lease of life.**

Lumby Lane Bridge at Monk Fryston in North Yorkshire failed Network Rail's BE4 liability tests when inspected as part of the Bridgeguard 3 programme.

Design Engineer, Ross Hardy, said: "The existing bridge was restricted to a three tonne weight limit after it failed structural assessments.

"However, misuse of this restriction, and the added difficulty of controlling it, resulted in NR deciding to close the bridge 12 months ago so that they could demolish the existing structure

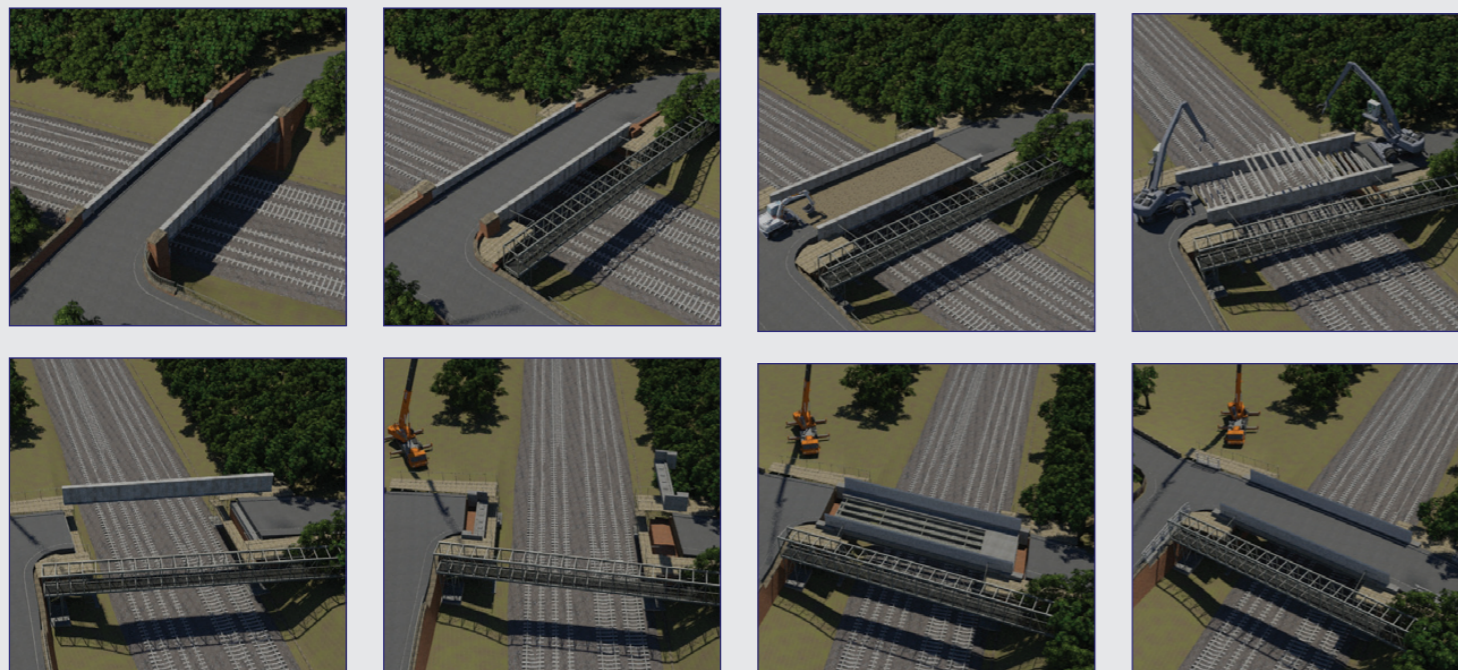
and carry out a full reconstruction."

Work began earlier this year when a new bridge deck superstructure was installed by AMCO Rail Ltd, using existing foundations.

"The 3d moving images are incredibly helpful," added Ross. "Not only do they enable engineers to better illustrate schemes, but they also aid swifter decision making by clients because of improved clarity."

This is one of many road bridges Ross has been involved with. He completed work on Network Rail's Belgrave Terrace structure in Scarborough and has been working on the design of bridge reconstructions on the Midland Mainline Electrification Scheme.

“ Not only do they enable engineers to better illustrate schemes, but they also aid swifter decision making by clients because of improved clarity. ”



All above - Stills from the full animated 3d modelling sequence

Client: Network Rail Contractor: AMCO Rail Ltd

# Staff Challenges As Prosperity Replaces Austerity!

**Construction consultancies which pared staffing levels to the bone at the height of the recession, are now finding themselves at capacity as the economic climate starts to improve, according to HBPW's Geoenvironmental Engineer, Jay Fox.**

The result is that demand for professional staff is now on the increase as large and small consultancies, particularly those working for bigger clients like local authorities,

struggle to resource checking teams charged with approving contractor designs.

"This, in turn, leads to delays in the approval process which then manifests itself in delays to construction programmes, so the knock on effect is considerable. It is so ironic and, at times, it seems difficult for everyone to strike a happy balance. On the one hand companies have needed to keep costs under control whilst, on the other, retain

enough slack in the system to allow for rapid uptake of their resource," said Jay.

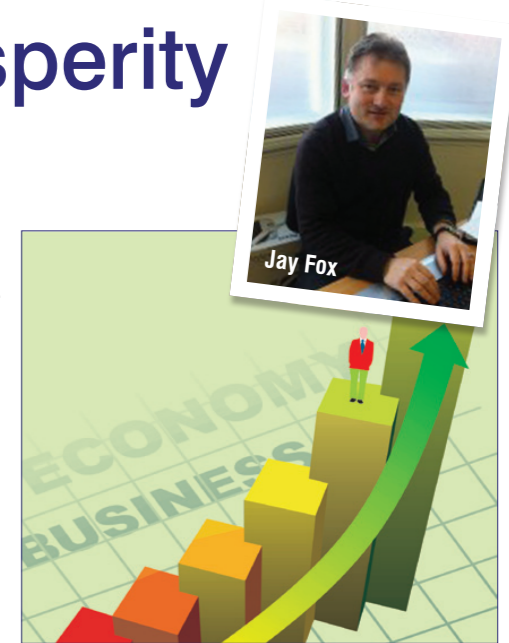
He said that geotechnical and environmental testing laboratories, in particular, had been swamped with soil samples as developer activity had rapidly increased in recent months.

"Planning authorities are also reporting that they have been inundated with new planning applications and, due to recent downsizing, are now likely to be struggling to process these in a timely fashion," he added.

Then there was the added pressure of recruitment consultancies trying to poach staff to move them from one company to another as

organisations try to recruit the best staff.

"Companies like HBPW are always busy and, consequently, eternally on the lookout for good staff which, in turn, effects the employment market," he said. "With a smaller practice it is not about 'bums on seats' but attracting highly competent, flexible staff who are passionate about what they do," added Jay.



# Blustery Weather Keeps Engineers Busy!

**The challenges of the British weather and the perils of navigating huge container ships – some weighing tens of thousands of tonnes – continues to provide HBPW with a steady stream of specialist repair work at two of the UK's busiest ports.**

When the Port of Immingham was built in 1912 engineers never anticipated that ships as big as modern day vessels would ever sail in their waters. However, many are so large that there are only inches either side of them as they squeeze through the entrance of Immingham Lock.

HBPW Managing Partner, Paul Withers, said: "Despite designing giant spring-loaded fenders which are set into concrete in order to absorb the energy of any ships 'bumping' the lock wall, ships can still unintentionally damage the lock and / or lead-in jetties.

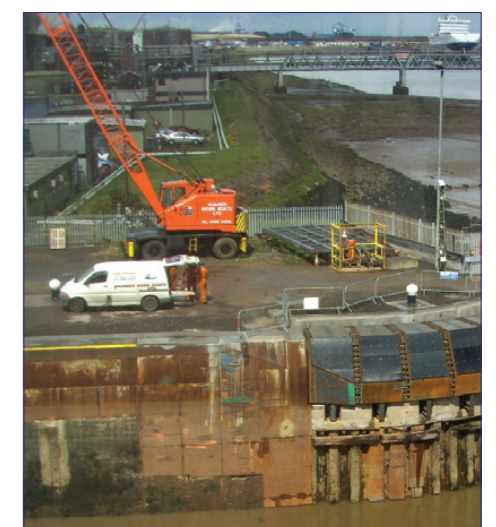
"There is little a highly experienced ship's

Master can do when the weather changes and wind descends, creating a sail effect that can easily sweep a huge vessel into a concrete jetty, causing a slow but massive impact.

"Consequently we have, over the months and years, been called on by Associated British Ports to design and detail repairs to jetties at the ports of Immingham and Hull."

Eighteen months ago the inner lock gates at King George Dock, Hull were damaged by a ship and, as a result, shipping could not enter or leave the facility, however HBPW, together with Humber Workboats and ABP, managed to get them working again within 48 hours.

"The weather is an occupational hazard of being a ship's Master and when it changes there's not much that can be done, so minor damage to jetties and other marine structures is bound to happen," added Paul.



Tight squeeze: Immingham lock entrance

Client: Associated British Ports Contractor: Humber Workboats