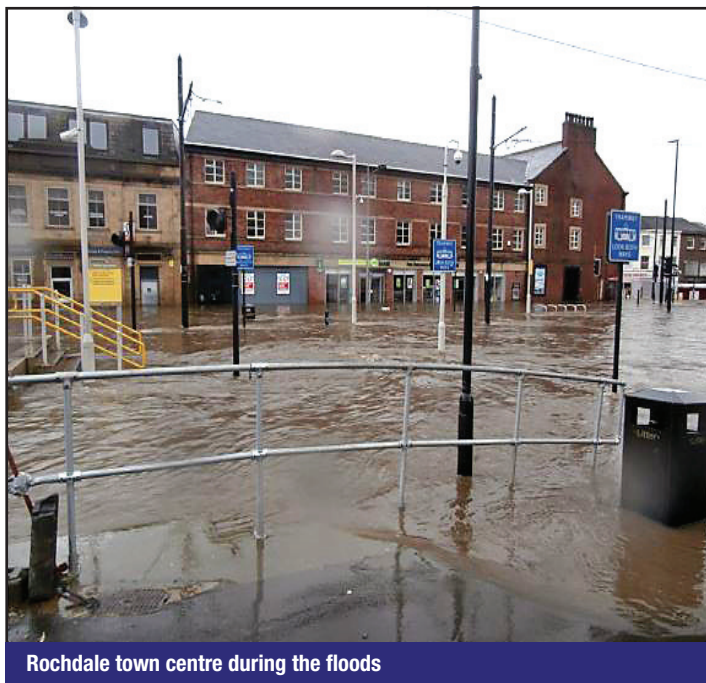




Improved Pump Capacity Aids Flood Defences



Rochdale town centre during the floods

Parts of Leigh in Lancashire have taken a major step forward towards greater flood resilience thanks to a key piece of engineering overseen by HBPW.

Bedford Pumping Station, which is situated on Bedford Brook in Leigh, comprises seven pumps. However, in 2015, at the height of some of the heaviest downpours seen in the UK, the Environment Agency facility was unable to cope with the volume of water.

Local communities were devastated, prompting calls for action.

Partner, Jon Livesey takes up the story: "The station, along with its associated flood storage basin at Lilford Park, protected around 800 properties from flooding on Boxing Day 2015, however 14 homes were still affected, resulting in a subsequent flood investigation report under the terms of the 2010 Flood & Water Management Act.

"Many homes were also affected in the wider geographical area – as far afield as Rochdale - leading to various measures aimed at preventing future repetition."

Jon said that whilst the pumping station's origins originally lay in the need to effectively pump water uphill following the historic collapse of the brook bed, they also played their part in flood alleviation.

"The Environment Agency eventually decided to upgrade the station pumps but subsequently found that they were unable to generate the desired flow

rates. Consequently, various hydrological modelling work was carried out by a third party from which it was determined that additional baffles, a form of metal plating, needed installing to the station's sumps in order to improve capacity."

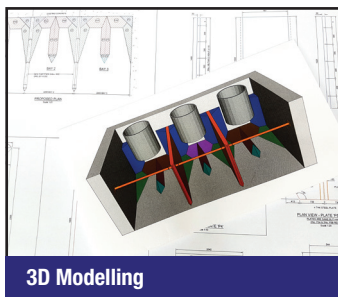
HBPW was asked by AMCO to produce a series of 3d 'baffle' models, along with detailed fabrication drawings, which were subsequently used to manufacture the necessary components.

"Flow rates at Bedford Pumping Station have now improved thanks to the new baffles. It was a complicated exercise in 3d modelling, however, the process has been instrumental in delivering a workable solution for both AMCO and the Environment Agency," added Jon.

Client: Environment Agency
Contractor: AMCO



Bedford Pumping Station



3D Modelling

CONTINUED FROM PAGE 1

focus has become marginally skewed? What should our priorities be at the point of recruitment, and what are they in the wider profession itself? Would a different historic focus or set of attitudes, have meant a different outcome for Carillion?

Sometimes it is as if the UK construction sector is always picking up pieces of one sort or another – Grenfell Tower and Carillion are a case in point. Prevention is better than cure, so maybe the time has come for the industry to place stronger emphasis on technical brilliance in-house, so that project decision makers can be boldly confident in their ambitions, secure in the knowledge that they are backed up by a broader set of skillsets – and people - capable of problem solving at the highest level.

We need to eradicate breakdowns and failures before they happen, not navel gaze when they have, but that requires change and a move away from the culture of blame that so often plagues the highest levels of business. As critical thinker Edward de Bono first urged the world in 1967, Think! Before It's Too Late. Food for thought!

For now we continue to work on some great projects so please keep an eye on the HBPW blog to see what we've been up to (www.hbpw.co.uk).

Meanwhile enjoy the read!

PAUL WITHERS
MANAGING PARTNER
HBPW LLP

Welcome



Paul Withers - Managing Partner

The engineering profession has always had its challenges.

There's been the historic imbalance of men vs women, something industry leaders have been working hard to redress in recent years, as well as the 'grey' nature of a profession that has seemingly struggled to compete with so-called 'sexier' jobs in areas like Public Relations, Marketing and Journalism.

But, I cannot help agreeing with NCE Editor, Mark Hansford, in reminding people that we are a sector that must rely, first and foremost, on technical competence. Sexing-up the profession to somehow make it more appealing, is all very well, but if that process comprises or side-lines vital key competences, that should be of absolute priority, then haven't we done the profession a disservice?

Prompting the secondary question as to whether or

CONTINUED ON BACK PAGE

HBPW Silences The Doubters!



A panoramic view of the contiguous bored pile wall at Britvic

When Buckingham Group Civil Engineering called HBPW with a rather juicy opportunity – the prospect of working with Britvic – there was a lot of doubt in the air as to whether the client's ambitions were even realistic.

The tender was for the substructure works for a new 40m high clad rack building, destined to provide a home for the drinks giant's new automated pallet handling facility at its current bottling and canning plant in Rugby.

That was the 'job'. But the challenge? Cut the new warehouse into the side of an existing hillside!

HBPW decided to implement an exercise in value engineering, aimed at not only reducing the tendered value, but to also improve the prospect of a 'win'



Value Engineering at its best

for the Buckingham / HBPW bid and, thanks to some innovative thinking, victory was achieved with one particular idea.

Managing Partner, Paul Withers, takes up the story: "Because of the constraints of the site, it was necessary to excavate into the side of a former hill to provide the necessary depth and support for the new warehouse floor. We had, in effect, to create a new plateau so that Buckingham's could complete the construction element of the contract.

"Pushing ourselves to the technical limit, we achieved this by drilling into the Charmouth mudstone and underlying blue lias, in order to install a contiguous bored pile wall stretching some three sides of the 210x65m site and comprising one hundred and sixty 1200mm diameter bored piles, each varying

in retained height between seven and 12 metres.

"The real challenge was to limit the deflection of the wall to no more than 30mm so that adjacent buildings were not compromised."

However, the 'tight' design led to a few sweating brows and nervousness from the client, contractor and Party Wall Surveyors.

In the final event, no 'Plan B' was required as monitoring showed that deflections were as low as 25mm, an outstanding result by any measure.

"There were so many people at the outset who said we were venturing into the territory of the near impossible. Now, I am both delighted, if a little relieved, that HBPW's engineering designs have been proved right, and that the boundaries of the 'impossible' have been stretched just that little bit further. Success honours the brave!"

Client: Britvic
Contractor: Buckingham Group Contracting

HBPW
LLP
Civil & Structural Engineering Services

Boardwalk Joy for Wildlife Lovers

A stunning Nottinghamshire wildlife reserve is now amongst the most accessible in the UK for the less able bodied, thanks to a joint initiative between Rotary, HBPW and a leading conservation charity.



A 100-metre boardwalk running from the visitor centre car park at Retford's Idle Valley Nature Reserve into the heart of the wildlife zone, is now open following a major fund-raising campaign.

"It means that people who have historically struggled to enjoy

this wonderful facility – namely wheelchair users and other ambulant disabled - will now be able to access it easily and observe amazing birds and wildlife at close quarters," said HBPW's Managing Partner, Paul Withers.

Paul, also a member of the Retford branch of the international service organisation Rotary, worked alongside fellow Rotarians and the Nottinghamshire Wildlife Trust, to make the idea come to practical fruition.

Rotary raised the necessary funds to pay for project materials, whilst HBPW commissioned a topographical survey and employed the facilities of its civil and structural engineers to design and detail the boardwalk.

Idle Valley Nature Reserve is part of the Idle Valley Project area, managed by Nottinghamshire Wildlife Trust, a beautiful 450-hectare network of lakes,



Nottinghamshire Wildlife Reserve

wetland, grassland and scrub.

The reserve also includes the 300 hectare nationally designated Sutton and Lound Site of Special Scientific Interest, one of the largest in the county.

Paul added: "This spectacular wetland site is the size of 600 football pitches and is one of the largest of its type in the East Midlands. I am delighted that we have played our part in opening it to a wider audience."

Collapsed Bridge Restored to Former Glory

Barrow upon Soar's rail bridge, which partially collapsed amidst a flurry of media coverage, has been repaired and restored to its original glory.

Just before midnight on 1st August 2016 the structure, carrying Grove Lane across the Midland Main Line, gave way. Fortunately, no one was hurt.

Initially two of the four railway lines were completely obstructed with debris on a third. The existing bridge was immediately closed to

vehicular traffic and a temporary works solution of reinforced spray concrete and wall anchors was used to stabilise the exposed embankment face.

Thereafter Network Rail, HBPW and other key contractors worked tirelessly to re-engineer the bridge and restore it to its former glory.

"The finished result is superb," said HBPW Partner Paul Monaghan. "Everything is back to normal now but, at the time, it was a stressful scenario requiring of prompt, effective action."

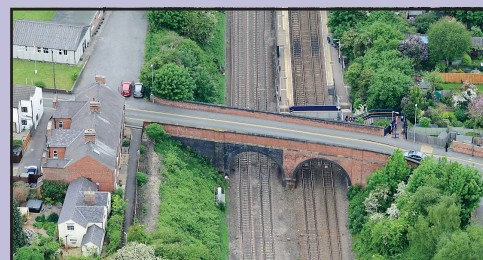
The RAIB investigation concluded that the incident occurred because the bridge wall, built around 1840, was not designed to resist overturning.

It had also been weakened by a full-height vertical crack. The water main, which ran close to the vertical crack, probably had a slow leak which was causing on-going subsidence in the footpath.

Client: Network Rail
Contractor: AMCO



Barrow upon Soar's Rail Bridge repaired and restored to its original glory



Value Engineering Masterstroke for Network Rail

One of the most dangerous foot level rail crossings in the country has been replaced in a masterstroke of value engineering, with design & installation in just six weeks.

Trinity Lane crossing at Waltham Cross, London, was an old-style facility that had been the scene of at least two near misses.

Partner, Jon Livesey, who worked with Network Rail and AMCO to resolve several challenges at site, said: "There were two simple wicket gates either side of the extremely busy Liverpool Street to Stansted Airport rail line, which meant pedestrians literally had to look left, look right and, when the line was clear, cross to the other side.

"That is a somewhat haphazard method of crossing any rail line and certainly not ideal. The fact that there had been several incidents at Trinity Lane prompted Network Rail to take action, and quickly."

The initial NR tender invited bidders to come up with an off-the-shelf temporary bridge solution.

"That would probably have had a shelf life of 20-30 years. However,

we worked closely with AMCO to develop a more effective outcome using an off-the-shelf proprietary bridge supported on modified Network Rail standard detail."

That meant that not only could the bridge be manufactured and erected in a matter of weeks, but the alternative tender response idea also delivered a permanent solution and a bridge with a lifespan of nearer 120 years.

"The initial 'temporary' approach would have required a far more rigorous maintenance programme compared to the bridge which was actually constructed and, despite the changes, the structure was designed, detailed, manufactured & installed in just six weeks.

"More to the point we were also able to incorporate some amazing value engineering methods, enabling the piles to be connected directly to the bridge trestles, drastically shortening installation time. The process also avoided the need for extensive excavation, removing the need to adjust Network Rail's adjacent boundary.

"Subsequent to the main bridge, we also had to install two side bridges

over the adjacent culvert, adjust the paths & fences, create a new car parking space and install improved communications for the crossing. These will remain for access by vehicles and reduced mobility users. Overall an amazing, cost-effective result with longevity and low maintenance implications."

Client: Network Rail
Contractor: AMCO



Trinity Lane crossing at Waltham Cross, London



Time for (Costa) Coffee?



One of the leading commercial property development companies in the UK has been working alongside HBPW to create additional retail space for two of the country's leading high street brands.

Costa Coffee and Maplin, the computer and gadget specialist, have taken space on the Goodmayes Retail Park on High Road, Chadwell Heath in Romford, Essex.

However, their respective expansion plans could not have happened without input from HBPW.

"Faircloth Construction invited HBPW to deliver the civil and structural engineering element of the two-unit scheme carried out on behalf of the site owners, London based Ravenside Investments Ltd," said Senior Engineer Shaun Strugnell

"As a company, we have already worked for Costa before, specifically on the County Oak Retail Park outlet in Crawley, West Sussex and the brand's coffee shop in the Brent Cross shopping complex in London, so, in many ways, the nature of the job wasn't unfamiliar.

"It may only be a small retail park comprising five units, however, Goodmayes is in a busy part of the country where high street brands are still happy to expand."

HBPW works with a range of high street retail brands and has completed projects for the likes of Lidl supermarkets, Carpetright, DFS and Furniture Village.

Client: Ravenside Investments Ltd
Contractor: Faircloth Construction



Costa Coffee and Maplin