



Flood Embankment Move Increases Development Site Footprint



Work on Swift 13 Starts

Innovative engineering has given a developer an additional 400 square metres of useable land after a flood embankment was moved five metres, making way for a major industrial warehousing development.

The Swift 13 industrial park on Creek Way in Rainham, Essex, comprises 13 industrial / warehouse units varying in size from 2,800sq ft to 6,800 sq. ft.

However, had it not been for some advance planning by geoenvironmental engineers, a large part of the complex may never have happened.

Partner Emyr Parry said: "Ahead of purchase Newable Developments

Ltd had the foresight to ask one of our geoenvironmental engineers to review the plot they were thinking of buying."

It was subsequently discovered that the land had originally been used for dumping sewage sludge during the Victorian era.

"There was an 80m long earth bund, dating back to the late 1800's, running the length of the site, and maps suggested it was there as a flood defence from the nearby Thames tributary, although this was debated."

Nevertheless, the Environment Agency insisted that it still had to be treated as such and, after three months of negotiation, it was agreed by all concerned that the so-called 'flood embankment' would be retained but re-positioned five metres closer to the tributary.

"The soil alone we had to move weighed in at 2,500 tonnes," said Emyr, "however, by moving it we were able to create an additional 400 square feet of development

land which increased the plot's overall value."

Piles were subsequently driven into the ground because of its soft consistency, and 13 units - of steel frame construction enclosed by brick, block and profile steel cladding - were developed with HBPW advising on the foundations steelwork and sub structure, as well as the external works.

"This was a textbook example of value engineering," added Emyr, "illustrating how engineers from two disciplines came together to maximise a site's value."

Client: Newable Developments Ltd
Contractor: McHale



Swift 13 Aerial Locator Map

- High quality units
- Excellent road links

SWIFT 13
RAINHAM

- Available Q3 2018
- 8 metre eaves height

EXCELLENT ACCESS TO THE A13

EASY ACCESS AND PARKING

ROOFLIGHTS FOR GOOD NATURAL LIGHTING

ROLLER SHUTTER ENTRY DOORS

LANDSCAPED SURROUNDINGS

Swift 13

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Two words that seem to recur throughout my life are 'temporary works'. So often people look at completed projects, ribbons are cut, topping out ceremonies held and champagne glasses chinked, but how often do people celebrate the 'temporary works' engineers without whom many of the schemes would never be able to start?

One such project is featured in this edition's centre spread. Paul Monaghan's team has been instrumental in keeping London's rail tracks moving and, without their advanced 'arch planning', how might the project have looked? Much less attractive is probably the superficial answer but, in reality, their work keeps everyone safe. Needless to say they did an amazing job for which the HBPW team can be very proud.

It's been a year of turmoil at a country level but somehow, we all carry on and carry on we must. I wish you all well in 2019 and may each and every one of you continue to prosper. Happy New Year!

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).

Enjoy the read!

PAUL WITHERS
MANAGING PARTNER
HBPW LLP

Welcome



Paul Withers - Managing Partner

New Year is here AGAIN but, fortunately, I still have my painting in the attic and continue to use the same head and shoulders photo that's been in use for the last few years!

January is always a good time to reflect and, as always, 2018 was a year of some amazing projects from 'Bardon Quarry', where we helped keep one of Britain's most important quarries working at full tilt, to the engineering challenges of Rugby's 'Britvic factory' where we had to cut a new warehouse into the side of an existing hillside.

Despite all the prophets of doom, we have been and continue to be as busy as ever, and each day, far from contemplating the complexities of Brexit, we simply get our heads down and deliver amazing engineering solutions.

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HBPW Links Into £225m Luton Airport Rail Scheme

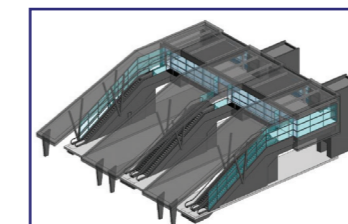


Luton Parkway - an artist's impression

As work officially starts on the £225m Luton Airport Light Rail Link, HBPW's engineers are poised to play a key role in one of the UK's most important intermodal transport projects this side of the Millennium.

A new above ground Direct to Air Rail Transit (DART) system, designed to operate 247 with trains every four minutes, is being created to move passengers between Luton Airport Parkway and the flight terminal in under four minutes.

HBPW Partner, Paul Monaghan, said: "This is a huge project and we will be playing a key part in bringing it to fruition, principally by delivering engineering for the construction of a new pedestrian



Escalators will keep people moving

footbridge and concourse over the railway tracks at Luton Parkway Station.

"This element will also include associated lifts and three escalators - two doubles and a single - in the operational platforms, in order to provide a greater capacity link between the Network Rail station and the new Mass Passenger Transit system."

Currently, shuttle buses carry passengers between Parkway station and the airport but these can be erratic and subject to traffic congestion.

However, the new, monorail-style system is being designed to ensure that services along the 2.1km route are fast, frequent and reliable as well as safe, secure and comfortable.

"The real challenge on this project is keeping a busy railway station and bus terminus operational during the construction phase. Consequently, we will need to temporarily reduce the width of station platforms in order to create the room to construct the new bridge foundations



Proposed DART fast transit route

and superstructure, all whilst accommodating a 24-hour train schedule.

"This is a complex project that will make a huge positive impact on transport links in the south, however, the breadth of experience amassed by our team of engineers over more than a decade, makes HBPW the go-to engineering firm for this type of project," added Paul

Client: Network Rail
Contractor: Amco

Temporary Works Planning Keeps London Commuters Moving



Bellenden Underbridge

Crucial upgrades to South East London's rail network have passed seamlessly into history, despite major temporary works challenges, thanks to key 'arch' planning by HBPW.

Bellenden Road Underbridge in Southwark and Westdown Road Underbridge at Catford

were originally built in the 19th century but were both life expired. They carry National Rail, London Overground and Thameslink commuter services, as well as providing a busy thoroughfare for railway freight services.

Network Rail decided to replace

them and called in Graham Construction and HBPW as key engineering partners in the bridge replacement project, part of NR's overall £78m investment in key asset maintenance and upgrades to more than 600 infrastructure schemes across the country.

“...we had just 72 hours possession time...it was a mammoth operation.”

Major Challenge

Partner, Paul Monaghan takes up the story: “The bridges are only approximately seven miles apart and each features a multi-span arch with a flat over deck, probably one of the biggest challenges we faced in completing the temporary works and designing the new bridge structures.

“If you remove decks in such circumstances, the arches below can become unstable with the threat of collapse so, as part of our advance planning, we had to do some clever arch analysis and, thereafter, design temporary works propping to remove that possibility.”

The temporary works became all the more important in light of the fact that heavy excavators, key to the essential work, were also going to be putting additional pressure on the existing structures during the reconstruction.

“At Bellenden Road we were unable to get a mobile heavy lift crane on site due to limited access – this structure is just metres from residential properties – and had to use a 350t crawler crane, not dissimilar to the one used at York's Scarborough Bridge. Eventually the



Night time working at Westdown

Graham team was able to replace the existing 12m single span deck with two new Network Rail standard U decks, each weighing in at 66t.”

Seven miles down the road at Westdown Road there was the additional challenge of passenger platforms.

Time Critical

“That meant we had just 72 hours possession time in which to remove them, demolish the old 12.5m bridge, install two new NR standard U decks, which were 74t each, and reinstate platforms in time for commuters

to seamlessly continue using the station on Tuesday morning after the Bank Holiday. By any stretch, it was a mammoth operation!”

In the final event both projects featured propping to restrain the existing abutments from potential overturning, and the work was brought to successful conclusion despite horrendous weather on the final day.

“As a minimum this was an amazing team effort involving a range of supplier partners who came together seamlessly to deliver what was a huge engineering challenge.

“If pre-planning prevents poor performance, then this has to be a masterclass in how careful arch

analysis before the project started, proved instrumental to on-the-day success.”

During the 72 hour Bank Holiday possession there were some 100 men on site at one point.

“Thousands of man hours were worked and, because two bridges were demolished and reconstructed on the same day just a few miles apart, it is almost impossible to visualise the sheer scale of this project. Every job was doubled up as teams operated independently across two sites.”

The health and safety implications were huge but, more to the point, there was not one H&S breach during the entire period. This was a



Working against the clock

job that required military precision which was largely achieved in the meticulous pre-planning period.

“Our temporary works input was, undoubtedly, a key factor in what was a great team effort by so many parties,” added Paul.

Client: Network Rail

Contractor: Graham Construction



Work progresses at Westdown

“an amazing team effort...to deliver what was a huge engineering challenge.”



The broader pedestrian & cycle walkway

On Yer Bike!

London's ambition to produce an interconnected cycleway across the Capital is moving a step closer thanks to the London Borough of Waltham Forest and the combined efforts of HBPW and Graham Construction.

In 2013 all 18 outer London boroughs were invited to apply for funding from the Mayor of London's Mini-Hollands fund, and Waltham Forest was one of three selected to share the pot of cash.

Managing Partner Paul Withers, takes up the story: “As well as seeking to upgrade streets, road networks and tackle issues of road safety, air quality and public health, “Mini-Holland” has also become

one of many projects playing its part in making Waltham Forest safer for pedestrians and cyclists.”

Part of Waltham Forest's on-going improvements have centred on Walthamstow Gyrotory of which the 'Lea Bridge scheme' is part.

“This existing road bridge crosses a live railway line and featured a footpath either side of the structure with viaducts to each approach. However, the narrow footpath was being shared by both cycles and pedestrians making it overly dangerous,” said Paul. “The local authority was also mindful of the need to improve the nearby, and heavily congested, junction of Lea Bridge Road and Argall Way.” They made plans to widen the road network but, in so doing, the resulting scheme meant the

existing bridge footpaths being narrowed still more, further exacerbating an already hazardous situation.

“The solution was to build a cantilevered structure to carry a widened combined pedestrian cycleway on the north side of the existing viaduct. Effectively the 'old' bridge is now wider and, thanks to some innovative engineering, we have been able to deliver both increased safety for pedestrians and cyclists, while helping the Borough to achieve its ambition for an improved road network.

“London's East-West Cycle Superhighway is already open to cyclists and runs in both directions, via central London, between Tower Hill and Lancaster Gate, so this latest initiative in Walthamstow

offers yet more protection to two wheeled commuters and pedestrians in the Capital. A step in the right direction you might say!”

Client: London Borough of Waltham Forest

Contractor: Graham Construction



Cantilever strength



Bikes, cars and people side by side