

BRITPAVE NEWS

ISSUE 38 - SPRING 2019

Report on soil stabilisation
brownfield land seminar

Transport for the North
£70bn investment plans

Tilbury2 gets the go-ahead

A14 upgrade update

Gomaco turns heads at
BAUMA

Concrete answer to city
congestion

Concrete vertical
landing pads

Thousands of new
construction jobs
predicted



Major milestone for
A14 project

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CHAIRMAN'S WELCOME

There is a growing realisation that the UK infrastructure needs significant investment and upgrading. Accordingly, the Government has allocated over £61bn in capital investment up to 2020/21. In addition, there are the transformational projects such as HS2, Crossrail 2, and the new runway at Heathrow plus calls for further investment such as the £70bn from Transport for the North and a host of expansion plans from UK docks and regional airports. Some of these expansion plans are covered in this issue of Britpave News.

The realisation of the need for infrastructure investment is set against the background of experienced designers retiring and leaving the industry and a growing problem of skills shortages and increased demand for technical design and construction knowledge.

This is where Britpave aims to help fill that gap by forwarding cost efficient, whole-life long term concrete and cementitious infrastructure solutions. It does this via its developing programme of industry seminars – its brownfield land soil stabilisation event is covered in this issue – plus its publication of technical guidance documents and its networking between clients and the supply chain.

You are asked to remember this when your membership subscription lands on your desk by the end of April! Your ongoing support is essential if Britpave is to continue to help forward the concrete and cementitious solution on which your businesses depend.

Joe Quirke

Britpave Chairman and Engineering Manager, VolkerFitzpatrick

Britpave, the British In-situ Cementitious Paving Association, promotes the better and greater use of concrete and insitu cementitious infrastructure solutions. Its members include major contractors, specialist equipment and material suppliers, consulting engineers and interested trade associations. Together, they provide a single voice for the insitu concrete paving industry.

Britpave News is published regularly by Britpave with the aim of keeping members up to date on Association matters, industry developments and member company news and views. Please help keep us in the picture on all of this by sending us any relevant information that you feel may be of interest to the membership.

Disclaimer: All articles are published in good faith. Britpave will not be held responsible for any errors, misinformation and opinions in articles submitted for this newsletter.

> A CONCRETE ANSWER TO CITY CONGESTION

The UK is grinding to a halt according to a new survey that found in 2018 congestion in our cities cost the economy £7.8 billion and that motorists spent an average of 178 hours stuck in traffic. Increasing investment in urban public transport could do much to reduce the levels of congestion.



The INRIX Traffic Scorecard found that London and Birmingham ranked as the worst cities for time wasted in congestion with drivers wasting 227 hours and 134 hours

respectively. London and Edinburgh tied for the title of slowest city with average speeds of only 7MPH.

“Congestion is costing the economy billions in lost productivity. The government and city planners need to examine how to provide better urban public transport systems that can provide motorists with an attractive, efficient and reliable alternative to sitting in their cars,” said Joe Quirke, Britpave Chairman.

Quirke points to the potential of modern urban rail and busway systems to unlock the gridlock of our cities. He explained: “The provision of urban rail systems and guided busways can do much to take motorists off our congested roads.”

The evidence of their potential and their success is considerable. Currently light rail and tram journey account for just 3% of all public transport journeys in England. There is considerable potential for growth. Guided busways can be particularly useful. A fifth of all passengers using the Leigh-to-Ellenbrook guided busway in Greater Manchester - slipformed constructed by Britpave member Extrudakerb - have switched from using cars.

Quirke continued: “Fortunately, there are a number of concrete construction solutions that can provide the cost effective, minimum maintenance light rail tracks and guided busways that could make a real difference to the congestion being experienced in our cities.”

> UPDATED CONCRETE PAVEMENTS COURSE

Following the success of its technical introduction to concrete pavements course held last September, Britpave is to hold a concrete pavement technical update on 13th June 2019, at the Holiday Inn, Crick.

The seminar will cover any updates, particularly on Highway England specifications and the growing recognition of the need to examine the whole life performance benefits of concrete pavement options.

Details of the event will be published in due course on the Britpave website: www.britpave.org.uk



TRANSPORT FOR THE NORTH CALLS FOR €70BN INVESTMENT

Britpave has welcomed the proposals to invest £70 billion in transport infrastructure which were launched at February's inaugural conference of Transport for the North.

Transport for the North is England's first sub-national transport body comprising the 20 local transport authorities, business leaders, Network Rail, Highways England and HS2 Ltd. It aims to forward the need for increased transport infrastructure necessary for growth and rebalancing of the UK economy.

The Strategic Transport Plan (STP) and the Investment Programme launched at the conference would rebalance decades of underinvestment and transform the lives of people in the North. The STP outlines how the £70 billion of investment to 2050 could contribute towards an additional £100 billion in economic growth for the North's economy – creating 850,000 extra jobs.

In particular the STP and Investment Programme seek to:

- Better connect the whole of the North, with a short, medium and long-term plan for investment
- Transform connectivity for people and businesses, and make it easier to move goods to, from and within the North
- Make the case to increase spending on strategic transport by around £50 per person in the North each year to 2050
- Forward programmes such as Northern Powerhouse Rail; upgraded and new major roads; enhancements to the existing rail network; and the continued roll out of smart ticketing
- Compliment local and regional transport strategies and promotes new, low-carbon ways of travelling.

The infrastructure proposals are based on seven strategic transport corridors focused mainly on new or upgraded rail links as well as roads. The centrepiece is Northern Powerhouse Rail, a fast rail line from Liverpool to Newcastle. In addition, there are plans to link Liverpool to the high speed rail network in Manchester plus a new line between Manchester and Leeds via Bradford, upgrading the line between Leeds and Hull and the Hope Valley line between Sheffield and Manchester.

Barry White, Chief Executive of Transport for the North, said: "The Strategic Transport Plan is a hugely important document for the North. It is our vision for a prosperous pan-Northern future and outlines how investment in transport could transform our economy.

The Strategic Transport Plan and Investment Programme can both be viewed at www.transportfornorth.com/onenorth.





The successful use of these new VLPs is another step closer towards successfully reaching Initial Operating Capability for the UK.

➤ CONCRETE VERTICAL LANDING PADS

Britpave member Lagan Aviation & Infrastructure along with their JV partners Galliford Try (GTLC JV) have successfully delivered the high temperature resistant concrete for three Vertical Landing Pads (VLP) at RAF Marham for new F-35 multi role combat jets.

To support the aircraft's short take off vertical landing (STOVL) capability, the Defence Infrastructure Organisation required three VLPs. The Norfolk site is the Main Operating Base for the F-35 in the UK.

Construction presented a significant engineering challenge. Due to standard concrete not being suitable, the design team had to source special materials from Germany to make a concrete which has the ability to withstand the high temperatures created by aircraft engines. Without this there would be a risk of cracking which in turn could present significant risk to the aircraft. This was the first time this material has been used outside the USA and required a rigorous testing process to ensure the landing pads were fit for purpose.

Lt Col Ian Jenkins, Defence Infrastructure Organisation Project Manager for the VLPs, said:

"Vertical landing is a really exciting military capability and from an infrastructure perspective it's been fascinating to be involved in the design and construction process. It was really exciting and rewarding to see an F-35 landing on the first vertical landing pad to be finished and I look forward to seeing more as we continue to work on other infrastructure upgrades required for the F-35s."

Each landing pad measures 67m long and 67m wide, with a central landing area of 30.5m by 30.5m. Four F-35B Lightning aircraft arrived at their new home at RAF Marham in June 2018, starting the build-up of the newly-reformed 617 Squadron in the UK. The successful use of these new VLPs is another step closer towards successfully reaching Initial Operating Capability for the UK.

James Aikman, Project Director, Galliford Try Lagan Aviation JV, said: "The GTLC JV is delighted to have successfully delivered the Vertical Landing Pads at RAF Marham. We have a well-established relationship with DIO and this, combined with our experience of complex airside work, augurs very well for the remainder of the programme.



➤ CITB PREDICTS 168,500 NEW CONSTRUCTION JOBS

A five-year forecast into the industry's skills needs published by the Construction Industry Training Board (CITB) has shortened expectations for growth with infrastructure predicted to grow by 1.9%, down from 3.1% in last year's forecast. The slower forecast within the annual Construction Skills Network (CSN) report is said to be impacted by Brexit uncertainty and by investors stalling construction of the Welsh nuclear power plant Wylfa.

CITB also anticipate construction growth of 1.3% across the UK, down a third of a percent on the previous year. The forecast is based on the scenario that the UK agrees an exit deal with the EU, rather than a 'No Deal' situation.

CITB say the biggest increase is expected in public housing, which is pulling ahead as infrastructure slows. Financial support from Government at both local and national levels is encouraging a 3.2% growth rate in public housing, up half a percent since last year's forecast.

Despite the wider economic uncertainty, more construction workers will be needed over the next five years. An approximate 168,500 construction jobs are to be created in the UK over the next five years, 10,000 more than in last year's forecast. Construction employment is expected to reach 2.79 million in 2023, just 2% lower than its peak in 2008.

The CSN supplementary report Building After Brexit: An Action Plan for Industry identifies the need for construction to adopt a twin-track strategy: growing

investment in the domestic workforce and driving up productivity, while working with government to agree how to maintain access to migrant workers to give it the breathing space to adapt.

Recommendations to lessen the impact of Brexit include:

- Attract talent by raising apprenticeship starts and completions, creating pathways into construction for under-represented groups and providing better work experience opportunities.
- Retain the workforce by supporting older workers to stay in the industry, upskilling the existing workforce and offering improved mental health support.
- Be productive by developing a Future Skills Strategy to identify the skills required to modernise the industry, drive digitalisation forward and boost investment in modern methods of construction.

Steve Radley, policy director at CITB, said: "This forecast aptly reflects the uncertainty, particularly associated with Brexit that we're seeing across the wider economy. Currently, concerns around Brexit are weighing on clients and investors, creating a knock-on effect on contractors and their ability to plan ahead. Construction needs a twin-track strategy, increasing investment in the domestic workforce and working with government to agree how we can maintain access to migrant workers to give it the breathing space to adapt to changing rules."

> BALFOUR BEATTY CEO CALLS FOR NEW APPRENTICESHIP APPROACH

Britpave member Balfour Beatty Group Chief Executive, Leo Quinn, has called for the current apprenticeship system to be urgently changed in order to avoid damaging Britain's future.

With the Government targeting three million new apprenticeship starts by 2020, he argues that the approach to apprenticeships must be radically changed if the significant skills shortage is to be addressed. The priority must not only be to fix the Apprenticeship Levy to ensure that it delivers a highly skilled workforce and increase British productivity, but to also raise awareness of the benefits of apprenticeships amongst SMEs and explore the opportunity of share apprenticeship

rotations across several participating companies.

While fixing the apprenticeship levy is clearly of importance, a significant educational piece is required to change attitudes and eliminate the prejudice that currently prevents matching best talent with opportunity.

Mr Quinn founded in 2013 the 5% Club, a UK employer-led initiative focused on creating momentum behind the recruitment of apprentices and graduates into the workforce and is leading the way in addressing these challenges and reforming the system to make apprenticeships the engine for future prosperity.

> SHOUT ABOUT HS2 BENEFITS

Nuscrat Ghani MP, the undersecretary of state for transport has called for the potential benefits of HS2 to be recognised and has underlined that the Department for Transport's "full commitment to the entire project."

Speaking at a recent HS2 East – a partnership representing cities and towns along the eastern leg of HS2 Phase 2B route – event, Ghani highlighted the far reaching benefits of the "once-in-a-lifetime transport investment."

The eastern leg of HS2 is a high speed connection between Birmingham, Toton in the East Midlands, Sheffield, Leeds and Newcastle, and would improve journey times up to Scotland. These collective destinations have a combined population of 15 million people and already contribute over £320bn a year to the UK economy.

Ghani called upon industry leaders and supporters to start shouting the benefits of HS2: "This is a railway that will have a profoundly positive impact on the cities and towns along the length of the Eastern Leg for generations to come," she said. "It is the defining infrastructure project of



a generation – one that can transform and rebalance our entire economy and provide a major boost to places like Newcastle, Leeds, Nottingham, Derby and Sheffield. HS2 is happening and we will continue to work with regional partners to ensure we smash the north/south divide."

Her comments were supported by the HS2 chair, Allan Cook, who said: "HS2 is not just a transport project, it's a UK-wide regeneration programme that will transform towns and cities across the Midlands and the North. We're talking about decades worth of investment and benefits that will be felt for generations. Stopping short is not an option – we must, and will, deliver HS2 in its entirety."

SOIL STABILISATION SEMINAR REPORT

The recent Britpave soil stabilisation seminar ‘Soil stabilisation for brownfield land redevelopment’ was well attended and well received.

Al McDermid, Chairman of the Britpave Soil Stabilisation Task Group, opened the event with an overview of the ‘what, why and how’ of soil stabilisation. He outlined the benefits of soil stabilisation. It is a proven process that is sustainable, removes the need for ‘dig and dump’ and is cost effective. These are all reasons why its use for the redevelopment of brownfield land is recommended.

The need to re-use brownfield land was forwarded by Rebecca Pullinger from the Campaign to Protect Rural England. She discussed the findings of the newly published CPRE analysis of councils’ Brownfield Land Registers. The analysis shows that there is enough brownfield land ready and waiting to be developed to accommodate over 1 million new homes. Pullinger called for a ‘brownfield first’ approach to development as this would recycle land, regenerate inner cities, and save the countryside. The need for such an approach is underlined by the 59% of deliverable brownfield site being shovel ready but not having planning permission. CPRE is urging the government to adopt brownfield first by developing clearer definitions and guidelines so that the brownfield registers can act as a true pipeline for land that can be re-developed.

The need for clearer definitions and guidance is not the only barrier to brownfield development explained Matthew Farrow of the Environmental Industries Commission. He stated that for the potential of downfield land to be realised then the regulatory and enforcement systems needs to be strengthened. Further barriers include: loss of local authority and Environment Agency expertise and resources; ambiguous planning conditions; financial pressures on developers and contractors; limited oversight on waste materials used in remediation; lack of kept site records. Particular issues are that 39% of councils do not have dedicated Contaminated Land Officers, records of previous assessments and remediation are not kept and to potential risks cannot be properly identified and developers often sell off property before remediation issues have been properly addressed. Farrow had a number of recommendations that would better facilitate the redevelopment of brownfield land. These include:

- Link Building Control to remediation regulatory system
- Use of the £443m unspent CIL receipts to boost local authority contaminated land expertise
- Enhance land remediation tax relief
- Encourage the use of model planning conditions
- Tougher fines for contractors/developers who break the rules.

The above would utilise the current regulatory regime to best effect, encourage better management and development of brownfield sites and improved working relationships between local councils and private developers.

Steve Dunn of Geofirma discussed two new documents that aim to reduce barriers to the use of soil stabilisation. BS EN 16907 is a new European Standard that was developed to provide a unified standard for earthworks across the EU. It comprises:

- Part 1 – Principles and Design
- Part 2 – Classification
- Part 3 – Construction Procedures
- Part 4 – Soil Treatment with Binders
- Part 5 – Quality Control
- Part 6 – Land Reclamation with dredged hydraulic fill
- Part 7 – Hydraulic Placement of Mineral Waste

Published last December, Part 4 is of particular relevance to soil stabilisation. It to the treatment with binders of natural soils, weak rocks, intermediate rocks, chalk, recycled materials and artificial materials for the execution of earthworks during the construction and maintenance of roads, railways, airfields, platforms, dykes, ponds and any other types of earth structure. It relates only to the treatment in layers, produced for earthworks in situ or from a mixing plant, as opposed to the treatment by columns for example. The standard specifies the requirements for the constituents of the mixtures, the preliminary laboratory testing methodology, the laboratory performance classification, the execution and control. Dunn pointed out that the informative annexes give examples of good practices for execution and control. He then went on to discuss the updated Britpave Soil stabilisation and soil improvement guide. This is a definitive technical and best practice guide that was prompted by possible future withdrawal of ‘HA74 Treatment of Fill and Capping Materials using either Lime or Cement or Both’. However, it is not a HA74 replacement as in addition to highway works it covers a wide scope of soil stabilisation. With its full set of project progress flowcharts, data on testing requirements and comprehensive further reading bibliography, Dunn explained that the guide aims is what one member of the Britpave Working Group described: “The type of guide that I wish was available when I first started out in this industry.”

Proving the maxim ‘the proof is in the pudding’, Stefan Stansfield of Combined Soil Stabilisation, provided three different case studies where soil stabilisation has been successfully used to redevelop brownfield land.

The site for a new retail development in Leigh had previously been used for storage for mining plant and materials. This left a legacy of high sulphate levels in colliery spoil and made ground. Soil stabilisation was used to render contaminants immobile. A lime and ground granulated blast furnace slag (GGBS) mix was used to deal with potential sulphate heave issues. For a new processing facility in Trafford the soil problem was contamination with acid tars, oil refinery wastes, ash and concrete and brick to a depths of 6 metres. The site was split into eight areas with differing remediation requirements and three soil stabilisation mixes were developed including use of Pulverised Fuel Ash (PFA) to deal with the different soil applications. The contaminated materials were successfully encapsulated improving both the environmental and economic sustainability of the site. Loadings of up to 150kN/m² were provided to accommodate future development requirements. The final project case study examined by Stansfield was the Omega Industrial Development in Warrington. The site had previously been used as a RAF and USAF airbase from 1940 to 1991 and had runways and hardstandings that used burnt shale as a subbase. This had a high sulfate content. Combined Soil Stabilisation worked on a number of site plots including: Asda (600,000 ft²) – lime improvement/modification, turnover & treatment of highbay area to reduce piling requirement, lime/cement stabilisation to floor slab & hardstanding; Travis Perkins (750,000 ft²) – lime improvement/modification to fill material supporting floor slab, lime/cement stabilisation to floor slab & hardstanding ; Amazon & Domino Pizza (around 1m ft² site footprint) – turnover and treatment of made ground and fill materials to rigorous specification to support foundations and floor slab up to 150kPa.

A further project case study was provided by Robert McGall of Deep Soil Mixing Ltd. He highlighted how soil mixing has been used for the first time for foundations as an alternative to piling for a housing development in St Mary's Bay, Kent. Soil mixing and soil stabilisation were applied across the whole site to prevent extreme settlement from variable ground conditions. He explained that the in-situ ground improvement technique has both geotechnical and environmental benefits. It enhances the characteristics of weak soils by mechanically mixing them with a cementitious binder. The action of mixing a cementitious binder with soil causes the properties of the soil to become more like soft rock. Low permeability can be achieved. Contaminated ground can be treated by either adding binders to neutralise or lock in the contaminants.

The use of deep soil mixing had a number of benefits not least of which was the 18th months saved of the construction programme and the improved ground stability behind coastal defences. McGall highlighted a number of requirements to ensure that the potential of deep soil mixing is realised. These included having a range of options of the initial design and project assessment, ensuring that soil samples are mixed and tested correctly, consider undertaking field trials, have correct validation testing during and after the construction works.

Summing up the seminar, Al McDermid thanked all the speakers for their informative insights and recommended the seminar as the type of event that helps to forward the soil stabilisation sector.

SOIL STABILISATION GUIDANCE REVIEWED AND UPDATED

Britpave has reviewed and updated two major guides for soil stabilisation. Both documents are available as free downloads from:
www.britpave.org.uk

Soil Improvement and Soil Stabilisation: definitive industry guidance

This document outlines industry best practice and provide signposts to industry standards and further reading. It also include a number of useful process flow charts and testing checklists in the appendices. The guide explains the what, why and how of soil stabilisation. It describes the process of soil stabilisation for all infrastructure sectors. Although developed with input from Highways England, it is not a replacement to

HA74 Treatment of Fill and Capping Materials which Highways England plans to withdraw.

Stabilisation of sulfate-bearing soils

The guide explains how adding lime to improve clay soils can led to chemical reactions with naturally occurring sulfates resulting in significant expansion potential. The guide examines sulfate heave processes, provides guidance on the necessary ground investigation and laboratory testing for sulfates and swell and explains what can be done to avoid sulfate heave.

Many thanks for the input of time and expertise from Steve Phipps, Balfour Beatty; Steve Dunn, Geofirma; Jack Bull, Mott Macdonald in revising and updating these publications.



➤ COR-STABLE FOCUS

As well as providing lime for steelmaking applications, Britpave member Tata Steel manufactures cor-Stable lime at its Shapfell site in Cumbria. This is a specialist fine lime product used to treat soil. Once lime is mixed in the soil, two significant effects take place. The clay particles in the soil react with the lime to strengthen it, and improve its load bearing capability. The soil is dried, which helps it to compact. The resultant product provides a sound construction material upon which building foundations can be laid. By treating soil with lime in this way, a contractor can significantly reduce the amount of materials which need to leave a site, and also the amount of materials brought to a site, providing both economic and environmental benefits.

The lime is certified to EN 459-1, CE marked to CL90-Q (R5, Psv), representing the highest chemical and reactivity specifications available in ground stabilisation lime. This allows cor-Stable to be used in a wide range of applications and soil types and the high lime content is able to treat the most difficult of soils.

Customers benefit from the enhanced properties of Tata Steel's cor-Stable lime because the optimization of fines in the product reduces the time required to mix the lime and soil and therefore money spent on machinery hire is reduced. The high reactivity lime, which arises from a combination of very pure limestone feed-stone and ideal calcination conditions, provides rapid drying of the soil, optimizing the lime yield and therefore value in use.

Shapfell is located adjacent to the M6 motorway in Cumbria, and as well as road deliveries is able to supply lime directly on rail with its own connection to the main West Coast Railway Line. Both options provide a rapid and cost effective means of delivery. Our responsive service and 24-7 operation means cor-Stable can be supplied at short notice and in flexible quantities.

cor-Stable was recently supplied to a secondary high school and sports complex development in Jedburgh. Some 80,000 m³ of soil was been treated with around 2% lime (this varied depending upon the properties of the soil before treatment), in a development covering an area of 8 hectares. Tata Steel have supplied all of the 800T used in the project. Commenting on the project, the site's manager said: "Tata Steel have been a great company to work with, their haulier always delivers on time and at short notice, and we have had no issues with quality. RJT Excavations and Tata Steel have a long and successful relationship, we've used their lime all over Scotland."

PRODUCT SPECIFICATION:

Typical Size Analysis: +3.15mm - 3% max. (typical size analysis is available on request).

Bulk Density: Approximately 1,100kg/m³

CHEMICAL PARAMETERS:

Available CaO – 80% min. – typical 89%

Total CaO + MgO – 90% min. – typical 95%

Loss on ignition – 4.0% max. – typical 2% SO₂ – 2.0% max. – typical 0.15%

Reactivity – 60°C in 10 minutes max. (typical 60°C in 2-3 minutes)

As specified in BS EN 459-1:2015, a higher loss on ignition is permitted if the requirements for other chemical parameters in this table are met

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➤ TILBURY2 GETS THE GO-AHEAD

The Port of Tilbury, the UK's fastest growing port, has received development consent from the Secretary of State for Transport to build Tilbury2 – a new multimillion pound port terminal adjacent to the current 930 acre site in Thurrock. Tilbury2 will be built on a site covering in excess of 150 acres, which was part of the location of the former Tilbury Power Station. When operational in spring 2020, Tilbury2 will be the UK's largest unaccompanied ferry port and the country's biggest construction processing hub, with AEO-trusted trader status.

Construction of the port, which will include a new rail and road connection, deep water jetty and pontoon, will bring the project cost to in excess of £200 million.

Tilbury2 will comprise:

- A roll on/roll off ferry terminal for importing and exporting containers and trailers to northern Europe, in partnership with P&O Ferries

- A facility for importing, processing, manufacturing and distributing construction materials
- A strategic rail terminal which can accommodate the longest freight trains of 775m
- Storage areas for a variety of goods, including exported and imported cars.

Tilbury2 is central to the Port of Tilbury's £1 billion investment programme during 2012-20. Tilbury has doubled the size of its business in the past 10 years and is projected to double the volume of cargo across the quay (from 16 million to 32 million tonnes) and increase direct employment (from 3,500 to 12,000 jobs) over the next 10-15 years.

Charles Hammond, Chief Executive of Forth Ports Group (owner of the Port of Tilbury), said: "Tilbury2 will deliver much needed port capacity to support businesses importing and exporting to and from Europe and the rest of the world."

➤ PLANS TO EXPAND LUTON AIRPORT

As part of ambitious plans to expand the UK's fifth largest airport, Luton Council's airport company London Luton Airport Ltd (LLAL) wishes to build a second terminal.

Airport bosses hopes expansion will see passenger numbers soar from 18 million to 32 million a year with the "preferred option" built beyond north of the runway, on Wigmore Valley Park. To compensate for the partial use of the park, the airport has pledged to

provide new parkland and open space over a larger area to the east of the existing park.

The initial public consultation is open until Autumn 2019, following which LLAL plans to submit its final plan to the government by mid-2020 for the transport secretary Chris Grayling to have the final say. Andy Malcolm, chair of LLAL, said there was "a unique opportunity" to support growth of the local, sub-regional and national economies.



➤ A14 UPGRADE COMPLETES LARGEST OF 34 NEW BRIDGES

Work on the largest bridge on the upgraded A14 has been completed, Highways England said.

The River Great Ouse viaduct stretches for half a mile, and it will take traffic over the river and the East Coast Mainline Railway. It is part of a new 17-mile bypass that is being built to the south of Huntingdon away from the existing A14.

The £1.5bn project to upgrade 21 miles of the A14 between Cambridge and Huntingdon has is on target to be completed by December 2020. Construction is being

undertaken by the M14 Integrated Delivery Team, 4 members of which – Balfour Beatty, Costain, Akins and CH2M - are Britpave members. The project is recognised as being a Highways England 'Ultra Site'.

This is the currently the UK largest road construction project. It will see 21 miles of strategic road network between Cambridge and Huntingdon upgraded from two to three lanes in each direction.



Building work on the new bridge has been completed. Credit: Highways England

➤ HANSON'S DAGENHAM UPGRADE TAKES SHAPE

Britpave member Hanson has completed the first phase of a major upgrade at its Dagenham aggregates depot and wharf on the River Thames in London. The new screening and washing plant is capable of processing 500 tonnes of marine-dredged sand and gravel an hour. It has been future-proofed to cater for potential increased capacity. The plant was designed by DUO and further enhanced by the Hanson project management team.

The upgrade is part of a three-phase investment programme at the site, which receives around 1.2 million tonnes of marine dredged sand and gravel a year along with 800,000 tonnes of aggregates. *"There were some massive challenges to overcome to get the new plant up and running,"* said unit manager Steve Chidgey. *"It involved close co-operation between the management team, contractors and staff and was completed without any accidents."*



➤ GOMACO HAD DELEGATES SPINNING AT BAUMA

Britpave member GOMACO exhibited their zero-turn capable pavers for manoeuvrability at this year's Bauma. The GOMACO Xtreme curb and gutter machines are designed to meet the challenges of short runs, tight radii and corners and paving around a multitude of obstacles and can also slipform a 610 mm radius or less.

The new Xtreme three-track Commander IIIx and two GOMACO 3300s with the exclusive GOMACO G+ control system were also exhibited. These machines feature rotary-sensored slew drives on the tracks, sensed leg positioning, and independent travel circuits to each track to allow tight radius slipforming. Intelligent all-track positioning is accomplished with smart hydraulic cylinders on the three legs which allow G+ to know the position of the tracks at all times. The cylinders are also used for telescoping the mold mounting system for intelligent offset and repeatable mold offset.

The Commander IIIx and 3300 feature Tier 4 engines and optimized cooling packages with G+ controlling the hydraulic fan. G+ quiet technology makes these some of the quietest pavers on the market today while adapting the paver's cooling needs to job-site conditions. Improved fuel efficiency is another advantage with a power-

optimized engine and load-sensed hydraulic circuits. The Commander IIIx has a pivoting operator's console that allows the operator hands-on control and a clear view no matter what application is being slipformed or what the direction of travel. The 3300 has a symmetrical design, a U-shaped operator's platform and the control console easily slides from side-to-side to accommodate the direction of the pour. These are multi-application machines for slipforming curb and gutter, safety barrier, sidewalk, slotted drain, flat slabs, and more.

GOMACO's zero-turn capabilities are incorporated into their large pavers as well. GOMACO's new GP4 slipform paver, capable of paving widths up to 12.2m, was also debuted at BAUMA. The GP4 has a dual-telescoping roller frame with smart cylinders and smart telescoping for accurate frame widening and automatic width reference for easy and accurate steering setup. The modular roller frame telescopes up to 2.1m on each side for a total of 4.3m of telescoping ability. The GP4 paver is equipped with smart pivot arms for leg positioning, as well as smart track steering technology. It has extreme steering capabilities that work together with the paver's G+ control system, so G+ knows each track's location and position.

For more details visit: www.gomaco.com



► DUBLIN AIRPORT FLIES HIGH

Britpave member Dublin Airport was the 11th largest airport in the European Union last year, according to new data from Airports Council International (ACI) Europe.

Dublin Airport welcomed almost 31.5 million passengers last year, which means that more than five times the population of the island of Ireland passed through the airport during 2018. The new ACI data for passenger numbers across Europe shows that Dublin Airport is the now the 11th largest airport within the European Union and the 15th largest airport in Europe. London Heathrow was the European Union's largest airport last year, followed by Paris Charles de Gaulle, Amsterdam Schiphol, Frankfurt and Madrid.

The statistics released by ACI Europe also show that Dublin Airport was one of the fastest-growing large airports in Europe in the second half of last year. Passenger traffic at Dublin increased by 6.7% between July and December, making it the fifth fastest-growing large airport in Europe during this period. Since 2014, passenger numbers at Dublin Airport have increased by 45% from 21.7 million to 31.5 million, making it one of the fastest-growing large airports in Europe during that period and moving into the top tier of European airports.

Dublin Airport Managing Director Vincent Harrison said: "To help meet the challenges of that growth and allow Dublin Airport to expand to handle 40 million passengers per year, we're now planning a very significant investment programme to build a new runway, additional boarding gate areas, new aircraft parking stands and a wide range of other facilities."

The heart of the plan is a €900 million capacity expansion programme and it also includes a €200 million investment in airfield works and an annual spend of about €120 on repair and maintenance and revenue generating projects. The investments will be made at no cost to the Exchequer, as daa is not funded by the State.

ACI Europe's data shows that total European passenger traffic increased by +6.1% to a record 2.34 billion last year. Europe's airports welcomed an extra 136.6 million passengers during the year while freight traffic increased by 1.8% during the year.

Dublin Airport has flights to almost 200 destinations in 43 countries, operated by 56 airlines. It will welcome 19 new routes this year including Calgary, Dallas-Fort Worth, Minneapolis-St Paul, Hamilton, Ontario, Kyiv, and Gothenburg.

➤ FULL STRIKE SCORE FOR AGGREGATE INDUSTRIES

Britpave member Aggregate Industries has introduced a new range of high early strength concretes, specifically designed for use in structural, void-fill, pavement and track bed applications. Developed for use in construction projects where durability is key, in sectors such as road, rail and infrastructure, the high-performance concretes range has been specially formulated with rapid setting times ranging from 15 minutes to four hours.

Available in four different strength settings, the Strike+ range offers high ultimate strength in various levels of consistency, making it suitable for use with a number of placement methods including pump, skip and direct. The range also boasts a myriad of other distinctive properties including high resistance to chlorides, low surface absorption, low shrinkage and high freeze thaw resistance.

As a result, Strike+ products are well placed to meet specified return to service requirements in compressive strength, where its early strength gain properties can be adapted to meet complex contract specifications.

David Porter, Area Manager Concrete (East Midlands) at Aggregate Industries, said: "With a greater onus on contractors to deliver ever more complex builds to tighter budgets and reduced deadline, speed, efficiency and durability during the construction process has never been more critical. That's why we've launched our new Strike+ range of high early strength concretes. Its rapid setting times enables users to dramatically increase their productivity when building carriageway replacements, airport hard standings, warehouses, precast structures.

It also provides the enhanced strength and long-wearing properties required on many infrastructure projects. We'd urge all our customers, new and existing, to make the most of this new innovative range of concrete solutions."

Strike+ products are manufactured and delivered using volumetric concrete mixers, with water only added to the mix at the point of use. The range consists of specially blended binders, PC52.5N CEM1 (BSEN 197) and carefully selected concrete aggregates (BSEN 1260).

➤ 'MISSING LINK' PROPOSAL

Highways England has announced the next step in a multi-million pound scheme to upgrade a key route linking the Midlands and South West. The improvement planned for the A417 near Gloucester will upgrade the last stretch of single carriageway of the road linking the M5 with the M4 - commonly known as the 'Missing Link' - to dual carriageway.

The new dual carriageway will be complemented by an extra climbing lane at Crickley Hill for slow moving traffic. A new section of road built through Shab Hill to the east of the existing A417 will re-join the road near the current location of Cowley roundabout and a new junction will be created at Shab Hill with links to Birdlip and the A436. The Air Balloon Roundabout and Cowley Roundabout are to be removed as part of the scheme.

Work now will focus on more detailed design, which Highways England will put to people for their input again later this year before submitting a planning application, known as a Development Consent Order. The work to investigate route options for the Missing Link was made possible by the Government's £15 billion road investment programme. Delivery of the project will be subject to confirmation of funding within the second Road Investment Strategy, which will cover the period between 2020 and 2025.

➤ AECOM APPOINTS NEW CIVIL INFRASTRUCTURE MD

Britpave member AECOM has appointed Mark Southwell as managing director, Civil Infrastructure for the UK and Ireland. He will be responsible for all aspects of AECOM's Civil Infrastructure business in the UK and Ireland, which includes the transportation and water, ports and power teams.

Mr Southwell is a civil engineer by profession with 30 years' experience in the transportation sector working as a client, in consultancy and as a contractor. He joins AECOM from Jacobs where as a vice president he was responsible for leading around 900 people in the Rail and Geotechnical unit, delivering rail and tunnelling programmes including HS2 and Crossrail.

David Barwell, AECOM chief executive UK and Ireland, said: "We're delighted that Mark is joining AECOM. His strong market presence and passion for organisational development will be a real asset for our integrated Civil Infrastructure business."

Mr Southwell said: "AECOM has a great track record with a strong diverse portfolio, I'm looking forward to working with David and his team to deliver excellence for our clients."

CONCRETE RECYCLING FOR PAVEMENTS WEBINAR

On 7 February 2019, EUPAVE held its first webinar with theme "Concrete Pavement Recycling and the Use of Recycled Concrete Aggregates in Concrete Paving Mixtures". It was presented by Mark Snyder, Pavement Engineering and Research Consultant, The online meeting was attended by 20 EUPAVE members and partners.



Snyder provided an overview of the use of RCA in the U.S. Concrete recycling can be considered as a proven technology as the use of RCA is allowed in at least 43 of 50 states. The main reasons for concrete recycling are both cost savings (elimination of excavation, reduced purchase and haul of natural aggregate, avoided haul fuel consumption...) and environmental benefits (landfill reduction, conservation of resources,...).

He then moved to the properties of fresh and hardened concrete with RCA and the effects of RCA and mix design on strength, thermal properties and durability. An interesting part of the presentation was about the rehabilitation techniques such as diamond grinding and dowel bar retrofit, to restore the driving comfort of old concrete roads and allowing them to be in use beyond their design service life. Some examples of RCA in two-lift pavements were shown amongst which the impressive Illinois Tollway project (I90 – 2014). Dr. Snyder ended with recommendations for mix design and some useful pavement structural design considerations.

BRITPAVE MEMBERS

As the focal point for in situ concrete and cementitious infrastructure solutions, Britpave offers its members a recognised industry voice, market sector development and beneficial industry networking opportunities. Britpave members include clients, consultants and engineers, contractors, material and plant suppliers and academia.

AECOM Ltd - www.aecom.com

Aggregate Industries - www.aggregate.com

Allied Infrastructure Management Ltd - www.alliedinfrastructure.co.uk

Arup and Partners Ltd - www.arup.com

Atkins Ltd - www.atkinsglobal.com

Balfour Beatty Ltd - www.balfourbeatty.com

Ballast Phoenix Ltd - www.ballastphoenix.co.uk

BAM Contractors - www.bamcontractors.ie

Barton Plant Ltd - www.barton-plant.co.uk

British Lime Association - www.britishlime.org

Cambrian-UK - www.cambrian-uk.com

CEMEX UK - www.cemex.co.uk

CH2M - www.jacobs.com

Colas Ltd - www.colas.co.uk

Combined Soil Stabilisation Ltd - www.combinedssl.co.uk

Complete Design Partnership Ltd - www.cdpbroms.co.uk

Costain Ltd - www.costain.com

Dublin Airport Authority plc - www.dublinairport.com

Ecocem - www.ecocem.ie

Extrudakerb Ltd - www.extrudakerb.co.uk

Geofirma Soil Engineering Ltd - www.geofirma.co.uk

Gill Civil Engineering Ltd - www.gillgrouphouse.com

Gomaco International Ltd - www.gomaco.com

Hanson UK Ltd - www.hanson.biz

Lagan Aviation and Infrastructure - www.laganaviation.com

Morgan Sindall Construction and Infrastructure Ltd - www.morgansindall.com

Norder Design Associates Ltd - www.norder.co.uk

PJ Davidson (UK) Ltd - www.pjd.uk.net

RJT Excavations Ltd - www.rjtexcavations.co.uk

RPS Group plc - www.rpsgroup.com

SGE - www.sgeworks.co.uk

Smith Construction (Heckington) Ltd - www.smithsportscivils.co.uk

Tarmac Ltd - www.tarmac.com

Tata Steel Shapfell - www.tatasteeleurope.com

TKL Earthworks - www.thetklgroup.co.uk

TR Stabilisation - www.trstabilisation.co.uk

University of Nottingham - www.civeng.nottingham.ac.uk

VolkerFitzpatrick Ltd - www.volkerfitzpatrick.co.uk