



INVEST IN INFRASTRUCTURE:
Where The Autumn Statement Falls Short

**CONCRETE ANSWERS FOR
TRANSPORT INFRASTRUCTURE**

**BRITPAVE SEMINAR
INVOKES SPIRIT OF CHURCHILL**

**UK TRANSPORT INFRASTRUCTURE
NEARING BREAKING POINT**



WELCOME

Contents

- Page 3** Transport Infrastructure
- Page 5** Roads
- Page 8** Britpave Step Barrier
- Page 10** Britpave Seminar
- Page 12** Rail
- Page 13** Airports
- Page 14** Soil Stabilisation
- Page 16** The Last Word

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

Editor's Note



Transport infrastructure investment is currently headline news. For both bad and good reasons. The bad reasons include the congested road network, the out-of-date rail system, airports running at over capacity all negating Britain's economic performance. The good news is that the government seems to have woken up to the calls from Britpave and other industry bodies for greater investment in transport infrastructure. The Autumn Statement goes some way to addressing the need for greater investment and, despite these straitened times, even committed **£5 billion** for a range of top priority projects with a further **£20 billion** to hopefully come for private pension and investment funds.

Britpave, via its task groups and work with government and industry bodies, is demonstrating exactly how concrete transport solutions can provide the added-value, long-term performance benefits that the increased infrastructure investment and battered UK economy requires.

At this year's industry seminar, delegates were presented with a number of concrete innovations that offer solutions that are both economic and sustainable. Delegates were also told that, yes the current economic climate is challenging but from those challenges come opportunities. There are a number of growth areas and marketing opportunities not least of which are concrete road and rail solutions, security and flood barriers, road widening, soil stabilisation and the need for minimum maintenance runways that allow airports to operate at maximum efficiency.

Helping members to translate challenges into opportunities lies at the core of Britpave's work in providing an industry focus that forwards concrete transport solutions. There is growing evidence that the association's arguments for greater investment in transport infrastructure are being heard. Britpave will continue to argue not only for greater investment but also for greater recognition of the benefits of concrete solutions.

David Jones
Director of Britpave



TRANSPORT INFRASTRUCTURE

Transport Infrastructure Needs Top Priority

The problems resulting from decades of under-investment in transport infrastructure must be addressed. The Autumn Statement shows that at last the government is beginning to recognise this.

A number of high profile industry figures and organisations have joined Britpave's call for increased investment in transport infrastructure. This would help to address Britain's short and long-term economic prospects. Short term it would provide a much needed boost to the fragile recovery. It is widely recognised that every £1 invested in construction generates £2.84 in economic activity, most of which is UK sourced.

Long-term, investment in transport infrastructure would address the years of underinvestment that has left Britain lagging behind many other countries. The latest World Economic Forum Survey reports that the UK came 28th in terms of quality of infrastructure, beaten by the likes of Portugal and Malaysia. For most of the past decade, Britain has invested at half the average rate of advanced countries. The result is congested motorways, a failing rail network and airports that are reaching overcapacity. If these issues are not addressed, increasingly Britain will be viewed as being closed for business.

To the concerns of organisations such as the CBI, BAA and the Institution of Civil Engineers must be added those of UK businesses and the public as a whole as increasingly the results of underinvestment in transport infrastructure are being felt. Headline catching initiatives such as increasing the motorway speed limit mean little if due to congestion and roadworks you are lucky to do 50mph let alone 80mph. The addition of new carriages to train lengths will not address the fundamental problem of a network suffering the burden of crippling maintenance cost. Investment by airlines into larger, more efficient aircraft will do little to prevent the queues at check-in without a real increase in airport capacity.

The growing problems of underinvestment are now being recognised by government but this recognition is not action. What is needed is long-term strategic vision that translates into a programme of real action not another round of policy reviews or headline-grabbing initiatives.

Autumn statement infrastructure boost

The Autumn Statement shows the recognition by the Chancellor George Osborne of the value of investment in transport infrastructure by his giving the go-ahead to a number of new road and rail schemes. However, these are long-term plans and not the immediate 'shovel-ready' projects that would help kick-start the moribund UK economy.

These priority projects were confirmed together with an updated National Infrastructure Plan which contains over 500 schemes planned for the next decade. Osborne confirmed an additional £5 billion of capital spending over the next three years to fund these priority projects.

However, although the headline figure of an additional £5 billion expenditure is certainly welcomed none of this infrastructure spending will actually occur during this financial year and 80% of it will only start in 2013/14 so there will not be any immediate economic benefit. This is a missed opportunity as there are a number of 'shovel ready' concrete barrier replacement schemes that would increase the safety of our motorways and provide the economic boost that the Chancellor is wanting.

The shift from current to capital spending in order to release additional spending for infrastructure spending is heartening and hopefully the new cabinet committee on infrastructure, to be chaired by Treasury chief secretary Danny Alexander, will forward the delivery of new infrastructure projects. Also to be welcomed is the government's commitment to put mechanisms in place to attract some £20 billion of private sector institutional investment. Funding of this type will forward the creation of the long-term investment frameworks which are all so often missing from short-term government spending plans.



TRANSPORT INFRASTRUCTURE

Invest in infrastructure now

The CBI/KPMG Infrastructure Survey 2011 tells the government that it needs to act now to tackle the UK's failing infrastructure or risk losing out on foreign investment.

According to the survey, 58% of UK's businesses rate the UK's infrastructure as worse than other EU countries. CBI demands that the government acts now to attract vital new investment to the UK's ageing infrastructure. What is needed is an in-depth assessment followed by targeted investment from the private sector to ensure that Britain remains internationally competitive and accelerates growth.

The survey found a number of key transport infrastructure problem areas:

- 41% of firms expressed dissatisfaction with links to emerging markets.
- 65% of firms said that Britain's road network has deteriorated over the last five years.
- 46% of firms believed that the commuter rail network has worsened.

Calls to action include greater privatisation of the construction and maintenance of the road network and an urgent need to increase rail capacity. Infrastructure investment will strengthen the economy in both the short and long term. That investment needs to be now not later.

The government has acknowledged that infrastructure is the linchpin to economic revival in its National Infrastructure Plan, highlighting that some £200 billion of investment is needed over the next five years. Seventy percent of that investment is expected to come from the private sector. For this to happen, the government needs to make private investment in infrastructure a realistic and attractive proposition.

"New infrastructure puts spades in the ground now and gives businesses a chance to do new things in the future – it's a real game changer"

- John Cridland, director general of CBI

Strategic vision required

The Institution of Civil Engineers (ICE) is calling for urgent action to prevent Britain's transport infrastructure from continuing to deteriorate and hindering business growth.

The ICE wants the government to deliver the necessary strategic vision, private investment and fit-for-purpose approval system to counteract the years of under-investment and lack of planning. It points to a number of announcements from the government which have shown the importance placed on this issue to deliver sustained growth. With the publication of the Plan for Growth the government identified the need to renew Britain's infrastructure as one of its priorities. However, such announcements need to be matched with action.

In particular, the ICE is calling for a revised and detailed National Infrastructure Plan, for the Green Investment Bank to encourage investment in innovative, low carbon projects and for the Localism Bill to ensure that ministers resist delaying planning decisions for short-term political gain. Above all, the ICE believes that if the UK is to avoid the next years being 'a lost decade' where energy prices, transport links and low-carbon target all hinder rather than help the British economy to compete, then the government must deliver on the promises made in the Plan for Growth. Securing our position as a leading global economy requires a realistic, strategic vision.

"The value of infrastructure investment to our long-term economic prospects should not be underestimated"

- Tom Foulkes, Director General of the Institution of Civil Engineers

Annual £10 billion benefit from infrastructure upgrade

The British Infrastructure Commission (BIC) believes that improvements in transport, energy and communication could grow the national economy by £10 billion a year. BIC was established by the British Chambers of Commerce to offer a combined business view on infrastructure spending.

In its report "Tackling the Infrastructure Puzzle", BIC says that increased investment from government and the private sector must be matched with a long-term strategy and calls for a 10 to 40 year National Plan. This strategy needs to include a focus on the development of a skilled workforce, an overhaul on how publicly-funded infrastructure is funded and procured and a planning system that is fit for purpose.

BIC estimates that this improvement could add 0.7% a year to GDP. Its other proposals including attracting private finance by extending the regulated asset base model to additional sectors.

"Our ability to move goods and services around the country, and doing business online, is crucial to economic viability"

- David Begg, BIC Chairman

ROADS

Pole Position

After many years of operating primarily in both Ireland and the UK, the SIAC Construction Ltd slipform division now find themselves well positioned in Poland. The Polish road network is currently undergoing a huge transformation in order to upgrade as many of the main routes throughout the country as possible in time for the UEFA European Championships, which are to be held in Poland and in Ukraine in June 2012.

SIAC Slipform, which operates in Poland under the name of SIAC Polska Sp Zoo, has been pouring slipform drainage solutions for over 18 months now for several major Polish contractors.

The slipform process is currently in its infancy in Poland and has only recently been accepted as a replacement to the existing prefabricated solutions. The merits of slipform have been recognised by contractors, particularly the speed in installation as well as the durability of the finished product. The challenge now is that a formal specification be adopted by the GDDKiA (Polish Roads Authority) to allow an easier use of the technology.

To date, SIAC have poured over 75 kilometres of SWC (Surface Water Channel) which puts them at the forefront of this movement away from more traditional methods.

Paul Daniel commented:

“At present our works are concentrated around the greater Warsaw area, a lesson learned early on was moving around Poland can be quite difficult as the country is so vast and because of the current disruption caused by all of the road works.

Currently SIAC have 4 slipform pavers pouring surface water channel on 3 different contracts. The crews that work on these contracts are made up of our experienced Irish slipformers but also a number of Polish operatives. This way we can insure that we deliver a high standard product while investing in a sustainable indigenous workforce for the future.


As always when entering a new working environment for the first time, new challenges arise. The language barrier provided plenty of difficulties to us when we first arrived but once the work starts, relationships are formed and it becomes less of an obstacle.


The weather conditions are also quite different from what we are used to at home. The temperature range in Poland is anywhere between +35 and -25C which obviously needs to be taken into account when working with concrete.”

SIAC's ambition is to, along with other Slipform installers, broaden the knowledge base of the slipform process and continue the education process to allow the further development of this growing industry.

SIAC SLIPFORM LTD

Market Leaders in Slipform Concrete Technology...






SIAC Construction Ltd. is a pioneer and market leader in slipform concrete technology, currently operating in the UK, Ireland and Poland. We offer technical expertise, experienced direct personnel and state of the art plant to deliver projects in a safe, environmentally aware and cost conscious manner.

Our products range from Kerbs, Drainage Products, PG Paving and Concrete Safety Barrier to specialist applications such as rail plinths, retaining walls, flood defence and sportsground terracing.

Head Office
SIAC Slipform Ltd.
London Road, Tetbury,
Gloucestershire,
GL8 8HH,
UK

Tel: 01666 501378
Mobile: 079 23249015
slipform@siac.co.uk
www.siac.co.uk/slipform



ROADS

Hard Shoulder Answer

Despite having some potential benefits, government proposals to convert hard shoulders of motorways into extra lanes could prove to be an expensive short cut. However, there is an answer.

The Department of Transport proposals to convert hard shoulders are seen as a low cost solution to increase capacity on the UK's congested motorways. The converted carriageways would become 'managed motorways' which are constantly monitored for traffic flows and accidents. Road controllers would alter speed limits and open and close lanes to ensure traffic flow efficiency. The 'management' would be enforced by signs mounted on overhead gantries and speed cameras.

The proposals follow the successful trial on the M42, east of Birmingham, which resulted in reduced traffic accidents and improved traffic flows. Motorways to have converted hard shoulders include sections of the M1, M4, M6, M25, M60 and M62.

The use of the hard shoulder does have the potential to ease traffic flow but these lanes may not have the adequate strength to cope with heavy good vehicles. This could result in ongoing, premature maintenance and repair. On a typical UK motorway 77% of all HGV traffic uses the inside lane. This means that the hard shoulder will be under more intense pressure that it may not have been designed and constructed for.

The answer is specifically designed truck lanes where the road is constructed from a continuously reinforced concrete pavement that is covered with a thin layer of asphalt. Concrete has up to 4 times the strength and stiffness of asphalt. Roads where the main structure is concrete are designed to last for a minimum of 40 years, thus ensuring more reliable journeys and less congestion.

This construction approach offers the best of both worlds: the long-term performance of concrete and the noise reduction properties of asphalt. The thin layer of asphalt can be replaced overnight whilst the concrete pavement should not require maintenance. As hard shoulder conversions are given the go ahead, they must be constructed using concrete as the load bearing layer.



ROADS

Stringless Overlays Just 102 mm Thick

Concrete overlays have a long and successful history in the state of Iowa, USA. In the past three years, the Mitchell and Worth counties in north central Iowa have put down approximately 150,241 km of 102 mm concrete overlay. Concrete Foundations Inc. (CFI), based out of New Hampton, Iowa, has slipformed almost 80 km of the counties' overlays, including 51.5 km during this paving season near the town of Osage.

CFI has slipformed most of the overlays with their GOMACO two-track GP-2600 paver. This season, the company added the Leica Geosystems stringless system and a new GOMACO four-track GHP-2800 paver to their inventory. Both were put to work on the project near Osage.

"I think you have to spend the money and keep up with the industry otherwise you're going to fall behind and you're going to fall behind quick." said Tom Schmitt, General Manager for CFI. "That was part of the reason we wanted the stringless system. The second reason was rideability. This project isn't a smoothness job, but we have ones that are and we wanted something to handle Iowa's zero-blanking band requirement for rideability."

The switch from stringline to stringless and from the two-track GP-2600 to four-track GHP-2800 went flawlessly. He continued: "Our guys were wary of the new stringless system and when I told our mainline paving operator we had purchased it for our pavers, the first thing he said was, 'You know I'm not very good on computers. I don't like them.' I reassured him that I didn't think he would have any problems. Within a day and a half, we were all comfortable with it."

"If you understand paving, profiles and grades, you'll understand stringless paving. It's almost like riding a bike, once you learn it, you don't forget it."

The new unbonded concrete overlay is 6.7 m wide. Concrete is placed directly on the existing asphalt surface of the roadway. The surface only has to be swept clean before the C3WRC20, two aggregate mix is dumped on it. Concrete slump averages 13 to 38 mm.

"We hire a survey company to build the project profile for our stringless system." Schmitt explained. "They give us a good, smooth profile that we load into the computer. After that, we only have to turn the paver on, hit start and run. Stringless has really simplified things. We don't have to worry about stringline anymore and all the things that can happen to it... guys tripping on the line, trucks backing over the line, guys eyeballing the line for accuracy."

CFI has seen increased production with fewer men needed for stringline maintenance and setup. Five labourers who normally worked with the stringline are now used elsewhere during the paving process. The lack of stringline also allows them to focus more on quality and production rather than stringline maintenance. "We started out with the Leica on our GP-2600 and actually increased our production by 1000 feet (305 m), paving close to 1829 m per day." Schmitt said. "Then, when we started up with the GHP-2800, production increased to 2012 m of paving per day, with our best day reaching 2560 m in an 11 hour shift."

The GOMACO GHP-2800 tows a burlap drag finish behind it, whilst finishers work behind the paver with bull floats. Finally a texture/cure machine applies a longitudinal tine texture which is white spray cured.

The switch to stringless has been a great decision for CFI. "I guess if we had known it was this easy, we would have switched to stringless a couple of years ago." Schmitt said. "I think at first everybody was a little apprehensive, but now they wouldn't ever go back to stringline if they didn't have to. The guys are comfortable with the Leica system and the GHP-2800 and GOMACO has done a really good job of providing support for both."

Stringless overlays using the GHP-2800 is the way forward for CFI.



BRITPAVE STEP BARRIER®

Before Raising The Speed Limit Make Sure Motorway Barriers Can Cope

Britpave has warned that much of the UK motorway central reservation barriers may not be fit-for-purpose if the speed limit is increased to 80 mile per hour.

The government has proposed that in 2013 the speed limit for motorways will be raised from 70mph to 80mph. The justification for the higher speed is the design and technological improvements that have made the cars of today far safer than those of 1965, when the 70mph limit was first introduced. There is an acknowledgement of the increased risk of accidents resulting from driving at higher speed but this is believed to be minimal compared to the economic benefits of faster journey times.

Before the new limit is introduced, the government should ensure that motorway barriers are fully able to accommodate the safety issues related to increased speeds which were highlighted by Professor Stephen Glaister, director of the RAC Foundation. Speaking in a BBC interview concerning the new speed limit proposals Professor Glaister said: "All barriers need to be brought up to the standard of the best, because they are not at the moment. You can improve the performance of motorways by improving the crash barrier."

His concerns are echoed by Britpave. There is a clear need to upgrade the existing barriers on our motorways, most of which are only designed to contain a medium sized car. Many miles of barrier are now rusted, and no longer fit for purpose.

There is a ready solution available: the concrete barrier. This has been designed to contain all vehicles up to and including coaches weighing 13 tonnes and will prevent most crossover accidents. The tax payer gets full value as concrete safety barriers are designed to last 50 years. Unfortunately, new concrete barriers currently protect just 10% of the motorway network. The government needs to recognise the benefits of concrete barriers and include a barrier upgrade programme as part of the 80mph speed increase proposal.

"All barriers need to be brought up to the standard of the best, because they are not at the moment. You can improve the performance of motorways by improving the crash barrier."

- Professor Stephen Glaister, RAC Foundation

The innovative generation of special equipment for concrete paving:

- Powerful engine power, fast paving and transport speeds of 15 m/min and 35 m/min
- Depending on the model, the offset mould can be positioned flexibly on either side of the machine, within or beyond the chassis
- Wide range of options: folding conveyor, concrete auger, hydraulic/ electric vibrator, trimmer, 3D kit, telescoping moulds
- Time-saving: fast change system for moulds
- Fuel-saving: performance-intelligence engine with eco-mode

Discover the application possibilities of the new machine generation at www.wirtgen.com

THE SP 15 AND SP 25 FROM WIRTGEN:
MULTIFUNCTIONAL FOR OFFSET AND
INSET APPLICATIONS.



Close to
our customers



SP 25

SP 15



ROAD AND MINERAL TECHNOLOGIES

www.wirtgen-group.com

Wirtgen GmbH · Reinhard-Wirtgen-Strasse 2 · D-53578 Windhagen
Phone: +49 (0) 26 45 131-0 · E-Mail: info@wirtgen.com

BRITPAVE STEP BARRIER®

“Do Minimum” Barrier

Britpave has been working closely with the Highways Agency to ensure that the concrete barrier construction program carries on despite reductions in the Highways Agency budget.

The “Do Minimum” barrier gives the same level of performance that the client requires in accordance with BS EN1317 but at much less cost. This highly cost effective, low maintenance and fully CE Marked system will be installed without the need to harden the central reservation. Until now, most concrete barrier schemes have included the hardening of the reserve, and indeed that was the preferred option. However, in cash strapped times, the concrete barrier will now be installed in the footprint of the old steel barrier they are replacing.

This is a win-win situation for all stakeholders. The client and taxpayer get more barrier per pound spent, motorists are better protected, and Britpave Licensed Installers keep busy despite the recession.



“Do Minimum” barrier is a win-win for all stakeholders

VolkerFitzpatrick

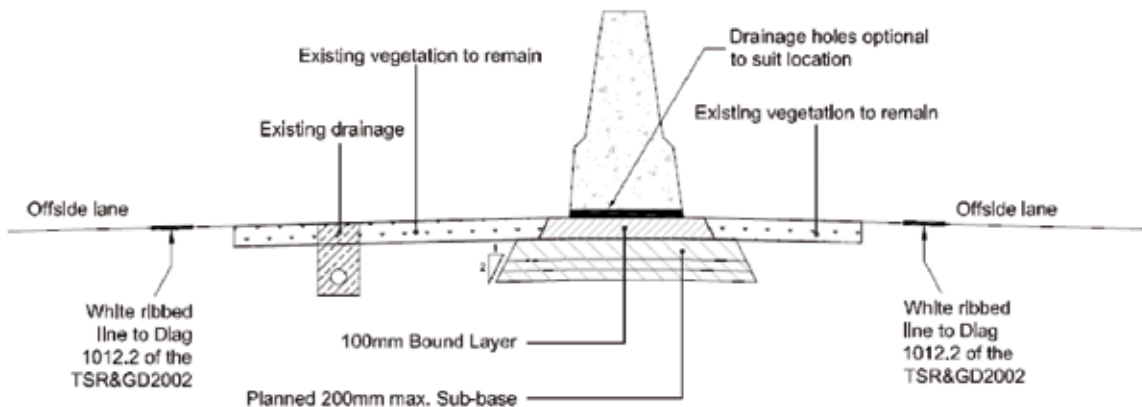


Leading the way in paving

With the UK’s largest paving fleet and over 60 years’ experience of civil and military airfield CBM and barrier, VolkerFitzpatrick leads the way in concrete paving.

VolkerFitzpatrick Ltd
 Contact: Joe Quirke
 Hertford Road
 Hoddesdon, Hertfordshire
 EN11 9BX, England
 T +44 (0) 1992 305 000
 F +44 (0) 1992 305 001
 W www.volkerfitzpatrick.co.uk

VolkerWessels company



BRITPAVE SEMINAR

Britpave annual seminar invokes the spirit of Churchill

“The pessimist sees difficulty in every opportunity. The optimist sees the opportunity in every difficulty”.

- Winston Churchill – quoted by keynote speaker Dyfrig James.



David Jones with Leif Wathne and John Roberts.

The range of challenges facing the transport infrastructure sector was outlined by Dr Jim Troy, Britpave's Chairman, who welcomed delegates to the seminar which marked the 20th anniversary of the organisation. He underlined how the coalition government had made significant cuts in the infrastructure budget with many major projects being postponed or cancelled. This means that Britain is increasingly relying on 19th and 20th century infrastructure to meet the demands of the 21st century that include a growing population, the impacts of climate change and the threat of terrorism. In addition to meeting these challenges, projects that are given the go-ahead must also provide value for money, long-term sustainable construction. Dr Troy, whilst celebrating the achievements of Britpave and its members over the last 20 years, called upon them to use the next 20 to develop and deliver 21st century solutions that will meet the demands of a modern, sustainable economy.

Dyfrig James, Regional President of Aggregates/Concrete for Lafarge Operations UK/Eastern Europe stated that the challenges are immense and multi-dimensional with 2015 being the most likely for any real return to growth. However, these are challenges that should be turned into opportunities and he called upon delegates to adopt the spirit of Winston Churchill and not be pessimists overwhelmed by difficulty but to be optimists who “see the opportunity in every difficulty”.

James highlighted a number of top tips to follow in order to successfully negotiate the economic downturn. For companies these

range from being honest about the situation and act early and decisively to ensuring that any cut backs do not have a negative impact upon the business structure and ability to perform. For the infrastructure sector he underlined the need to constantly innovate, to be vocal to government and decision makers about successes and to demonstrate the role that concrete solutions can play in providing economic and sustainable solutions. A particular fact emphasised by James was that government should be reminded that every £1 invested in construction generates £2.84 in economic activity.



Keynote Speaker Dyfrig James, Lafarge.

The temptation for some companies to maintain or increase their profits by price fixing during times of economic difficulties was highlighted by Laurence Pritchard, Partner, Commercial & Intellectual Property, with DWF LLP Solicitors. The consequences, however, are catastrophic, with possible prison sentences and loss of personal and corporate reputation. Pritchard examined the need for competition law compliance, prohibition of anti-competitive agreements and cartels, tendering issues and the role and powers of the Office for Fair Trading (OFT). Laurence Pritchard showed a short film which warned delegates of the dangers of post-golf tournament cartel agreements made on the 19th hole.

Despite all the challenges facing the sector, a number of growth areas and market opportunities were highlighted by the speakers. These include: concrete road, security and flood barriers, road widening, rail slabtrack and sustainable construction.

A further potential growth area of quiet, safe and durable concrete roads was presented by John Roberts, Executive Director of the International Grooving & Grinding Association. Successfully used for many years in the United States, the diamond grind and groove process restores the surface performance of concrete roads at less than half the cost of overlaying the concrete with asphalt. In addition to cost savings, the process is fast, is environmentally friendly as it has a lower carbon footprint than asphalt overlay and provides a road surface that is noticeably quieter as traffic driving over a textured surface emits less noise than when driving over a smooth surface such as asphalt. All this can come with a design life of 50 to 100 years.

Grinding and grooving involves cutting drainage and traction grooves into the road surface. With grinding, 3mm to 10mm of the concrete pavement is treated to leave a level, high performance riding surface. The closely spaced grooves left after grinding provide a high level of texture and friction. The same technique is used for diamond grooving. Whereas the purpose of grinding is to restore ride quality and texture, grooving is generally used to reduce hydroplaning by providing channels for water drainage. In terms of design, the main difference between grinding and grooving is in the distance between the grooves – which is about 6 times greater for grooving. Robert believes that the cost, low carbon footprint, reduced traffic noise and long-term performance benefits could lead to a renaissance in concrete road provision.

The long-term sustainability benefit of concrete roads was the theme of Leif Wathne, Vice President of the American Concrete Paving Association, who posed the controversial question: are we focusing on the right things? He argued that although reduction in the carbon footprint of material sourcing and production was laudable the results are dwarfed by the CO₂ impact of the in-use operation. All stages of the life cycle, from cradle to grave, – particularly the operational life – should be considered.

The main operational benefits of concrete roads are centred on fuel savings and reducing road lighting. Research carried out by the National

BRITPAVE SEMINAR

Research Council Canada found that the smooth drive on concrete roads can contribute to fuel savings of up to 6.9% for heavy goods vehicles. Wathne provided a North American example of the huge potential savings. US truck fuel consumption is an annual 148 billion litres. If fuel savings of just 3% were made on 70% of the roads, this would save 1.3 billion litres of diesel every year and provide an 8.6 billion kg reduction in CO₂. This figure would be even more significant if the savings from cars and vans were included.



Speaker Leif Wathne, Vice President ACPA.

In addition, the surface reflectivity of concrete roads would result in a 33% reduction in street lights. More impressively is the potential of concrete roads to reflect the sun's energy back into space and so play a major role in global cooling. If used together with concrete roofs, the urban albedo is increased by 0.1% this in turn induces negative radiation. If this approach was adopted by just 100 of the world's largest cities 44Gton of CO₂ would be offset. The UN is actively examining this concept and its implementation.

Closer to home, Jill Nelson, Chief Executive of the People's Trust for Endangered Species, took the opportunity to thank Britpave for its support for its Mammals on Roads campaign which calls upon the public to record and report animals killed on the roadside. This is sustainability at ground level. The information is invaluable for determining which species is most affected by road deaths and therefore which needs attention and help. Nelson also highlighted a specific campaign to support a mammal that is fast becoming an endangered species: the hedgehog. She welcomed Britpave's support for the Annual Mammal Survey.

In addition to the market opportunities offered by concrete's sustainability benefits, the

conference heard about specific sectors that offer future growth.

A spokesman for the Centre for the Protection of National Infrastructure, highlighted the range of dangers posed by vehicles being used as terrorist weapons, particularly suicide bombers. Here, the newly developed Britpave security barrier offers a robust solution that can not only prevent vehicles from crashing through to their target but with a fixing of security fencing on top the barrier can offer a fully integrated economic perimeter security system that has a narrow footprint. The increased threat of terrorism against key buildings and infrastructure offers a growing market for the CONCRETE security concrete barrier.

Mark Smallridge, President of Nigel Nixon & Partners Inc examined the benefits of roller-compacted concrete (RCC). Unlike conventional concrete, RCC is made of a drier mix that is compacted by vibratory rollers. Typically, RCC is constructed without joints. It needs neither forms nor finishing and does not contain dowels or steel reinforcement. These characteristics make it simple, fast and economical to install. These qualities have taken RCC from specialised applications to mainstream pavement projects such as ports, airports, parking, and storage areas. Smallridge demonstrated the benefits of RCC via a case study of its use at the Mobile Container Terminal, Alabama. Here, RCC was used as an alternative to asphalt pavement. Approximately 35 hectares of RCC was constructed in 98 production days over 33 weeks with a construction saving of £1.4 million. There has been no container corner casting or dolly wheel damage to the RCC surface which is robust enough for the introduction of rubber tyred gantry cranes (RTGs) without the need to construct runway beams as would be required for asphalt pavements.

A further growth sector was described by Hedley Greaves, Stabilisation Services Manager at Tarmac Buxton Lime & Cement. Stabilising land with the use of lime, cement or other binders offers a cost effective method of converting areas of weak soil into a usable and environmentally sound construction material. The growing use of brownfield sites and the focus on sustainability has resulted in an increased recognition of the benefits of soil stabilisation which is carried out in-situ, without dig-and-dump, and enables virtually any soil to be improved for roads, pavements, rail, housing and other building projects.

There is little use in having a range of cost

effective solutions that offer robust, sustainable long term performance with minimum maintenance if decision makers are unaware of their potential. Jaime Rodriguez Medal of Alonso & Asociados discussed how Britpave's membership of Eupave, the European Concrete Paving Association, gave access to lobby policy makers within the EU for recognition of the benefits of concrete infrastructure solutions. He highlighted the successful inclusion on concrete benefits in the EU's road safety action plan and commended Britpave on its achievement in obtaining CE marking for the concrete step barrier – the first time that an in-situ product has been granted CE marking.



Dr Jim Troy and David Jones at the 20th Anniversary.

Summing up the conference, James Charlesworth, Vice-Chairman of Britpave, commended the organisation for the last 20 years of acting as an industry focus for innovation and product development. It is this that will enable the challenges of today and tomorrow to be met.

“Congratulations on a job well done. The dinner was most enjoyable and the seminar highly informative. The entire event was well worth my trip from the USA to participate and have the opportunity to see a lot of friends and business associates.”

- Carl Carper, The Wyco Tool Co.

RAIL

Rail network reaching crisis point

New figures from the Association of Train Operating Companies (ATOC) show that rail passenger numbers grew by 5.3% over the summer months confirming that the UK rail network is set for its busiest peacetime year since the 1920s with over 1.3bn journeys expected to have been made by train by the end of 2011.

The figures underline how our railways are reaching breaking point. A situation not helped by the fact that train companies are trying to provide a 21st century service on an ageing rail network based on 19th century ballast track systems.

In 2010, ATOC warned the government that Britain's overcrowded railways are reaching the limits of their capacity and called for greater investment in the rail network. The current ballast track-based network is simply not up to the job as the ongoing problems of delays, weekend closures and unplanned maintenance disruptions prove.

Concrete slab track, as used by the highly successful Japanese and other Asian rail networks and increasingly throughout mainland Europe, is the way forward. Concrete slab track maximises operating efficiency by eliminating unplanned maintenance, provides high levels of safety and comfort and impressive long-term, low-maintenance performance.

New slabtrack guide

Britpave's Rail Task Group has published a new guide to slab track. The new guide comes with two accompanying marketing leaflets, and is targeting HS2 the proposed new high speed railway from London to Birmingham and beyond.

'Concrete Slab track: On track for the future' examines both generic slab track construction and benefits and specific slab track systems and project case studies. Slab track offers a wide range of benefits that have been proven by its widespread use in Continental Europe. A major benefit is the very low maintenance requirement especially for high speed rail operation. Reduced maintenance means less time that track is out of commission. In addition, slab track allows reduced construction depth and structure gauge, has integral design that optimises the design of trackside elements, provides engineered acoustic performance, is resilient to climate change and offers a long-term sustainable solution. All of these benefits add-up to a lower whole life cost compared with ballasted track that easily offset any higher initial capital cost of the track system.

The guide examines the range of concrete slab track systems that fall into three construction types: in situ cast-in; precast; slip-formed. An explanation of each category is given together with a range of case studies.

Concrete slab track is competitive on first cost and cheaper on whole life cost when compared to the equivalent ballasted system. It offers superior performance in terms of reliability and track quality and is a low maintenance solution that requires minimum intervention during its long-term operational life.

■ Copies of 'Concrete Slab track: On track for the Future' and the supporting documents 'Concrete Slab track: Engineered for a lifetime – the permanent way' and Concrete Slab track: 5 compelling reasons to choose slab track' are available from Britpave's website: www.britpave.org.uk



AIRPORTS

Air travel forecasts need concrete decisions

The UK's three busiest airports will be filled to capacity in just 19 years according to new forecasts from the Department of Transport. This underlines not only the need for a new south east airport but also supports the expansion plans of regional airports.

The report, UK Aviation Forecasts, updated to take account of the Government's decision to stop airport expansion at Heathrow, Gatwick and Stansted, predicts that these airports will be full by 2030 as the number of passengers flying through Britain could reach 335 million. Demand for international business travel is expected to rise by 80 per cent by 2030.

London airports will become increasingly congested with longer passenger queues and delays, stacking of aircraft and intense pressure on airport infrastructure. The Government hopes that passengers will increasingly use regional airports. However, this is questioned by the British Air Transport Association, who like Transport for London, are calling for a new hub airport in the Thames Estuary.

And a lot is at stake. The value of the aviation sector to the UK economy is significant. In 2007, it directly generated £8.8 billion of economic output. When you add the economic activity of the aviation supply chain, the total economic footprint equals £18.4 billion or 1.5% of the UK's economy. In addition, there is the economic issue of how aviation connectivity and efficiency encourages trade and investment by both UK and overseas companies.

Whilst the debate for a new airport in the south east or a re-examination of expansion at Heathrow, Gatwick or Stansted continues, regional airports have stepped up their plans for expansion. Bristol has been given the go-ahead by North Somerset Council for £150 million expansion scheme that includes an extended airport terminal, increased car parking and new aircraft stands to accommodate a predicted 60% increase in passengers. It is believed that the expansion will allow the airport to deal with 10 million passengers a year by 2019 and could create 4,000 jobs and inject £340 million into the local economy. Lydd Airport in Kent has been granted planning approval for a £25 million extension of the runway and construction of a new terminal building. Meanwhile, expansion plans of £28 million have been approved for Leeds Bradford Airport. Plans for a runway extension at Birmingham Airport have the backing of Birmingham City Council. East Midlands, Liverpool John Lennon and Farnborough airports all have plans to increase flight and passenger capacity.

The ambition of regional airports is demonstrated by Southend Airport in Essex. During the 1970s it was the third busiest airport in the UK. However, the introduction of larger jet-engine aircraft and tougher runway regulations saw its status downgraded to becoming primarily a site for aviation maintenance and repair. A new expansion plan hopes to place Southend firmly back on the aviation map. A 300m runway extension will allow the airport to handle larger aircraft such as the Airbus A319 and the Boeing 737. The new railway station, opened in August 2010, runs direct to Liverpool Street via the Stratford Olympics Park and a new air traffic control tower and passenger terminal is due for completion in 2011. The airport plans to provide a strong alternative to Stansted and Luton.

The long-term, maintenance-free performance of concrete pavements makes them particularly well-suited to runways, taxiways and aircraft stands due to their resistance to fuel spillage damage, resistance to heat from engine blast, reduced runway water due to slipform slot drainage and high bearing capacity to cope with new and heavier aircraft. The long-life performance of concrete pavements means reduced unplanned maintenance, an important issue for airports which are frequently running close to full capacity.

With an average planning to construction time of 10 years for runways, the clock is ticking. Concrete decisions need to be made now if the UK is to meet the demands of increased passenger numbers and the expectations of national and international business.



SOIL STABILISATION

Research underlines soil stabilisation benefits of fly ash

Lime-stabilisation is a cost-effective and environmentally sustainable technique used to improve soil properties, particularly for highway construction and brownfield sites, to provide an economic and effective sub-base. Treating the soil in-situ offers several advantages over traditional dig-and-dump. These include programme speed, reduced use of imported aggregates, less traffic movements and reduced project costs.

While there have been many successful lime-stabilisation projects, with some sulfate-bearing clays there is the potential problem of heave. The traditional solution to sulfate heave has been to use Ground Granulated Blast furnace Slag (GGBS). Increasingly, the sulfate resisting properties of Pulverised Fuel Ash (PFA) are being exploited in soil stabilisation following research carried out by the University of Dundee.

The Dundee research examined a wide range of ashes and clays with varying sulfate contents and mellowing periods. It particularly looked into the mechanisms behind sulfate heave and the potential of PFA to prevent it from happening.

A number of important findings were made:

- Fly ash can effectively reduce sulfate heave in lime-treated clays but must be used in greater proportions than those required for GGBS.
- Coarse fly ash is more effective than fine fly ash. Finer fly ash may not be effective in treating clays with high Total Potential Sulfate (TPS) values.
- Longer mellowing times reduced the heave potential, although in practice extended mellowing is rarely possible due to programme time restrictions.
- Fly ash containing less than 1% by mass of sulfate is most effective.
- Blending lime and fly ash with the clay at the same time was no different than using a two stage process. The single pass approach offered considerable time savings.

The research also found that lime-stabilised soil containing fly ash had improved properties including compressive, tensile and shear strengths, immediate bearing index, permeability and frost heave. Overall, the results demonstrated that the use of fly ash can effectively minimise potential swelling in sulfate-bearing lime-stabilised clays.

- A range of information and technical guides on best practice for soil stabilisation procedures and techniques has been published by the Britpave Soil Stabilisation Task Group and may be downloaded from the Britpave website: www.britpave.org.uk. Technical information on the use of fly ash may be downloaded from the UKQAA website: www.ukqaa.org.uk.



SOIL STABILISATION

Updated Sulfate guidelines to be issued

The Soil Stabilisation Task Group is to issue new best practice guidelines for the soil stabilisation of sulfate bearing soils, updating the current publication which was produced in 2005.

The new guidelines will examine the potential problem of sulfate heave including trigger levels for sulfates/sulfides. The best practice approach for site assessment and testing, choice of binder to minimise sulfate/sulphides disruption, laboratory testing for stabilised mixtures and good construction practice for clay stabilisation.

New Publication

Guidance for the safe delivery and receipt of powdered binders by pneumatic discharge bulk powder tanker.

The Soil Stabilisation Task Group has produced a pocket-sized guidance which will be available shortly.



Two's company

Combined Soil Stabilisation Ltd recently joined the A E Yates Group. The strong working relationship has been proven by their soil stabilisation project at Stublach Gas Storage in Northwich, Cheshire, to store energy. The project involved the early civils enabling works and included the lime stabilisation of all areas.

A thorough laboratory testing and assessment of the site was undertaken. This included initial material classification tests followed by rapid modification tests to ascertain the lime addition necessary to render the material as acceptable fill. For the modified fill material, California Bearing Ratio (CBR) specimens at the upper and lower moisture contents with the lime additions were made for 7 and 28 days soaked testing to ensure that the required strengths were achieved.

Further CBR specimens were made for the capping replacement which was to be a lime and cement stabilised material. These were also constructed at the upper and lower moisture contents by with two cement additions at 7 and 28 days soaked testing.

With the mix design being determined, the project began with A E Yates preparing the site and carrying out the earthworks operation to allow Combined Soil Stabilisation to carry out the stabilisation works which consisted of 18,000 cu³ lime line modified bulk fill and 15,000m³ lime/cement addition to form a capping replacement. The contract was successfully completed well within the programme with test results demonstrating 100% compliance for all the modified and stabilised material.



THE LAST WORD...

Getting to Know You: Dyfrig James

Presenting a snap shot of the man who impressed the delegates at the 2011 Britpave Seminar with his top tips on how to successfully negotiate the current economic storm...



Name

Dyfrig James.

Location

Panshanger,
Hertfordshire.

Occupation/job title

President – UK, Cement, Aggregates & Concrete and Pave.

Organisation

Lafarge.

Top of your in tray?

Health and safety initiatives which can be used to improve standards and transfer best practice.

Biggest work achievement?

Getting the answer 'Da' when recently acquiring a business in Russia as agreeing a deal with Russian businessmen can be a major challenge.

Best part of your job?

Being able to visit our sites and talking with the people who work for Lafarge.

Top business tip

Always have a Plan B.

Do you have a personal business philosophy?

I want to see health and safety as a core value of any organisation.

Do you speak any other languages?

Welsh.

Favourite holiday destination?

My own front lounge.

Favourite book

Poems by Wilfred Owen.

Describe yourself in 3 words:

Welsh, humorous, happy.

Interest/hobby or favourite sport:

Rugby.



Britpave welcomes new Marketing Manager

I am pleased to announce that as of 21 November 2011 I will be working as Marketing Manager for Britpave at the office in Bracknell.

I have studied Business, majoring in Marketing and International Business Management. Recently I worked in Marketing and Business Development for a contractor in the oil and gas industry both in Germany and Australia.

I am looking forward to my new role and being part of the Britpave team. I hope I have the opportunity to meet many of you soon.

Best Regards,

■ Linda Huttary
Marketing Manager – Britpave
Tel: +44 (0)1344 393300
e-mail: lhuttary@britpave.org.uk

Trade Marks Registered

The trade marks Britpave® and Britpave Step Barrier® have been registered with the Trade Marks Registry. This protects the use of these words and makes it easier to defend what has become an important brand. People cannot use our trademarks without our express permission. If someone deliberately uses our registered trade marks, without our knowledge or comment, they may be guilty of the crime of counterfeiting.

Corrections and Clarifications

It is the policy of Britpave to correct significant errors as soon as possible. Readers may contact the office on: info@britpave.org.uk. Please quote the issue number and page.

Britpave

Atrium Court, The Ring, Bracknell, Berkshire RG12 1BW, United Kingdom
Tel: +44 (0)1344 393300 Email: info@britpave.org.uk Web: www.britpave.org.uk

