THE CHALLENGES OF RESURFACING MOUNT PLEASANT AIRFIELD

CPD and CPR – What you need to know
Derby Graduation ceremony
The Laying of Warm Asphalt
and all your regular features

IN THIS ISSUE
For your toughest challenges

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DOCKS ■ AIRPORTS ■ RACETRACKS ■ ANY HEAVY TRAFFIC AREA
Editorial

This is the first edition of another new year and the good news is that in a few weeks’ time you will be getting a printed copy in the post. The Council has made great strides in turning round the finances of the Institute to the effect that we can now afford to return to a printed journal. The next 2 editions will be sent to you along with a copy of the Highways Magazine while we make some long term arrangements for printing and distributing future issues. We will still keep the online version for those that prefer that method but for the many who prefer the printed matter this will follow a week or so later.

The year is also off to a good start with the preparations for the National Conference which is being organised by the South East Branch. Please note that the conference will be on a Friday this year June 28th with the Presidents dinner and Golf day on Thursday 27th. The venue for the conference is the Radisson Blu Hotel at Stansted airport and the golf will be at the Manor of Groves Golf Club. The theme this year is an International one with a chance to find out what is happening elsewhere in the asphalt world. A full programme will be available shortly so keep an eye on the web site for more details and to get your booking in early, last year proved very popular with rooms at the hotel booking up quickly.

There are some changes this year which will have a major impact on our industry concerning the Construction Products Directive (CPD) and the Construction Products Regulations (CPR). John Bradshaw-Bullock has kindly written a short article on what is happening and the likely consequences which is printed in this journal. This is a must read for most of our members as the full rules will take effect on July 1st 2013 and being prepared in advance is critical.

Arthur Hannah  Editor
For sustainability and environmental reasons, interest in the use of warm mix asphalt is increasing throughout Europe. Lower mixing temperatures result in reduced energy use at the mixing plant and reduced carbon emissions. However, in order for customers to accept its suitability as a direct replacement for conventional hot mix asphalt, it must be shown to provide at least the equivalent performance levels.

The most important changes moving from CPD to CPR is that all construction products manufactured and supplied in Conformity with an EN require both a Declaration of Performance (DoP) and CE marking information to be supplied by the manufacturer to enable them to be legally placed on the market.
At the outset of my Presidency I said through this column that my hope was that we would restore Asphalt Professional to a hard copy as soon as was practical. On behalf of Council I am therefore delighted to welcome back our first edition of Asphalt Professional of 2013 in a hard copy version. This reflects the hard work and commitment put in over recent years.

In particular Arthur Hannah, our long and distinguished serving editor; who I know is enormously proud to hand over a viable hard copy of Asphalt Professional to the incoming editor Pippa Birch. In addition the astute leadership of Ray Wood our Hon. Treasurer has ensured we have been able to balance the ‘books’ due to the past cuts in expenditure and the good management of our current funds. We will continue to work closely with Neil Levett of ALAD to ensure the future of the publication. You will of course still have access to an on-line format should you prefer it in that form.

In another change, the IAT has now consolidated its function and structures. I have great pleasure in welcoming Michael Atkinson of Park Consultancy as our new Secretary to the Council. He is currently co-opted onto Council and will be voted in fully at the next AGM. I am sure Michael will make a valuable contribution to the efficient running of the IAT.

We have come through a difficult 2012 with many changes in our industry that and a disappointing fall in asphalt volumes. This is set to continue for part of 2013 and although I do not possess a crystal ball, I certainly feel there are indications that workloads and volumes will start to recover before the end of the year.

The aim of the IAT is to continue to support all training and educational needs of our industry it can. In view of the major changes occurring in our industry there remains an opportunity for the IAT to demonstrate our value to our members, the industry and the client side as a whole.

There will be a focus on the ‘client side with a training day held at the University of Derby highlighting the asset management of our highways, hopefully enabling more awareness to those not totally familiar with the ‘Black Arts’. The emphasis will be on pavement construction, loading spreading, bond, stiffness, durability and ensuring no pot holes. Brian Downes the Chair of Education has already had a very positive response, particularly from the Midlands Highway Alliance, who are keen to provide delegates.

Our Promotions Committee chaired by Chris Lycett is looking at events like this, but also how knowledge can be transferred to a wider audience, to this end he has already carried out videoing lectures. These may be of particular interest to our members overseas particularly in both Nigeria and Australia.

Our website is functional but more effort will now be put into to it to make it a site worth visiting not just for branch news but for a wide range of information, either directly on our site or with helpful links to other web sites. This will include pertinent and useful information on CPR and CE marking. This development will be on going through 2013.

One initiative recently discussed is the possibility that the IAT may be able to provide an audit scheme which could in some way validate the competence and skills of small to medium sized production/contracting companies.

We have noted in the past that some companies have unofficially used our IAT logo to imply quality. This of course we cannot condone. However if we can introduce a bona fide scheme allowing endorsement this may be of interest to certain sections of the industry. This is an area that will be researched further over coming months.

I would like to congratulate all the students who last week were awarded their University Diploma in Asphalt technology. Their names are published in this issue. Well done to you all!

I am pleased to report the Branches are continuing to provide both social and technical events. We are particularly pleased how the South Eastern branch has re-activated itself over the past 12 months having held a number of technical and social events. They will be the hosts of the National Conference this year, to be held at the Radisson Blu Stansted 27th – 28th June 2013. So please look out for the booking form which will be available online. There will also be an opportunity for companies to book exhibition stands.

Other branches continue to have a full social and technical programme, which is a great credit to them for their hard work and time put in in what we all recognise as difficult times.

I am certainly looking forward over the next few weeks to attending, the Scottish Branch Annual dinner, followed a week later by the East Midlands Branch dinner, sandwiching between them the Pennines branch training day and the Northern Ireland and Irish IAT conference. A very hectic first week in March but I am sure a very worthwhile seven days. I wish good luck to all of these events and thank you to all the Chairmen and committee members for the invitations.

I also wish good luck to my colleague Dr Ian Lancaster who has recently taken on the chairmanship of the Pennines Branch.

I hope you enjoy reading this issue of AsPro, especially in its revived paper format.

Jukka Laitinen FIAT
President IAT
Scottish Branch Report by Neil Anderson

Runway Resurfacing Project, Mount Pleasant Airfield – Falkland Islands

John Cook gave this very interesting presentation on the 30 October 2012. The original runway had been constructed in 1983/84 and was all new construction. Some 29 years later urgent maintenance was required, the original Marshall asphalt grooved surface had been sealed with slurry seals in the intervening period and this was now delaminating and causing a potentially serious FOD (foreign object debris) issue.

John explained that the distance from the Falklands to the UK was of the order of 8000 miles. The base was currently served by a twice weekly schedule of flights from Brize Norton via an air bridge on the Ascension Islands. The island is also supplied regularly by two ships every month.

The Mount Pleasant Airfield is situated approximately 30 miles from the main town of Stanley and most of the road between Stanley and the Airfield is unsurfaced. The landscape is very barren somewhat similar to parts of Scotland. The main runway is 2600 metres and the secondary runway is 1500 metres long, the main runway width is 45 metres. The concrete ends of the runway were defective due to Alkali Silica Reactivity, one end had very severe concrete cracking some of the concrete was replaced and some cracks were repaired with epoxy resin.

The original grooved runway was constructed with a 1.5% crossfall this alleviated the build up of water which can lead to low friction. Grooving of the runway was considered essential to take the water away from the pavement.

There were four principal organisations involved in this project: JFC (Joint Forces Command), DE International –Projects, Mott Macdonald and Colas. The key factors affecting design and construction were aircraft operations, remote location and the weather. The runway was in use all week, the remote location had an impact on procurement and the Specification was influenced by the weather. The main runway work was divided into 7 phases with a crunch point at the intersection of the two runways. The remoteness of the site determined the project strategy, planning began in 2008 and the project was completed in 2011.
The scope of the project was to remove 50mm of asphalt and overlay with SMA (taxiways) or Marshall asphalt (runways). It was not possible to use the quarry that had been used previously and it was decided to use a public works department quarry at Pony’s Pass, samples were produced and sent to UK. This quartz tic aggregate was blended with coarse and fine natural sands from the UK in order to provide a close texture. The sand was shipped to the islands in bags and stored under cover.

The Marshall asphalt mix proportions were approximately 62% of local aggregates, 29% of imported coarse and fine sand, 3% of limestone filler and hydrated lime and 6% of 100/150 pen bitumen, which had been supplied in drum. A typical standard compaction regime was used and the material was laid in echelon. The SMA comprised virtually all local aggregates. The pervious macadam protected French drains. Two asphalt plants were used; the main plant had a 200 tonnes/hour capacity.

Some facts for phases 1-6 are as follows: Zero delays to airbridge, medivac, compassionate and operational field requirements. Over 200,000 working hours without a Lost Time Incident. 36Kms of trench ducting installed, 230m3 of concrete poured, 100,000 metres of cable installed. 7500 tonnes of SMA, 18500 tonnes of Marshall Asphalt and 12900 metres of pervious asphalt mixed and laid.

As John explained this was a major project constructed in difficult conditions. The replacement of the surface course of the runway after 28 years service is a testament of the efficacy of the original MOD specification used and to the quality of the work carried out at the time. John’s presentation contained many slides and photographs which complemented his description of the work. The Scottish branch is very grateful to John for travelling to Scotland to make this very interesting presentation.
Scottish Branch Report by Neil Anderson

TS 2010 Surface Course Update and Lessons Learned

This presentation was given by Dougie Millar as an update of the work done in trials and the continuing evolution of the Transport Scotland surface course specification. The initial trials were carried out on the M8 and Dougie presented the results of the skid resistance which showed changes over the 21 month period since the start of the trial. It was interesting to note that results of the four types of surface were all very similar with scrim values in excess of 0.5, see graph below.

There are a number of Type Approval Installation Trials (TAIT’s) underway from the suppliers on the Transport Scotland Network. Some of the lessons learned had been picked up during the annual inspection of Thin Surfacing. The annual inspections which had taken place since 2008 were now showing a marked decrease in defects for the survey carried out in 2012, see graph below.
The Scottish Inspection Panel (SIP) introduced a new failure category in 2010 recording the condition of joints. The surfaces were categorized by four defects: aggregate loss, binder flushing, miscellaneous and joints.

Lessons learned through stage 1 of the TAIT process:

- Aggregate shape affects the voids attainable.
- The use of Gyratory Compaction provides a better understanding of the sensitivity of the binder content.
- Rutting requirements are met easily.
- No issues on achieving the binder drainage target.

Lessons learned through stages 2 & 3 of the TAIT process:

- Joints require to be side compacted and well painted.
- Handwork to be kept to a minimum.
- Grit rate shall not be ≤ 1.0 Kg/m².
- Rolling procedure; 3 point first followed by a tandem with grit then tandem finishing.
- Avoid using cold material, ironwork can be difficult.
- Texture is extremely consistent.
- Highly stressed sites require the correct nominal size.

Dougie also set out how he thought the future would evolve with continuous improvement as more material was laid.

- Continue to monitor and record progress.
- Feedback to suppliers throughout the TAIT process, SIP and the pavement forum.
- Improve specification based on recorded data and monitoring.
- Use more local aggregates once specification provides confidence to do so.

**M90 Fife ITS (Intelligent Transport System) Contract**

Dougie also showed some slides and discussed the recent completion of the Fife ITS contract using the TS 2010 specification.

The Contract was constructed on 3.2 Kms of existing motorway. The three lanes were laid in echelon and there were no longitudinal joints. The work was planned for 4 weekends with full closure of the S/Bound carriageway, 3500 tonnes of TS 2010 SMA was laid over 2 weekends.

Many members of the audience had made contributions to the Scottish Pavement Forum and were aware of the how the TS 2010 specification had evolved from inception. There is no doubt that the introduction of this specification has markedly increased the longevity of thin surfacing in Scotland. The presentation was given to a joint meeting of the IAT with the IOQ and was well attended; only three slides from the many shown have been reproduced above. The Scottish Branch of the IAT is grateful to Dougie for making this presentation which is invaluable in terms of his communication with the industry and making TS 2010 work.
Since 2000, the IAT branches in Ireland; the Irish Branch and the Northern Ireland Branch come together every 2 years to share experiences in an IAT North/South Conference. The Conferences focuses on issues in road construction, maintenance techniques, innovative materials and solutions to common road building and road research initiatives. This year the Northern Ireland Branch is hosting the Conference at the Europa Hotel, Belfast on March 7th. The Conference will address road construction issues which have come about following the economic downturn of recent years.

This is reflected in the theme: **Securing the Road Ahead in a Changing Climate**

We have assembled eminent speakers from England, Scotland, Wales, France, Germany and Ireland to discuss solutions to problems which are relevant when budgets are tight.

The Conference will benefit personnel engaged in road construction and maintenance from National Organisations, Contractors, Local Authorities, Material Suppliers, Consultants, Academics and Researchers.

We are confident that your attendance will be rewarded in a better understanding of the issues involved.

You may book online (in GBP or EUR) at the following link:

[www.instituteofasphalt.org/nsconference](http://www.instituteofasphalt.org/nsconference)
## CONFERENCE PROGRAMME

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<td>Tea/Coffee</td>
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<td>09.15 Official Opening Morning Session</td>
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<td>Chair: Dr David Woodward, Chairman of Northern Ireland Branch of IAT</td>
<td>Review of Current Research in Asphalt at UUJ</td>
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<td>09.30 Sustainability Rhetoric to Reality - a material challenge of our time</td>
<td>Shaun Friel, University of Ulster</td>
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<td>Alan Strong, Senior Lecturer, University of Ulster</td>
<td>Laboratory Testing of Recycled Road Materials</td>
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<td>10.00 Department of Regional Development/National Roads Authority - From research to implementation-developments from a government perspective</td>
<td>David Hogan, UCD</td>
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<td>Walter Gruber, Wirtgen GmbH</td>
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<td>Etienne Lebouteiller, Technical Manager, Colas France</td>
<td>14.45 Ways forward-developments since TS2010</td>
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<td>11.20 Innovative use of aggregates and waste streams</td>
<td>Dougie Miller, Transport Scotland</td>
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<td>15.15 North/South Contractor - Case Studies Drivers for sustainable contracting</td>
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<td>12.30 Lunch</td>
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The conference brochure is available online at [www.instituteofasphalt.org](http://www.instituteofasphalt.org)

If you have any queries about the event, please contact any of the following members:

David wdh.woodward@ulster.ac.uk
Chris chris.lycett@gmail.com
Ken khood@atlanticbitumen.ie
Gearoid glohan@atlanticbitumen.ie
Irish Branch Report by Tom Walsh

Summary of Activities

1. Standards Training Day – 22nd of November last. 10 speakers gave presentations on various aspects of standards and specifications. 50 delegates attended. Venue: Louis Fitzgerald Hotel, Dublin. Further details available from our secretary Seamus O’Leary at soleary@roadstonewood.ie

2. Technical meeting 13th February 2013 - Construction Products Regulations by Sarah Neary, Senior Advisor, Department of the Environment. Further details available from our Chairman Tony Broderick at tbroderick@irishtar.ie or Vice Chairman Alan Lowe at alowe@roadstonewood.ie.

3. Engineers Training Course is course is booked for 5th & 6th of Feb in Castlebar. The 36 places available are fully booked.

4. Surface Dressing Guidelines Review- 28th February 2013 in Hudson Bay Hotel in Athlone. Further details available from Chairman of the IAT Surface Dressing Sub Committee, Jim Campbell - jcampbell@coldchon.ie

5. The North-South Conference has been confirmed for 7th of March 2013 in the Europa Hotel, Belfast - ‘Securing the Road Ahead in a Changing Climate’. Further details available from IAT website www.instituteofasphalt.org Chris Lycett IAT Council Member - on chris.lycett@gmail.com or khood@atlanticbitumen.co.uk

6. Engineers Training Course is course is booked for 9th and 10th of April in Donegal. Booking through Course Co-ordinator, Bill Greene at, billgreene148@gmail.com or Chairman of Training Subcommittee Gearoid Lohan at glohan@atlanticbitumen.ie

7. Visit to Shell Global Solutions-Bitumen Laboratory in Strasbourg on the 23rd to 25th April by IAT Committee members. Further details available from dmcarty@roadstonewood.ie

Tom Walsh Press Relations Officer – IAT Irish Branch
Contact Details 00 353 86 2556550 or twalsh@rms.ie
www.iatirishbranch.org
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PTS – Testing the Nation

2012 was an unbelievable year for all at PTS Ltd. We are a Lancashire based company who offer materials testing to the industry. At the turn of the year we expanded our geotechnical range of testing by integrating Geotest Ltd into the business. This strengthened our position within the North West as one of the leading materials testing companies offering a comprehensive range of solutions for all construction projects.

Our UKAS schedule was further extended to cover the full range of surface treatment testing as well as the associated site testing for each sector. With the business growing steadily the opportunity to acquire the assets of the Petroplus – (former BP) laboratory in Swansea arose and we were able to add additional bitumen and asphalt tests to our portfolio. This enabled us to complete the ranges of testing we were aiming for much quicker than expected. The final six months of the year was then dedicated to reorganising our facilities to accommodate all testing under one roof in our Adlington laboratory. From this re-designed and re-developed facility we are now able to offer full product laboratory and site testing for EME’s (inc Fatigue), Thin Surface Courses, Surface Dressing (inc design, calibrations and visual assessments), Micro Asphalts, High Friction Surfacing, HRA as well as general Asphalt, Concrete and Soils. We are also able to carry out full assessments of suitability of Bitumens and Emulsions including ageing characteristics.

Our aim is to be able to offer a complete range of both, technical services for the Highway Engineering Sector and to consolidate our laboratory testing.

With the forthcoming mandatory CE marking requirements for asphalt products being implemented with effect from the 1st July, the last twelve months redevelopment stands us in good stead to help producers and suppliers address this new requirement.

With this in mind we have been working steadily to become certified to allow us to award CE marks. We have now, been awarded UKAS accredited Certification Body Status (Certification Body No 6478). This will enable us to CE mark all asphalt products. The CE Mark provides proof of this “fitness for purpose” and by the provision of PTS assessments it will enable you, the manufacturer/producer, to affix the CE mark which shows that your construction product will enable the finished construction works to comply with the Construction Products Regulation requirements. We are working with industry, trade organisations and specifier’s to ensure, that we can offer assessments for your Factory Production Control processes on your highway industry products and ongoing surveillance and quality assessments giving you a confident, competent and confidential assessment. Our certification department uses industry experts to audit and we pride ourselves on our technical expertise. Through Certification Body Status we are in a position to offer our customers ISO 9001 registration and we will continue to expand our range of certification as this side of the business evolves. Indeed we hope to be in a prime position to offer Thin Surface Course equivalent certification through the CE marking plus additional information route very shortly.

In summary, PTS aims to provide client assessment and surveillance requirements by following a structured auditing approach to meet performance standards and management system and to those matters specifically related to the scope under consideration.

If you require any information about any of our technical services including expert witness please contact Tony Sewell on 01257 481 782
Bruntingthorpe Proving Ground, home to the highway industry’s leading outdoor event - *Seeing is Believing* - is seeking to engage with the industry and are opening up their facility to Surfacing Contractors who may need a trial site for new products.

For those unfamiliar with Bruntingthorpe they have over 6/7miles of asphalt roads on their site, a large proportion of which is some 60m wide, and are currently constructing a new Technical and R&D facility there too and this may result in plenty of new construction and probable remedial works as this work continues.

Whilst they have no ability to promise any of the future works as a result of this first area they are making available for product testing, Bruntingthorpe have an initial requirement for an immediate job to be refurbished; which is an area of circa 8m wide by 40m long approx 320 sq metres of surface. 150mm of asphalt or approx 48 cubic metres of material needs reinstating after a demonstration process was trialled at the facility recently.

They are also considering having a new road built which is circa 35m long too, and there is also another project of circa 150m which could be brought to book too if a contractor were to require a longer length area.

Any company wishing to express interest should, in the first instance, contact Neil Levett MIAT on 07774 290522 or email neil@aladltd.co.uk
International Best Practice
UK Problems with International Solutions

The South Eastern branch of the IAT are pleased to be organising the event this year. An international theme has been chosen as this reflects the global impact modern technology is having on all businesses, including those in the Asphalt Industry.

Thursday 27th June
10.00am  Golf Day to be held at the Manor of Groves Golf Club.
7.00pm  President’s dinner at the Radisson Blu Hotel with the IAT student awards presentation and guest speaker, Simon Topman MBE.

Friday 28th June
8.30am  Exhibition opens with the opportunity to return at lunch time
9.30am  Conference starts.
4.30pm  Conference ends.

The speakers are:
Scott Bloxsom  Mouchel
Steve Harris  Nynas
Bob Collis  TRL
Andrew Cooper  Cooper Technology
Francois Chaignon  Colas
Arthur Hannah  TRL
Kirsten Henson  KLH Sustainability

The day delegate rate is only £245.00 or £195.00 for IAT members

Please book online at www.instituteofasphalt.org/conference or for further information, contact Jan on 07542 929 815 or email jan@aladltd.co.uk
Warm mix asphalt reaches Dublin’s Fair City
By A Kavanagh¹, G Lohan² and D Ryan³

Abstract
For sustainability and environmental reasons, interest in the use of warm mix asphalt is increasing throughout Europe. Lower mixing temperatures result in reduced energy use at the mixing plant and reduced carbon emissions. However, in order for customers to accept its suitability as a direct replacement for conventional hot mix asphalt, it must be shown to provide at least the equivalent performance levels.

Over the past three years, Atlantic Bitumen has been conducting laboratory studies to compare the performance of warm mix asphalt versus hot mix asphalt [1]. As these studies showed the warm mix asphalts achieved the required performance levels in the laboratory, the next step of the evaluation process was to perform on-site trials. For the two site trials described in this paper, the warm mix SMA 10 surface course asphalt was manufactured using a PMB bitumen at a temperature 35 °C lower than that used for the hot mix SMA 10. The PMB bitumen was modified using a chemical additive called CWM® that reduces the surface tension and viscosity of the bitumen, thus facilitating lower mixing and compaction temperatures.

The results of the site trials are presented in this paper.

Keywords: Warm mix asphalt, site trial, temperature, carbon emissions, performance

Introduction
Depending on the mix type and bitumen that is used, traditional hot mix asphalt (HMA) is produced at temperatures typically ranging from 140 to 180 °C. At these high temperatures, the bitumen becomes less viscous (i.e. more fluid), allowing full aggregate coating to be obtained during the mixing process and good workability during laying and compaction. The main goal of “warm mix asphalt” (WMA) or “low-temperature asphalt” technologies is to reduce these temperatures without sacrificing the performance of the end product. The main benefits of WMA technologies are reduced fuel use and a consequent reduction in carbon emissions at the mixing plant and reduced fumes for the paving crew.

There are many different methods being used throughout the world for the production of WMA. For the site trials described in this paper, the warm-mix asphalt was produced using bitumen that was modified by a chemical additive named CWM®. CWM is manufactured by an Irish company named Chemoran Ltd, and works by reducing the surface tension and viscosity of the bitumen, thus facilitating lower mixing and compaction temperatures.

Preliminary Site Trial
In the early hours of September 26th 2012, warm mix asphalt was laid for the first time on the streets of Dublin City. As part of a maintenance overlay contract for Dublin City Council (DCC), SIAC Bituminous Products Ltd. were laying binder and surface course asphalt pavement layers on sections of streets in the Rathgar – Rathmines area. Work was being carried out during the night shift to minimise traffic disruption. On the night in question, the asphalt mix being used was SMA 10 surf PMB 65/105-60 des. In order to familiarise the plant operator and paving crew with the new warm mix material, one load of warm mix asphalt was manufactured and laid as a preliminary site trial. The warm mix load was made at temperatures of about 30 °C lower than the hot mix by dosing the bitumen with 0.4% by mass of CWM. On site, mat temperatures of both the hot and warm mix asphalt were recorded and photos were also taken using a thermal imaging camera.

The main goal of “warm mix asphalt” (WMA) or “low temperature asphalt” technologies is to reduce these temperatures without sacrificing the performance of the end product.
While it took a couple of batches for the plant operator to bring the mixing temperature down to the target of 30 °C less than that of the hot mix, once the lower temperature was achieved it was easily maintained. Onsite, the laying crew reported that the material behaved in the same way as conventional hot mix. Images from the thermal imaging camera showed that the mix temperatures were consistent at about 30 °C lower than the hot mix, as can be seen from Figures 1 and 2 above.

Site Trial in North Wall Quay, Dublin City
Having gained experience from mixing and laying one load of warm mix asphalt for the preliminary site trial, SIAC were happy for the second site trial to be larger in scale. In October, SIAC were performing an overlay contract on a section of the North Wall Quay, on the banks of the River Liffey, in Dublin City. This contract was identified by SIAC as an opportunity to conduct a more large scale site trial. Having received approval from DCC to lay part of the surface course using warm mix asphalt, the trial took place on the 15th and 16th of October 2012.

Once again, the asphalt mix being used was SMA 10 surf PMB 65/105-60 des. In order to carry out a direct comparison with the performance of hot mix asphalt, part of the surface course was also paved using conventional hot mix SMA 10. The target mixing temperature for the hot mix SMA was 175 °C and the target mixing temperature for the warm mix SMA was 140 °C. Mix temperatures, smoke emissions, air voids content, surface texture and stiffness modulus of both the warm and hot mix SMA 10 were recorded for comparison purposes.

1.1 Mix Temperatures
The recorded delivery temperatures for both the warm and hot mix SMA are shown in Table 1 below. The recorded mix temperatures behind the screed of the paver are also shown. As can be seen, the average warm mix delivery temperature is 33 °C lower than the hot mix delivery temperature, while the average temperature of the warm mix asphalt mat behind the screed of the paver is 25 °C lower.
1.2 VOC emissions

Despite the reduction in mixing and delivery temperatures, the warm mix material looked and behaved in the same way the hot mix material, during and after the laying process. However, thanks to reduced mixing temperatures, there was visibly less smoke coming from the warm mix material, as can be seen from Figures 5 and 6, respectively.

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<th>Target Mixing Temp (°C)</th>
<th>Recorded Delivery Temps (°C)</th>
<th>Average Delivery Temp (°C)</th>
<th>Recorded Temps behind paver screed (°C)</th>
<th>Average Temp behind paver screed (°C)</th>
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<td>Hot-mix SMA</td>
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<td>175</td>
<td>156, 146, 149, 152, 147, 151</td>
<td>150</td>
</tr>
<tr>
<td>Warm-mix SMA</td>
<td>140</td>
<td>142, 136, 148</td>
<td>142</td>
<td>121, 116, 121, 130, 132, 129</td>
<td>125</td>
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</table>
the total VOC emissions from the warm mix were 1/5th (21%) of the level of emissions from the hot mix material.

In order to quantifiably demonstrate how much the smoke and fumes were reduced by, volatile organic compound or “VOC” emissions were recorded during laying of both the hot- and warm mix sections by the Air Quality Technology Centre of the National University of Galway. The measurements were made using probes that were attached to the screed of the paver and to two of the paving crew members. VOCs are organic chemicals that have a low boiling point at ambient temperature conditions. This causes large numbers of molecules to evaporate and enter the surrounding air. Some VOCs can be dangerous to human health or cause harm to the environment [2]. During this site trial, all of the recorded VOC emission levels, for both the warm and hot mix SMA 10, were far below the allowable occupational exposure limits. In addition, as can been seen from Table 2 below, the total VOC emissions from the warm mix were 1/5th (21%) of the level of emissions from the hot mix material.

Table 2 Recorded VOC emissions

<table>
<thead>
<tr>
<th>Hot-mix SMA</th>
<th>Warm-mix SMA</th>
</tr>
</thead>
<tbody>
<tr>
<td>77799</td>
<td>16679</td>
</tr>
</tbody>
</table>

1.3 Air voids content

Despite the reduction in mixing and delivery temperatures, the warm mix SMA material was as workable and easy to compact as the hot mix SMA material. In order to compare the compaction levels achieved, cores were taken from both sections. The air voids contents of these cores were determined and are presented in Table 4 below.
For comparison, the surface textures of both materials were measured using the volumetric sand patch test, at three randomly spaced locations. The results are presented in Table 3 below and confirm that the surface texture of both materials is the same at just over 1.5 mm.

<table>
<thead>
<tr>
<th>Core No.</th>
<th>Bulk Density (kg/m³)</th>
<th>Air Voids (%)</th>
<th>Core No.</th>
<th>Bulk Density (kg/m³)</th>
<th>Air Voids (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>2325</td>
<td>7.7</td>
<td>2a</td>
<td>2282</td>
<td>9.4</td>
</tr>
<tr>
<td>1b</td>
<td>2279</td>
<td>9.6</td>
<td>2b</td>
<td>2292</td>
<td>9.0</td>
</tr>
<tr>
<td>1c</td>
<td>2298</td>
<td>8.8</td>
<td>2c</td>
<td>2301</td>
<td>8.7</td>
</tr>
<tr>
<td>Average</td>
<td>2301</td>
<td>8.7</td>
<td>Average</td>
<td>2292</td>
<td>9.0</td>
</tr>
</tbody>
</table>

Table 3 Surface Texture Results

1.2 Surface Texture

As can be seen from Figure 7 below, the surface texture of the warm mix SMA 10 looked very similar to that of the conventional hot mix SMA 10.

The main purpose for the development of warm mix asphalts is to reduce fuel use at the mixing plant and to, consequently, reduce carbon emissions.

1.3 Stiffness Modulus

Cores of both materials were also brought to the laboratory for stiffness modulus testing. The results are presented in Table 5 below. The stiffness modulus of the warm mix SMA 10 is marginally higher than that of the hot mix SMA. Other studies have found that, due to reduced oxidative age hardening of the binder, the stiffness modulus of warm mixes is normally lower than their hot mix counterparts [3]. That is not the case here, as the stiffness of SMA type mixes is more due to the aggregate skeleton than the binder used. The same comment would also apply to the rut-resistance of NRA Clause 942 SMA type mixes, as was found in our earlier laboratory study [1].

Table 5 Stiffness Modulus Results

<table>
<thead>
<tr>
<th>Test Location</th>
<th>Texture Depth (mm)</th>
<th>Test Location</th>
<th>Texture Depth (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>1.51</td>
<td>2a</td>
<td>1.63</td>
</tr>
<tr>
<td>1b</td>
<td>1.42</td>
<td>2b</td>
<td>1.72</td>
</tr>
<tr>
<td>1c</td>
<td>1.69</td>
<td>2c</td>
<td>1.41</td>
</tr>
<tr>
<td>Average</td>
<td>1.54</td>
<td>Average</td>
<td>1.59</td>
</tr>
</tbody>
</table>

Table 4 Recorded air voids contents

As can be seen from the above results, the compactibility of both materials was the same, as the repeatability of the test is 17 kg/m³. (The same compaction regime was used for both materials).

Fuel use at the hot mix plant

During mixing of the warm mix SMA at the asphalt plant, fuel use was monitored and was found to be about 20% lower compared to that for the hot mix SMA.
**Conclusion**

The main purpose for the development of warm-mix asphalts is to reduce fuel use at the mixing plant and, consequently, reduce carbon emissions. This trial has shown that carbon emissions can be reduced while, at the same time, maintaining the performance of the end product, namely the SMA 10 surface course for two of Dublin’s busiest city streets. Another side effect to reduced fuel use is a reduction in VOC emission, both at the asphalt mixing plant and for the laying crew.

Further work will continue to investigate the performance of warm-mix asphalt. A study to investigate the effect of the above mentioned reduction in oxidative age hardening of the bitumen is currently underway in the Atlantic Bitumen Asphalt Laboratory. The study will examine if reduced age hardening will contribute to a longer fatigue life for a variety of warm-mix asphalts.

**Acknowledgements**

The authors would like to thank Ksawery Hession, Senior Executive Engineer of the Road Maintenance section and Padraig McNulty, Senior Resident Engineer of the Road Construction section of Dublin City Council for their support in conduction these two site trials.

**References**


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**Branch Events** [www.instituteofasphalt.org/events](http://www.instituteofasphalt.org/events)

<table>
<thead>
<tr>
<th>Date</th>
<th>Branch</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thursday 28 February 2013</td>
<td>Northern Ireland Branch</td>
<td>Case Study - Guernsey Airport</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Steve Turner. Dunsilly Hotel, Antrim</td>
</tr>
<tr>
<td>Friday 1 March 2013</td>
<td>Scottish Branch</td>
<td>32nd Annual Dinner</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inchyra Grange Hotel, Polmont</td>
</tr>
<tr>
<td>Thursday 7 March 2013</td>
<td>Northern Ireland Branch</td>
<td>Joint North / South Conference</td>
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<tr>
<td></td>
<td></td>
<td>Europa Hotel, Belfast</td>
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<tr>
<td>Friday 8 March 2013</td>
<td>East Midlands Branch</td>
<td>Annual Dinner</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Speaker – Austin Knight. Northampton Marriott Hotel, Northampton</td>
</tr>
<tr>
<td>Tuesday 26 March 2013</td>
<td>Scottish Branch</td>
<td>Joint Meeting with CIHT and IHE,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Beauty to Denny Powerline Project</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TBC. Green House, Inverness</td>
</tr>
<tr>
<td>Tuesday 9 April 2013</td>
<td>Western Branch</td>
<td>The Use of Vegetable Oil in Asphalt Mixtures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Helen Bailey. The Red House, Marsh Benham, Near Newbury, Berkshire</td>
</tr>
<tr>
<td>Tuesday 9 April 2013</td>
<td>Irish Branch</td>
<td>IAT Road Engineers Training Course</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Multiple (see flyer on website)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Donegal County Council Training Centre, Stranorlar, Co. Donegal</td>
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<tr>
<td>Wednesday 12 June 2013</td>
<td>Scottish Branch</td>
<td>Scottish Branch Golf Day</td>
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<tr>
<td></td>
<td></td>
<td>Alloa Golf Club. Schawpark Golf Course, Sauchie, Alloa</td>
</tr>
</tbody>
</table>
Pioneers in Asphaltic & Unbound Materials Testing

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CPR and CE marking - are you ready for 1st July 2013?
By John B-Bullock

Background
The asphalt industry has now been working with the EN 13108 series of European Standards for Asphalt for over 6 years. These standards were drafted under the Construction Products Directive (CPD) which was implemented in 1989. The fundamental principle of the CPD being to create a level playing field for construction products and to eliminate barriers to trade across the now 27 EU member states. For the majority of member states CE marking has been mandatory with the introduction of the asphalt standards from 2007. However, the UK along with two other member states opted out of mandatory CE marking of construction products under the CPD. Recognising that the application of CE marking was the natural extension of all the effort required to implement Type Testing and Factory Production Control required by the European Standards, the UK volunteered to apply CE marking to aggregates from 2004 and asphalt mixtures from 2007, both product groups being supplied in conformity with a hEN (harmonised European Standard).

It is important to note that CE marking can only be applied to a product supplied either in conformity with the requirements of a hEN or when the product has a specific European Technical Assessment (ETA) document. The hEN contains an Annex ZA which defines the Essential Requirements for the particular products covered by the standard and the conditions applicable to CE marking the product. An ETA is an alternative method to CE marking which is applied when a product is not covered by an hEN and the details for an EAT are set out in what is called the European Assessment Document (EAD). In this article the reference will be solely to hENs, noting that there will be few if any Asphalt products which will not conform to the requirements of one of the EN 13108 series of product standards.

The CPD being a Directive rather than a Regulation allows a degree of national interpretation of its requirements. Therefore to strengthen the requirements eliminating the opportunity for member state interpretation, the Construction Products Regulation was enacted on 24th April 2011. At this time not all the requirements of the CPR were implemented as it was recognised that there needed to be a transitional period to enable full implementation of all the CPR requirements, and the deadline for complete implementation of the CPR was set as 1st July 2013.

Terminology and emphasis changes
The most important changes moving from CPD to CPR is that all construction products manufactured and supplied in Conformity with an hEN require both a Declaration of Performance (DoP) and CE marking information to be supplied by the manufacturer to enable them to be legally placed on the market! A further significant change is that whilst under CPD the manufacturer has to supply a Declaration of Conformity (DoC), the transfer to CPR has importantly changed the emphasis from certifying product “Conformity” to certifying product “Performance”.

The important changes to the terminology used under CPR compared to CPD can be summarised as follows:

<table>
<thead>
<tr>
<th>CPD</th>
<th>CPR</th>
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<tbody>
<tr>
<td>System of Attestation of Conformity (AoC)</td>
<td>System of Assessment and Verification of Constancy of Performance (AVCP)</td>
</tr>
<tr>
<td>Declaration of Conformity (DoC)</td>
<td>Declaration of Performance (DoP)</td>
</tr>
<tr>
<td>Essential Requirements (ER)</td>
<td>Basic Requirements for Construction Works (BRCW)</td>
</tr>
<tr>
<td>Characteristics</td>
<td>Essential characteristics</td>
</tr>
<tr>
<td>Initial type-testing</td>
<td>Type-testing</td>
</tr>
<tr>
<td>AoC System</td>
<td>AVCP System does not change (Asphalt continues as System 2+)</td>
</tr>
</tbody>
</table>
What does the CPR require of the manufacturer?

The manufacturer has a legal responsibility to draft and provide Declarations of Performance and to affix or provide CE marking information for all products manufactured and supplied in conformity with a harmonized standard. Unfortunately, the family of EN13108 standards will not now be published until 2014 at the earliest. To accommodate the time required to amend all the relevant hENs to include CPR, transitional provisions are detailed in Article 66 of the CPR. The most fundamental and important issue for manufacturers to consider is that if a product already has a Declaration of Conformity and CE marking under CPD both of which have been formally issued ahead of 1st July 2013, the transition to CPR is very straightforward. This is achieved by changing the designation of the DoC to a Declaration of Performance and making a couple of other changes and continuing to provide the CE marking information in the format determined within the current versions of the standards. However, if neither the DoC nor the CE marking information has been issued ahead of 1st July 2013, the format of the new DoP has to follow the template provided by the Construction Sector Standardisation Guidance Document TF N 530 Rev.2 Apr 12 “Implementation of the Construction Products Regulation (CPR) in harmonized standards - Template for Annex ZA”. The format provided by the template is discretely different to that currently used and will require more changes to be applied to a DoC as it is currently drafted.

Another important requirement of the CPR is that CE marking has to be either affixed to the product or as quoted in Article 9, “it shall be affixed to the packaging or to the accompanying documents”. However, whilst CPR does permit electronic issue of the DoP it currently does not permit electronic issue of CE marking information. When the European Standards for Aggregates were implemented in 2004, the industry met with the Office of the Deputy Prime Minister (ODPM) the Government office at that time responsible for CPD, and obtained an agreement that the industry could make CE marking as well as DoCs available electronically via company websites. This was in full recognition of the benefits in using this method of issue, in that if the CE marking is attached to the delivery documentation, the outcomes are:

a) generation of a considerable amount of additional paper, estimated to be in the order of 34,000 tonnes of paper from about 7,000,000 CE marking information sheets supplied per year,

b) CE marking information not necessarily being made available to those that require it,

c) additional paper being generated would be contrary to industry objectives of implementing paperless Electronic Proof of Delivery (EPD).

d) the inability of some older depot printers to print the CE symbol in the legally required format.

Recognising these issues, the Mineral Product Association sent a letter to the Construction Products Association (CPA) copied to the Department of Communities and Local Government (DCLG), the UK policy lead on CPR, explaining these points and robustly advising “that the industry has no alternative pragmatic solution other than to continue to apply CPD current best practice, by providing Declarations of Performance and CE marking via company websites”. We now understand that the European Commission will be looking at drafting a Delegated Act, the procedure required to change specific requirements of the CPR. When enacted this should legitimise the electronic supply of CE marking information through company websites. However this may not be drafted and enacted until well after 1st July 2013! In the interim period industry the UK intends to continue the current best practice and issue both CE marking information (and DoPs) electronically using the medium of company websites. It should however be noted that a batch of the same product supplied to a single user can be covered by a single DoP and that a paper copy of the DoP shall be supplied if the recipient of the product requests it. Similarly a paper copy of a particular CE marking information sheet should be supplied if specifically requested until further clarity is received on this issue from the Delegated Act.
Regulated Dangerous Substances (RDS)

Number 3 of the Basic Requirements for Construction Works, “hygiene, health and the environment” found in Annex i of the CPR includes the requirement to evaluate the release of dangerous substances from construction products into ground, marine, surface and drinking waters. The test methods to determine the leaching potential of products are still being finalised and therefore until these are completed and products are classified, RDS requirements under the CPR cannot be declared. Until the work is completed, which will probably be 2014 at the very earliest, only substances referred to in the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) for products will be covered by the DoP.

Environmental Performance Declaration (EPD)

An additional requirement under the BRCW which is not currently covered under CPD is the new number 7 “Sustainable use of natural resources”. The format and content of EPDs are currently being considered by industry and the standards committees and it is unlikely that industry will be in a position to provide EPD’s before 2015 at the earliest.

What should suppliers of construction products conforming to a hEN particularly asphalt producers be doing now?

If DoCs and CE marking information sheets have not already been drafted and issued to cover the applicable asphalt mixtures, these need to be drafted and issued ahead of 1st July 2013. The transitional arrangements under CPR allow minimum changes to be made to the a currently issued DoC to change it to a DoP for use after 1st July 2013. Also if CE marking is in place ahead of 1st July 2013, this can continue after July in its current format until the CE mark is renewed. If Quality Management Systems for the production and supply of Asphalt mixtures have not already been certified to EN 13108 Part 21, this needs to be arranged with a Notified Body to enable the transitional arrangements covered within the CPR to be applied, as no DoC or CE marking information can be issued until the Notified Body’s certification number is available to be inserted on these documents!

What else is happening?

The Mineral Product Association are very active in this area informing their members of the importance of the CPR and CE marking, and the clients including the Highways Agency and ADEPT members are currently redrafting their specification documents to accommodate the transfer to CPR from 1st July 2013. Liaison between industry, the DCLG, CPA and Trading Standards who are the enforcement body for CPR in the UK will continue to ensure as smooth a transition as is possible. At the time of writing, the CPA are looking at a methodology that can be applied within the UK to permit the continued provision of CE marking information sheets (and DoPs) via company websites. Further important developments in this area will be notified through the Asphalt Professional or through an IAT news bulletin.

Additional information can be obtained from the following website locations:

“Frequently Asked Questions on CPR and CE marking”: www.mineralproducts.org/iss_policy01.htm

Listing of industry Acronyms “Acronym Alley”: www.mineralproducts.org/news_publications01.htm


TF N 548 Rev.1 Mar 12 “How to draft clauses on Assessment and Verification of the Constancy of Performance (AVCP) in harmonized standards for construction products” www.cen.eu/cen/Sectors/Sectors/Construction/Guidance/Pages/default.aspx
The Many and Varied Uses of Asphalt

Thursday 21 March 2013
SCI HQ, London, UK

Asphalt is mainly known for its use as a road surfacing and construction material. Of the 300 million tonnes produced in Europe, most of it is used for this purpose. However, it has also a variety of other specialist applications such as airfields, hydraulic engineering and sports surfaces. In many cases, this requires a more onerous design procedure to be followed in order to ensure that the performance objective is met. It necessarily draws on the expertise of highly specialised asphalt technologists and engineers. This symposium will review a number of the other important uses of asphalt, describing function, design, construction and performance.

The conference will prove of interest to those who specialise in asphalt technology such as highway and port authorities, road and engineering consultants, university civil engineering departments, asphalt suppliers and contractors as well as environment agencies.

Topics and speakers at this event:
- Airfields
  John Cook, Defence Infrastructure Organisation
- Dams and reservoirs
  David Wilson, Walo UK Ltd
- Bridge deck surfacing
  David Sledge, Highways Agency
- SUDS
  Phil Tomlinson, Permavoid Ltd
- Sports and play areas
  Trevor Freeman, Trevor May Contractors, Sports & Play Construction Association (SAPCA)
- Race tracks
  Jean Paul Michaut, Colas
- City streets (an alternative aesthetic asphalt)
  Chris Marchesi, Aggregate Industries

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Prevention Rather Than Cure

Floods, snow, freezing temperatures and ice. The UK has experienced all these this winter and for several years previously, all of which have an impact on our asphalt surfaces and the bituminous and cementitious structures below.

Treating the resulting damage – most noticeably potholes - from nature’s hazards is costly and generally ineffective; it is much better to prevent this from occurring in the first instance, through good, well planned, preventative maintenance. In the UK we have a range of high quality road surface treatments available to us that can be deployed in just this way, providing very cost-effective solutions to immediate highway deficiencies, while also extending longer-term pavement integrity and durability.

Surface treatments such as surface dressing or microsurfacing are applied to the carriageway surface to prevent the ingress of water into the existing surface by sealing the carriageway using materials with a Bitumen Emulsion binder. Both applications also involve the use of high PSV aggregates to provide surface texture and skid resistance to the finished surfaces. These types of application are generally carried out during the summer months to ensure that good adhesion takes place and that the emulsion-based products cure well. In addition, in the case of surface dressing, the warmer temperatures ensure that the aggregate is embedded into the existing surface, a key principle of the treatment. The use of bitumen emulsion provides protection to the existing surface by sealing fissures in the carriageway and therefore acting as a water seal to prevent any water penetrating into the substrate. This stops deterioration and deformation of the existing surface, where subsequent freeze-thaw action would normally get to work in an un-sealed pavement.

Eurovia Specialist Treatments (EST), deliver a full range of surface treatments nationally. EST also benefit from international support from parent company, Eurovia SA, including product and treatment application developments. The company also invests heavily in new plant and equipment and has recently added a pair of 32 tonne Surface Dressing Combination Units to their extensive fleet. These units provide excellent flexibility in the way that surface dressing is applied and also brings cost efficiencies to the operations. The units allow EST to surface dress in a single, synchronised operation with the aggregate being applied directly after the binder, reducing the need for additional vehicles and equipment.

Surface treatments are a critical part of any long-term, highway maintenance plan. In Eurovia, the company’s Technical Centre in Warrington provide long-term asset planning support to clients, using the unique Asset Optioneering Model (AOM) developed initially for use on long-term Private Finance Initiative projects. This model and the pavement solutions contained within it include the surface treatments provided by EST. Sound highway engineering practice is based not only around good initial construction, but also around the plan for cost-effective maintenance. Surface treatments deployed in the right place at the right time will extend pavement life at a fraction of the cost, as well as significantly reduce the occurrence of potholes - even if our cold winters and wet autumns continue to be a feature of our changing climate.
Eurovia (UK) draws together expertise in asphalt production, surfacing, contracting and specialist treatment solutions to offer a highly specialised and flexible service. These strengths are also combined within our specialist airport services division.

**Eurovia Surfacing**
As one of the market leaders in the UK, Eurovia Surfacing operates a national service offering a wide range of surfacing solutions, utilising in-house expertise from site assessment to material design supported by a strong technical network within both the UK and Europe.

**Eurovia Contracting**
As the UK road construction division of Eurovia, Eurovia Contracting provides a multi disciplined offering from major civil engineering, road construction and improvement to electrical services, drainage and CCTV. We are experts at delivering schemes from local improvement works to strategic network construction.

**Eurovia Specialist Treatments**
Eurovia Specialist Treatments is a leader in the road surfacing and maintenance field, specialising in delivering advanced and effective solutions for improving and renewing the surfaces of roads, footways, airfields and car parks.

**Eurovia Roadstone**
Eurovia Roadstone, the UK asphalt production division of Eurovia, is one of the world’s largest asphalt producers with operations across Europe and much of the world. Based out of three UK locations - Dagenham, Ipswich and Northfleet - we combine the benefit of investment and technology transfer from Eurovia, whilst maintaining a local, personal and customer-focused service.

**Eurovia Airport Services**
Eurovia Airport Services has considerable experience of both airside and landside airport maintenance activities. Highly knowledgeable and accomplished in the detailed management of airport maintenance, we provide innovative solutions to help our clients achieve value for money, whilst reducing the industry’s carbon footprint.

By combining this knowledge and experience, with invaluable group expertise within Eurovia we have the strength to deliver unrivalled contracting services and solutions across the UK, on time and on budget, every time.
HELD ON WEDNESDAY 12 DECEMBER 2012

The Nottingham Asphalt Research Consortium is a research-led collaboration between the Universities of Nottingham and Cambridge and businesses which are active within the asphalt and paving industries. The Consortium meets at regular intervals and provides the forum for a co-operative dialogue between academia and industry to develop, evaluate and implement innovative solutions to pavement problems. Members pay a subscription which is used to fund research on topics that are defined collectively by the members of the consortium and to fund the technical meetings.

The IAT, as the learned society concerned with disseminating technical knowledge through the Asphalt Industry, has been granted “observer” status by the Consortium.

Benefits of NARC Membership
All NARC members have the right to attend the regular technical meetings. The topics for these meetings are decided by the membership and they brief members on the latest developments in relevant research, often well before it appears via electronic media, conferences and journals. In addition to being an excellent networking opportunity this is a very cost effective way of ensuring that members are kept abreast of the latest developments in technology.

In addition to the technical meetings for members, NARC runs courses during the year on topics that are of interest to the Asphalt Industry, and members are entitled to preferential rates.

Individual member companies also have the opportunity to develop a dialogue with University staff in relation to any developments and innovations that they are considering.

Report on meeting – 12 December
Membership is currently 21 companies, with a target of 30. In addition to funding the regular up-dating meetings, the membership fee provides a research fund for industry relevant research, the project brief being developed by NARC members in conjunction with the two Universities. The fee is £1000/year, which is excellent value for money.

Future activities
NARC Recruitment event
A special event for the industry to showcase the benefits of membership of NARC is planned for 2013. Watch this space for more details.

NARC Courses:
The following short (one day) courses are planned:

- Higher Volume Hot Mix Recycling: Thursday 27 June, at the University of Nottingham.
- Recycling Unbound and Hydraulically Bound materials. 12 September, at the University of Nottingham.

Presentations
The theme for the presentations was “Pavement Performance Modelling”.

Pavement Temperatures
Simon Shearwood: Norfolk County Council

In 2010 the pavements team in Norfolk County Council took the opportunity to install thermocouples in a pavement on the A140 by Scole during maintenance works. The thermocouples measured temperatures at 3, 40, 100, 175, 200, 300 and 400mm below the surface of the pavement. Air temperature was also measured. The pavement consisted of 200mm of asphalt, on top of 200mm of pavement quality concrete with a SAMI at the interface, on top of a layer of Cement Bound Granular Material.

Simon showed how average monthly temperatures, at several depths have varied since measurements started, and data for a few months of specific interest. A preliminary observations from the data are:-
The maximum recorded temperature in the overlay approximates to the softening point of 40/60 pen bitumen;

The minimum temperatures in the overlay were lower than the Fraass Breaking Point of 40/60 pen bitumen.

The average temperature at the top of the overlaid concrete is 2°C lower than that of the road surface.

It was also reported that the question concerning the effect of the overlay on the temperature of the concrete, does it increase or decrease it, could not be answered because temperatures were not measured before overlay. This is an interesting question and extends to thinner overlays because a black layer does act as a heat sink as well as an insulating layer. It is important to estimate the risk of increasing the thermal gradient across the concrete layer under asphalt overlays.

Norfolk County Council makes the results of this study available in graphical form at their website, address: www.norfolk.gov.uk/partnershiplaboratory

Long-Term pavement performance model
Professor David Cebon. University of Cambridge.

Regular readers of these reports will have seen summaries of the work carried out at Cambridge University to develop software to model pavement deterioration over a period of years. This software is now in the beta development stage. Professor Cebon drew our attention to the Vehicle - Pavement Interaction Website at "vpisoftware.blogspot.com" which extends an invitation to interested parties to try the software and provide feedback to help refine the user interface. This is a great effort to provide pavement engineers with a tool that can be used to model the performance of pavements, and through the software to test solutions to paving problems using the best modelling currently available. It is free of charge, but Prof Cebon did ask that if you use it, then in any reports or papers that result there is an acknowledgement of their program.

Packing of Granular Materials
Dr Riccardo Isola. University of Nottingham.

This report described a study to model the way in which spheres can be arranged, or packed to achieve maximum density. It is self-evident to pavement engineers that packing of particles is very important in relation to the production of high quality paving materials, be they bound or un-bound. It is a long way to graded irregular stone from the single and dual sized spheres which were the basis of the study reported by Dr Isola, and the presentation introduced concepts that are not currently familiar in the world of pavement technology and was theoretical. We saw, through the results of experiments, that the model that Dr Isola developed does predict packing. It also underlined the impossibility of achieving the packing that is predicted theoretically, a point which generated an interesting debate on whether this is due to friction or stickiness, and how to describe the fact that particles are not sliding over each other.

It was demonstrated very clearly that the difficulty in achieving theoretical density is related to the number of points of contact.

On a lighter vein, Dr Isola was able to advise us that the debate between Newton and Gregory, which took place in 1694, as to how many single sized spheres can be placed around one sphere of the same size - Newton said 12 and Gregory said 13 - can be resolved in Newton’s favour because it is 12.

Whilst this work is much still somewhat removed from the day to day practicalities of paving it is an excellent example of the underpinning fundamental research that will help with the understanding of what is going on inside our paving materials, and will lead to developments in our materials.

The Influence of Thermal Segregation on Asphalt Pavement Compaction
Dr Mujib Rahman. Nottingham Trent University

Dr Rahman’s presentation was based on work which he carried out in collaboration with the University of Nottingham. His study was based on the fact that all objects at a temperature above absolute zero emit radiation, some of which is in the infra-red region. This radiation can be detected and used to measure temperature with appropriate equipment which has been appropriately calibrated.

The objective of the study was to detect and measure thermal segregation during a paving operation and to relate it to the mechanical properties of the asphalt mix by monitoring a paving operation and by carrying out relevant laboratory simulations. The images from the paving operation show clear thermal segregation, at the edges which is not surprising, and in the centre of the paved mat. They also show individual cold spots, which have a temperature as low as 100°C when the surrounding material is at 140°C, and a range of temperatures from 150.3°C to 129.2°C immediately behind the paver. This data was used to inform laboratory studies to measure the effect of the lower temperatures encountered in the field on air voids in the compacted asphalt layer. It was found that the temperature differential at cold spots would result in void contents some 5% to 7% higher than in the surrounding material, and the differentials at joints to voids some 6% to 10% higher. This is clearly a significant issue in relation to deterioration at joints and possibly the formation of surface pot holes, highlighting the need to identify cold spots and rectify the compaction at them immediately, as well as the need to improve joint construction.

This work is being extended by means of a finite element simulation of pavement temperature distributions and cooling to give an indication of the actual time available for compaction.

For further information on NARC and its activities visit the Website at www.nottingham.ac.uk/narc

Report by Tony Stock: University of Derby
Graduation Ceremony Paves The Way To Success For Industry Professionals

A cohort of 12 professionals who work in the asphalt industry graduated on Saturday (26 January) following successful completion of their industry focused Diploma in Asphalt Technology or Certificate in Asphalt Studies, qualifications delivered at the University of Derby in partnership with the Institute of Asphalt Technology.

The graduates, from companies including Hanson, Aggregate Industries and Nynas, celebrated the successful completion of their courses at the ceremony which was held at the University's Kedleston Road site in Derby. The graduating students are highly professional people who have put in a tremendous amount of effort whilst working in very demanding roles, and so their personal achievement is a huge gain for the industry as they develop knowledge and skills that are vital in relation to safety, efficiency and innovation within the industry.

Andrew Hartley, Managing Director for UDC, the corporate training and development division of the University of Derby, presented the certificates to the group who had undertaken their studies whilst remaining in their professional roles.

Andrew Hartley said: “Graduation is an extremely proud time both for our students and staff and the culmination of months of hard work. We’re delighted to celebrate our student’s success and officially recognise their achievements in this way.”

The ceremony also gave opportunity to congratulate the prize winners within the group. The winners will collect their awards, which are given by the IAT, at the Institute’s annual dinner on the evening of 27th June, at the Radisson Blu Hotel, Stanstead Airport, the evening before the IAT annual conference. This is an opportunity for them to celebrate their success with the Institute which has had a major role in their learning. The prize winners are: Manuel Leira Casaneuva, Gavin Richard Dodgson, Stephen Armstrong, Stewart Reginald McLaren, Liam Potts and Tom Nolan.

The other students who graduated with a Diploma in Asphalt Technology are; Ian David Ballard, Gareth Dix, Iain Robert Gracie, Sydney John Montgomery, Benjamin Thomas and with the one year Certificate in Asphalt Studies; Lucy Cotterill, Samuel Carson Wheeler, Jessica Wild.

The Asphalt Courses are delivered through the Industry facing business of the University of Derby, the University of Derby Corporate (UDC). UDC works with a wide variety of organisations to deliver work based learning programmes and accredited qualifications that improve key capabilities such as service, innovation, leadership and problem solving.

For further information on the professional courses available that can be studied for whilst remaining in work, visit www.derby.ac.uk/corporate or call 0800 678 3311.
During November each year, Movember is responsible for the sprouting of moustaches on thousands of men’s faces in the UK and around the world. The aim of which is to raise vital funds and awareness for men’s health, specifically prostate cancer and testicular cancer.

This issue we celebrate some of our own IAT Mo Bros and their achievement in 2012.

Matt Bishop
Western Branch
Raised £300
Why? A member of my team has suffered from Prostate Cancer and so I wanted to support the cause.

Team Simms
East Midlands Branch
Raised over £600
Why? It was a general awareness thing, really. My older son Henry did a Mo growing exercise last year between September and Christmas, following my wife’s breast cancer diagnosis (my wife is now free of all of her treatments and doing very well). He raised £1300, and fell foul of the Movember guys as of course it was the ‘wrong gender’. So this year we thought we should do it ‘properly’ for Movember.

PIC: Me (Andy Simms) and Henry, who persuaded me to take the plunge and grow the Mo. He set up the Moustache Simms team and included me, George (my younger son) and another of his friends. As Borat, another famous Mo-sporter once said, a ‘Great success!’

Ian Lancaster
Pennines Branch
Raised £153
Why? My dad died of cancer when I was twelve (so he missed out on all my best bits - which is rather sad). So I did it for him.

A fabulous effort by all you have to agree.

I can’t grow a moustache, but if I could I would (no silly comments please!).

Who is up for the challenge in 2013? We would love to follow your story - PB.

For more information - http://uk.movember.com/about
The Social Whirl

Future developments: We have had no feedback from the disclaimer we put on before Christmas, so am assuming that it is OK with everyone.

We now need to write a proper welcome message to new members, some group rules and perhaps send out some sort of monthly round up which isn’t a Linked In generated spam type email – all in development.

Also, as the Pennines have their own group, we are wondering whether we have sub groups in the main IAT group for all branches, including the overseas branch – thoughts to me please...

Current Stats:
117 Tweets - 54 Following - 93 Followers

As you know, I leave this one to Russell and Mike to organise. Again, the more people that follow, the more people that see what we are up to, so please, if you have your own Twitter account, seek us out and follow us!

Recent tweets have included details of the new IAT phone number, the North/South Irish Conference and general events information.

I would still welcome your thoughts on what to do with our Facebook page, which is not popular but we probably get a couple of new “likes” every week so I don’t want to shut it down!

And that concludes the report for this issue. As always, we are happy to hear about ideas, advice and indeed grumbles about the way we use Social Media – please contact me if you feel you can assist or have some valuable input:
pippa@pipster-solutions.co.uk

Don’t Forget – there are promotions and jobs tabs within the group and we try to move all relevant articles there.....take a look!

STOP PRESS – The IAT Pennines now have a Linked In Group of their own!
Institute Update - February 2013

I am delighted that this Asphalt Professional will be reaching members in print form. This will be a popular change based on the positive reaction from the members I have discussed this with.

At a recent Council meeting, a comment was made praising the strong leadership of President Jukka Laitinen and immediate past President Chris Lycett for turning around the Institute from what was a particularly poor state. The changes to the IAT overseen by these two gentlemen have led to a situation where we can continually improve the service to membership. In addition, the contribution from our Hon. Treasurer, Ray Wood, has been significant. If you are happy to have Asphalt Professional in print form, you know who to thank.

Subscription Renewals
The process of collecting membership renewals for this year began on 1 November. We are far in excess of renewals at the same stage last year, which is very pleasing indeed. I think this is a reflection of the hard work by Council and also the work being undertaken by Branch Committees.

If you have yet to renew, please do so via the website. If you need help with your login details, please contact me for assistance. Members can also add or update their direct debit details securely via our website.

Email Address
Please ensure that if you change email address you inform us as we will struggle to contact you without it. Most of our communications now use this method. Send me an email at the address below and I will be glad to update your account.

Branch Event Notifications
As it stands, the Newsletter includes only your local Branch events. When we send out an email to advertise a Branch event, it goes to the members of that Branch only. Soon, on the website, you will be able to opt-in to receive information about events held by other Branches. Keep an eye on the Newsletter for details of this change being implemented.

Engineering Council Professional Qualifications
I mentioned in the previous edition of this journal that the Institute will soon be able to offer a method for members to gain professional qualifications with Engineering Council. I hope to have firm details soon. To those who registered an interest, I will contact you when I have further information. There are meetings taking place in February and March which should finally address this issue which is clearly important to many current and potential members of the Institute.

Advertising in Asphalt Professional or on IAT Website
Those who wish to advertise in the new printed editions of Asphalt Professional should contact Deborah Simpson. Deborah worked wonders generating adverts for the last IAT Yearbook. If you have a commercial interest and would like to advertise to the readers of Asphalt Professional, please contact Deborah on 01277 353611. There will also be the opportunity to advertise on the IAT website. If this is of interest please also contact Deborah.

My contact details:
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Connect with advanced technology from Shell

Shell connects you to a range of bitumen products to help you meet your specific needs.

Today, roads need to be increasingly high-performing, yet cost-effective and durable with low environmental impact. Shell technology can help to meet these goals, applying over 85 years’ technical expertise to create bitumen products designed to offer more than the conventional.

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Email: shell-bitumen@shell.com or visit www.shell.com/bitumen