

New Chairman for CPSA



In May 2007 Andy Goring was elected by the CPSA Council to be Chairman of the Association for the next two years.

Andy Goring is the Managing Director of Milton Precast, a member of British Precast. Milton Precast, with over 50 years experience of precasting, are an independent manufacturer of precast concrete drainage products in the UK. They manufacture a wide range of products including manholes, gullies, inspection chambers and box culverts, as well as bespoke precast units. Andy takes over from Richard Raymond of Hughes Concrete at a challenging time; For example, utilities contracts and tenders for the London 2012 Olympics are approaching, the PR09 Price Review is due, and the entire

water industry is faced with a new set of challenges arising from climate change, flooding and higher housebuilding targets. Sustainability issues, including carbon footprints and assets durability, are gaining more importance in the water industry, as demonstrated in recent OFWAT consultations. Andy is looking forward to leading the CPSA and helping it implement its ambitious new strategy and plans for the coming period.

Following success at the IWEX Exhibition in May this year, CPSA is planning to organise a number of other events. The technical and educational role of the association is also being acknowledged; CPSA will continue to represent the sector in different BSI/ CEN standard committees and will continue to support the wider water industry through its educational events with a CPD presentation, especially developed for this purpose. The CPSA activity plan also envisages more international collaboration in promoting the great merits of concrete pipeline systems.

Mark Flavell, of CPM, was elected for another two years as Chairman of the Association's Technical Committee and Martin Clarke, Chief Executive of British Precast, will act as Secretary of CPSA. Other staff involved with the CPSA include Norman Brown, Head of Engineering Services, Dr. Hafiz Elhag, Technical Executive, Anita Ladva, Marketing Manager, and Mamta Chudasama, Marketing Assistant.

Website Updates

NEW!

CPSA Online Bedding Cost Calculator

The CPSA has developed a web-based **online calculator** to help contractors estimate the main bedding and pipe costs of installing different types of sewer pipeline systems. The tool was customised to meet different design requirements including trench width, depth, and bedding class and was based on enquiries and feedback previously received from industry. Other aspects, such as the cost of importing infill materials and transporting waste, were also included, in the model. The bedding cost calculator can be found at the CPSA website at:

www.concretepipes.co.uk.

New Technical Bulletins

NEW!

CPSA has just updated and released a number of technical bulletins and information sheets. The new bulletins cover a number of technical aspects, including manhole access, quality assurance for concrete pipeline products, and routine testing of concrete pipes in accordance with EN 1916. Two information guide sheets for manufacturers and Builders Merchants have also been updated. These guides offer basic information European Standards (EN 1916 and EN 1917) and how these affect the industry and concrete drainage products in Great Britain. The bulletins and technical guides can be downloaded from the CPSA website:

www.concretepipes.co.uk.

Members News

Elliptical Pipes Win at Twickenham



ARUP, consulting engineers working on the Rugby Football Union's major re-development of the South Stand at Twickenham Stadium, have overcome challenging surface water drainage issues by specifying elliptical concrete pipes from Stanton Bonna.

The contract has also included smaller quantities of Stanton Bonna circular concrete pipes and manholes. Stanton Bonna were awarded the contract shortly before installation commenced, meaning that a very short lead time had to be achieved.

Installation of the elliptical pipes has been carried out by Duffy Construction. David Walker project manager, commented:

"The high water table and shallow gradients on this construction site created specific surface

water drainage challenges that were best solved by elliptical pipes. Stanton Bonna was able to respond rapidly to tight delivery schedules and with trench excavation levels reduced and rapid jointing techniques employed, the pipes ensured a quick and easy installation."

The pipes form a series of attenuation tanks to capture surface water run-off. The new tanks are located immediately outside the South Stand, where an ongoing £90m redevelopment, scheduled for completion by September 2007, involves increasing the stadium capacity from 75,000 to 82,000 as well as the construction of a new 156 bedroom four star hotel, new conference centre, health spa and new RFU offices.

Ennstone gains approval for £3 million expansion at Cadeby concrete product manufacturing plant



Planning permission has been granted for a £3 million pipe manufacturing plant at Ennstone Building Products' precast concrete works at Cadeby, Leicestershire.

When complete next spring, the Cadeby site will manufacture the same range of concrete drainage products as the company's other unit in Telford, in the West Midlands, consolidating the same product range across central England. Ennstone bought the Cadeby site in August last year, and has been quick to develop the potential of its strategic location (close to its Cloud Hill quarry) enabling the company to expand its product range and develop further the route to market for Cloud Hill aggregate products.

As Vaughan McLeod, Ennstone Chairman explains: "To get this planning permission at Cadeby enhances our ability to serve our key markets across the Midlands and South of England giving us potential opportunities to get involved with some of the Olympic works."

The Cadeby unit has already been extended to allow the manufacture of concrete manhole systems and is one of the UK's leading manufacturers of concrete fence posts. Completion of the pipe plant will mean Ennstone's total investment in Cadeby will be £5.5 million.

Major jacking pipe contract secured by Stanton Bonna

A £14m project by Severn Trent Water to alleviate flooding problems in and around Kenilworth has led to a major jacking pipe contract for leading precast pipeline systems manufacturer Stanton Bonna.



The project to construct the new storm water tunnel involves Stanton Bonna supplying over 1.1 km of DN 1200 steel banded concrete jacking pipes formed by trenchless installation, and 1.8 km of conventional flexibly jointed pipes.

Contact: Murray Howitt, Marketing Manager at Stanton Bonna, Tel: 0115 944 1448

Events update

IWEX 2007: Water industry must consider its environmental impacts



The International Water and Effluent Exhibition (IWEX 2007), the main water industry show in the UK, was held at NEC, Birmingham from the 1st to 3rd May. Building on growing concerns about industry's impact on the natural environment, the theme for the IWEX conference programme and seminars was Sustainable Water Management. In one session, Gren Messham (Severn Trent), George Day (Ofwat) and Ray Doughty (SBWWI) led the debate on climate change and the industry. Whilst coming from diverse perspectives, all reached the same basic conclusion: the water industry needs to take drastic action, fast, but is faced by a host of economic as well as social challenges. "Climate change has been a high profile subject in recent months, we've just got through the hottest April on record," said Mr

Messham, this could mark a change to how water companies look at sustainable development as the embodied upstream environmental impacts of different assets and products used across the supply chain could become a major part in sector policy and decision making. This could also mean that studies, such as the Environmental Life Cycle Assessment of Sewer Systems, carried out by INTRON and verified by BRE, will be looked at and considered more carefully by the industry. The study shows a clear gap between concrete pipeline systems and other alternatives. The LCA document, other literature distributed at CPSA stand at IWEX and the report on the event, can be downloaded at:

www.concretepipes.co.uk.

SED 2007: Gambling with Drainage Presentation

SED 2007, the UK biggest all action plant show, was held on 22nd, 23rd, and 24th May and CPSA were there.

Norman Brown, Head of Engineering of Services, delivered a presentation on behalf of CPSA on the benefits and advantages of using concrete pipeline systems in contrast to alternative

solutions. The presentation looked at the different risks associated with installing and operating sewer systems and how concrete pipes and manholes can help in avoiding these. The presentation also offered some basic technical information and guidance to different parties across the industry's supply chain. A three-minute radio interview with Norman on the presentation was also broadcast during the show. CPSA literature and members' products were also available at the Probst Handling Equipment stand.



International news

Sustainability showcased : reinforced concrete pipes can be re-used

A US contractor in Salt Lake City, Utah was able to recover and re-use 600 metres of concrete pipes first installed over 27 years ago.

The FrontRunner commuter rail project near Salt Lake City includes over 1,950 metres of newly manufactured reinforced concrete pipes with American strength Class III and Class V. The contractor was able to leave

some lengths of pipe in place while salvaging over 600 metres of DN 1350 to DN1400 that existed in the alignment of the rail beds. The salvaged pipes had increased in strength, since first installed in 1980 to approximately the US strength class V (slightly higher than class H in the UK). The salvaged pipe was used throughout the project giving savings of approximately £88,500.



CONFERENCES AND SEMINARS

European Water & Wastewater Conference 24th to 26th September 2007

St James Park. Newcastle, UK. This Conference intends to provide a focal point for those engineers, scientists and regulators with an interest in the collection, treatment, supply and recycling of water and wastewaters as well as the management of associated assets.

CPSA Gambling with Drainage CPD Regional Events 2nd October - Leeds Utd FC - 12-4pm, 16th October – Birmingham City FC - 11-3pm

The CPSA will be holding FREE CPD presentations focusing on their new Gambling with Drainage message. The presentation will highlight the benefits of concrete drainage products. The ways in which these products can help with climate change and its resulting flash flooding. These road shows are open to architects, specifiers, civil engineers and both highways and water industry professionals. To register for the event please contact the events team on **0116 253 6161** or mamta.chudasama@britishprecast.org

Standards update

Australia and New Zealand set the standard for a 100 year service life

Standards Australia and Standards New Zealand have recently revised the two main standards applicable for the manufacture, design and installation of reinforced concrete pipes; AS/NZS4058-2007 “Precast concrete pipes (pressure and non-pressure)” and AS/NZS3725- 2007 “Design for Installation of Buried Concrete Pipes.” The standards work hand-in-hand to ensure that the manufacture, design, and installation of reinforced concrete pipes are completed to achieve a 100-year service life.

The service life and durability of pipelines has always been a major concern in the water and wastewater industry. Here in the UK, OFWAT conducted a consultation in 2006 to investigate asset durability requirements as part of sustainability efforts in the sector. Service life was identified by most participants as a main aspect that should affect assets' selection criteria. As in the UK, the subject has topped the water and wastewater sector's agenda in a number of other developed countries – including Australia and New

Zealand. There are a number of studies and technical specifications that have tried to offer a realistic estimation for the service life of concrete pipeline systems. A UK parliamentary report in 1998 estimated that the service life of a concrete pipe could reach up to 400 – 500 years. Technical specifications in the UK and US have always been more conservative with estimations: a 100 years service life was estimated by US Army Corps of Engineers' engineering design manual and most American states and cities specifications, and the BRE's Special Digest 1 (SD-1). The only BS standard to offer an indication of a possible service life is BS 8500 (partly based on SD-1) where a 100 year service life for concrete structures is expected. The Highway Agency's Design Manual for Roads and Bridges (Volume 2, Section 2, Part 10 – BD 82/00) offers a 120 years service life for concrete pipes.

BSI/ CEN Standards: New BS 8500 parts 1 & 2 released

BS 8500 (parts 1 and 2) have finally been revised and published late last year. The standard is the Complementary

British Standard to EN 206-1 and deals with specification for concrete products. The document was updated and brought in line with a number of new findings and industry report – one of which is BRE Special Digest 1 (2005): “Concrete in Aggressive Grounds” which offered a new ranking of cement with respect to sulphate resistance and revised concrete sulphate class limits. The BRE Special Digest 1 (SD1) was first published in 2003. A DTI ‘Partners in innovation’ project, in which CPSA was involved, identified new design guidance for precast concrete pipeline systems to resist the thaumasite form of sulphate attack. The study had an impact on the revision of SD-1 in 2005. The new standard could have an impact on BS 5911, the British complementary standard for EN 1916 and EN 1917, as a number of tables (including one on the design chemistry of different cementitious contents) will need to be revised.



Other news:

ACPA material at CPSA website



CPSA has reached an agreement that will see the American Concrete Pipe Association's (ACPA) marketing materials used within the CPSA website. The agreement was secured following contact between Dr. Hafiz Elhag of CPSA and Matt Childs, president of ACPA. The ACPA has been in existence for 100 years, it is by far the largest concrete pipe trade association in the world and its membership covers all fifty US states.

Information which will become available on the CPSA website will include a number of research studies investigating the performance of concrete pipes compared to other competitive materials. ACPA also produces information and fact sheets, as well as environmental and H&S bulletins covering different case studies and applications throughout the US. These continual updates will offer invaluable support for CPSA in its ongoing marketing campaign. Some of the material can be found at www.concretepipes.co.uk.

Latest (non) British Standards testing!



An 'unconventional' testing trial was carried out by Basal, the Norwegian concrete pipe company, at the BIBM Pipe Group, in September 2006. A 52 tonne tank was driven over the pipes – and the pipes passed the tests successfully! This clearly shows the true strength of concrete pipes and its dominance

over other types of pipeline systems. Basal dryly notes that the test was carried out to 'convince those few who continue to cast doubts over the actual strength and durability of concrete pipes'. The full video footage can be found at the CPSA website: www.concretepipes.co.uk

Industry Relations

SBWWI celebrating 21 years



The Society of British Water and Wastewater Industries (SBWWI) celebrates its 21st anniversary this year. In its AGM at Warwick Hilton Hotel earlier this year, Ray Doughty, of Wavin UK, was elected as new society chairman.

... and ACPA Celebrates 100 years



American **Concrete Pipe** Association

The CPSA is pleased to congratulate sister organisation, the American Concrete Pipe Association (ACPA), on celebrating its 100th birthday this year.

ACPA's roots can be traced back to 1898 when the American Society for Testing and Materials (ASTM) was first established. By 1904, eight technical committees had been organised and six more added. One was committee C-4 on Clay, Cement and Concrete sewer pipes, which was later became C-13 on Concrete Pipes. ACPA held its first conference in 1907 at the Interstate Cement Tile Manufacturers Association; the name was later changed in 1914 to the American Concrete Pipe Association.

Today, ACPA is one of the largest trade associations in the American infrastructure industry. Matt Childs, ACPA president, has already started planning for 2107!

Don't forget, CPSA are only 25 years from the same milestone!



Technical update

What do you know about Autogenous Healing?

One aspect of durability that is often overlooked in the concrete industry is that of the material's most important properties; autogenous healing. Water in the pores of hydrated cement is highly alkaline (pH 12-13). The alkalinity of the water in the concrete acts in a dual manner by firstly creating a protective layer around the steel reinforcement preventing corrosion; secondly it creates a process known as autogenous healing.

Autogenous healing is the ability of concrete to repair or heal cracks in the presence of moisture and calcium hydroxide. When the surface cracks or voids are exposed to carbon dioxide from the air, the calcium hydroxide is converted to the less soluble calcium carbonate. This substance precipitates out onto the crack surface and the slow deposition process eventually fills the crack or void in the concrete, effectively "healing" them!

Autogenous healing is common in buried reinforced concrete pipes due to the presence of moisture, either on the soil side or inside the pipes themselves. These non-live cracks, when healed autogenously, are impermeable and can yield a structure stronger than the original.

One of the reasons is that the concrete seals the crack with calcium-carbonate crystals. These are formed when the carbon dioxide in the surrounding soil, air and water carbonates the free calcium oxide in the cement and the calcium hydroxide liberated by the hydration of the tricalcium silicate of the cement. The formula for this reaction is: $\text{Ca}(\text{OH})_2 + \text{CO}_2 = \text{CaCO}_3 + \text{H}_2\text{O}$. For a brittle material, subject to dimensional changes depending on the amount of moisture present, the self-healing property of concrete is crucial to its application in water-retaining structures. Recognising the lack of attention which has been

paid to the topic in recent years, eminent concrete technologist and author Adam Neville reviewed autogenous healing and associated issues of cracking in 2002. He dealt with the mechanism of the process, conditions necessary for it to take place and the greatest width of cracks which have been known to heal. Examples are cited of cracks up to 1.5 mm width in concrete pipes, which have healed within five years. For cracked concrete specimens exposed to a marine environment, it has been reported that cracks of width less than or equal to 0.5 mm healed before there was any significant effect on the reinforcing steel.

Author: David Millar, CPAA, published in 'Pipeline' the CPAA Newsletter. The CPAA is the Concrete Pipe Association of Australasia, www.concpipe.asn.au, which contains a wealth of information.

If you would like further information on any aspects of concrete pipes we would be happy to talk to you. If you would like a hard copy of the CPSA handbook "The Comprehensive Guide to Precast Concrete Drainage Systems" please contact us.

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CPSA is a member association of the
British Precast Concrete Federation

