TRENCHLESSWORKS

THE VOICE OF THE TRENCHLESS COMMUNITY ISSUE 186 FEBRUARY 2022

Official Magazine & Media Partner: UKSTT

Official Publication of the International Society for Trenchless Technology ISTT

REHABILITATION OPTIONS FOR THE 21ST CENTURY

UNDERSTANDING BIOGENIC CORROSION

RELINEEUROPE'S ALPHALINER TECHNOLOGY

RSM Lining Supplies
CHOICE AND TECHNOLOGY

EXPERTS IN CIPP IMPREGNATION

CIPP liners delivered to site in dedicated transport.

State-of-the-art impregnation facility with the capability to impregnate liners up to 2000mm in diameter.

Following resins available:

- Polyester
- Vinylester
- Epoxy
- UV LED Vinylester

SCAN HERE
FOR INFORMATION

+44 (0)1709 864 271
sales@rsm-web.com
www.rsm-web.com

CONTENTS

Click on an item for instant access

To submit editorial for Trenchless Works next issue please email copy and images to: editorial@trenchless-works.com by the 12th of the month.
For Trenchless Works sponsorship and advertising rates click here

Paul Harwood, Publisher
pharwood@westrade.co.uk

Ian Clarke, Editor-in-Chief
editorial@trenchless-works.com

Austen Lees, Editorial
marketing@westrade.co.uk

Gary King, Group Sales Director
gking@westrade.co.uk

Trevor Dorrell, Group Sales Manager
tdorrell@westrade.co.uk

Stuart Hillyard, Sales Manager
shillyard@westrade.co.uk

Leigh Abbott, Group Marketing Manager
labbott@westrade.co.uk

Julie Harris, Design & Production

Lexi Di, Chinese Agent
lexi.di@bestexpo.cn

Trenchless Works is published 12 times a year by Westrade Group Ltd I Carotino House| Bury Lane I Rickmansworth I WD3 1ED I UK

ISSN 2049-3401

CHANNELINE
GRP Structural Lining Systems







ANY SHAPE – ANY SIZE

Large diameter pipelines and culverts represent the backbone of any city's utility network for the collection and disposal of sewerage and effective drainage of stormwater. The need arises to consider the means by which the structural rehabilitation of these pipelines and ducts can be achieved whereby a new, 100-years plus life expectancy can be provided with a high degree of confidence. Channeline international has been providing bespoke Structural Glass Reinforced Plastic (GRP / FRP) lining systems since the early 1980's, during which time we have accumulated unrivaled engineering and manufacturing experience for both Circular and Non-circular buried infrastructure worldwide. **At Channeline, we are proud of our heritage and are committed to offering economic custom solutions to our existing and future customers in the Storm and Wastewater Sectors.**

Applications:

- Sewer Main Pipelines
- Sewer Overflow Pipelines
- Sewer Interceptor Pipelines
- Sewer Inverts
- Storm Water Drains
- Seawater Cooling Pipelines
- Large Diameter Culverts and Tunnels
- Railway & Road Culverts
- Manhole Liners
- Multisegmental Liners

Channeline International Fiber Glass Manufacturing L.L.C.
P.O. Box 8091 Dubai,
United Arab Emirates
Tel: +971 4 8848383
Fax: +971 4 8848384
E-mail: timwebb@apsdubai.com /
sales@channeline-international.com
Website: www.channeline-international.com

Channeline International North America
Tel: +1 514 2424495
E-mail: andysherwin@channeline-international.com

CHANNELINE
Beyond the Ordinary

Beyond the Ordinary

SPOTLIGHT

Ian Clarke, Editor-In-Chief,
Trenchless Works

SPREADING THE REHAB WORD

Since Eric Wood developed the first embryonic Insituform Cured-In-Place-Pipe lining system back in the early 1970s (yes 50 years ago!), the buried pipeline industry has had at its disposal a technique that removed the need to excavate many types of pipelines that were deteriorated and in need of repair or replacement, particularly those which relied on gravity flows.

Since this time a plethora of lining options have been invented and are in use across the world. This issue takes a look at those techniques, how they have developed and where the industry stands today, including the ability to rehabilitate pressure pipes alongside gravity systems.

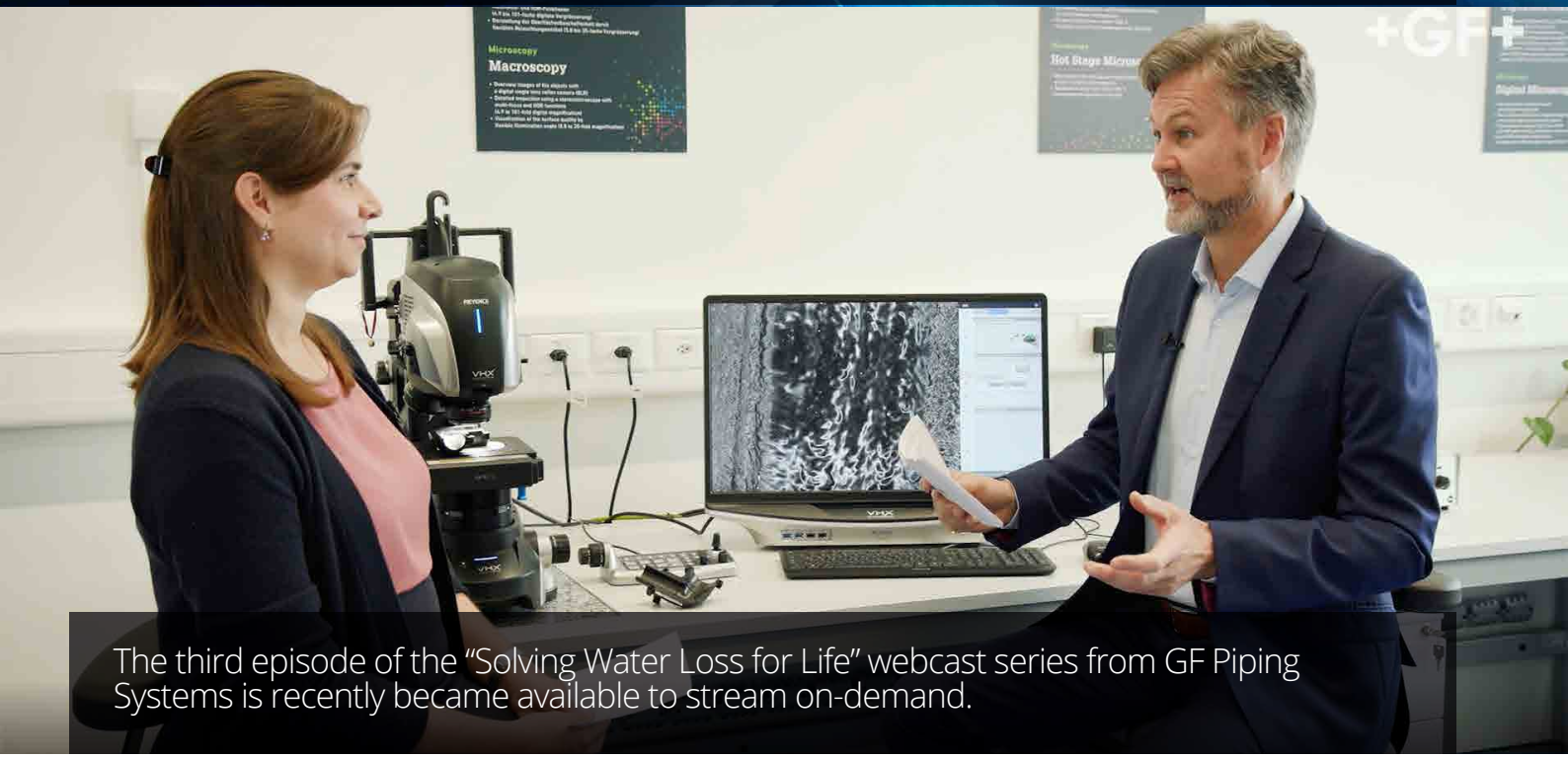
To many what is covered here will not be new information, so to those that feel this is 'old hat' please forgive us. Why this review of techniques? That is quite easy to answer. A simple Google Alert on the word 'trenchless' regularly highlights reports from various countries expounding the use of this 'new' technology even today. This is not just from countries that do not have experience of trenchless techniques but also from areas of countries where these systems have long been established and regularly used and may seem to many as commonplace.

As the official publication of ISTT (The International Society for Trenchless Technology) we are committed to bring trenchless technology to as wide an audience as possible. We will continue to provide coverage of these techniques in what to some will seem a very basic way so that those that are unfamiliar with them may be informed of their existence and the benefits they can bring to construction projects and the environment.

So, to those familiar with the techniques being discussed – apologies. For those new to trenchless technology and in particular here rehabilitation techniques, welcome to the trenchless family. To these people we say this, if you want to know more about trenchless options, not just those for rehabilitation, contact the ISTT. The organisation has wide ranging experience within its membership with people who can help you understand what is available. If you would prefer you can contact any of the regional Affiliated Societies, a list of which is available in the latter pages of this issue. All of these Societies have a plethora of experienced, knowledgeable practitioners who can help and possibly in a language that you may be more familiar with. Or, if you prefer to come to us at Trenchless Works where we have contacts both inside and outside the Society membership that we may be able to put you in touch with.

Trenchless rehabilitation and the other trenchless technologies have much to offer in both developed and developing countries. They are there for practitioners to take advantage of today and moving forward. We hope the article herewith helps to open doors to those advantages to those that need them.

PE PIPE MATERIALS AND TRENCHLESS TECHNOLOGY COMBATING WATER LOSS

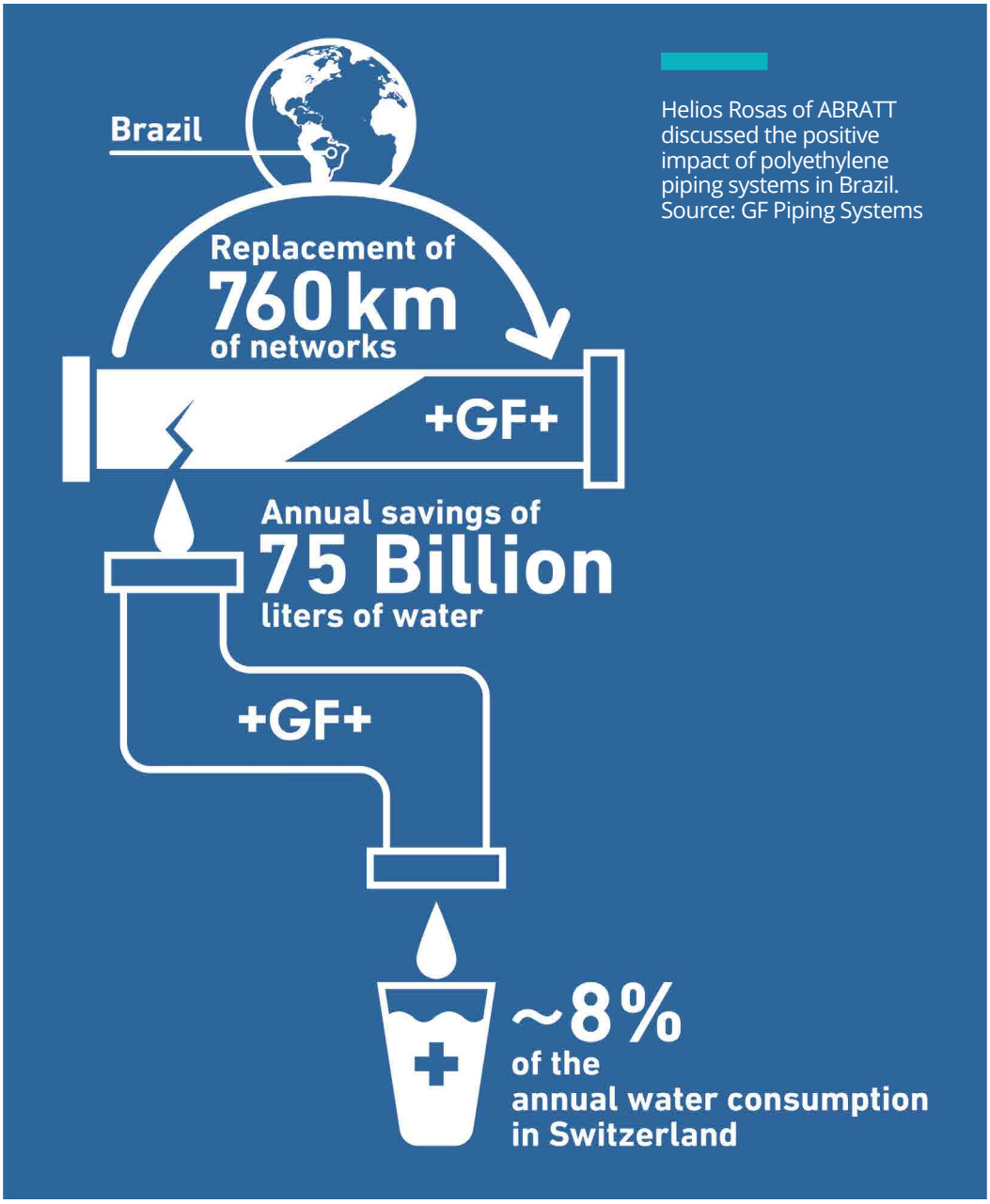


The third episode of the "Solving Water Loss for Life" webcast series from GF Piping Systems is recently became available to stream on-demand.

Moderator Andrew Walker speaking to materials expert Michaela Eichenberger at the GF Piping Systems technology centre. Source: GF Piping Systems

Water loss is undoubtedly the biggest challenge faced by many utilities around the world. In the past, the renovation of old piping networks to combat these losses was a complex undertaking. Large trenches and a multitude of welded metal pipe connections led to disruption and long build times. However, piping technology has improved drastically over the recent decades. Therefore, episode three of the 'Solving Water Loss for Life' webcast series, presented by GF Piping Systems, focuses on cutting-edge piping materials, trenchless technologies and explains why these advancements are so important in the fight to solve water loss.

Host Andrew Walker was welcomed at the company's technology centre in Schaffhausen, Switzerland where Michaela Eichenberger, Senior Material Engineer at GF Piping Systems, introduced the company's microscopy laboratory, which assists in testing and developing high-quality polyethylene products. With its ISO/ICE 17025 certification, the laboratory is recognised as impartial by approval bodies, resulting in over 40 international approvals for GF Piping Systems' polyethylene components. >



Helios Rosas of ABRATT discussed the positive impact of polyethylene piping systems in Brazil. Source: GF Piping Systems

In addition, Andrew Walker welcomed two guests from Brazil in the episode, Valdir Flores, Director of the Sanitation Municipal Department at DMAE and Helio Rosas, Chairman at the Brazilian Trenchless Society, ABRATT. Together, these water experts discussed the significant improvements Brazil has accomplished thanks to the use of polyethylene pipes. Focusing on the city of Porto Alegre, Valdir Flores recalled how polyethylene was first tested in the 1990s, a time when the city lost 46% of its water due to the aging piping network. Since then, 1,700 km of the network has been replaced by polyethylene solutions, reducing water loss to 31%.

But, as Helio Rosas of ABRATT emphasised, it is not enough to choose the right piping material. Especially in densely populated urban areas such as Saõ Paulo, the combination of polyethylene components and trenchless technology is the key to combat water losses successfully. The flexibility and robustness of the material and a lower number of connections mean that construction is less disruptive and can be completed in a shorter amount of time. For Rosas, this means that everyone wins: The utility, the customers, and the city.

To view the third episode in the webcast series, **click here**

PIPETRONICS AND PIPE-SEAL-TEC MERGER

Effective 1 January, 2022 Pipe-Seal-Tec GmbH & Co. KG has merged with Pipetronics GmbH & Co. KG. Over the past few years, both companies have developed proven technologies for trenchless sewer rehabilitation and successfully established them on the market.

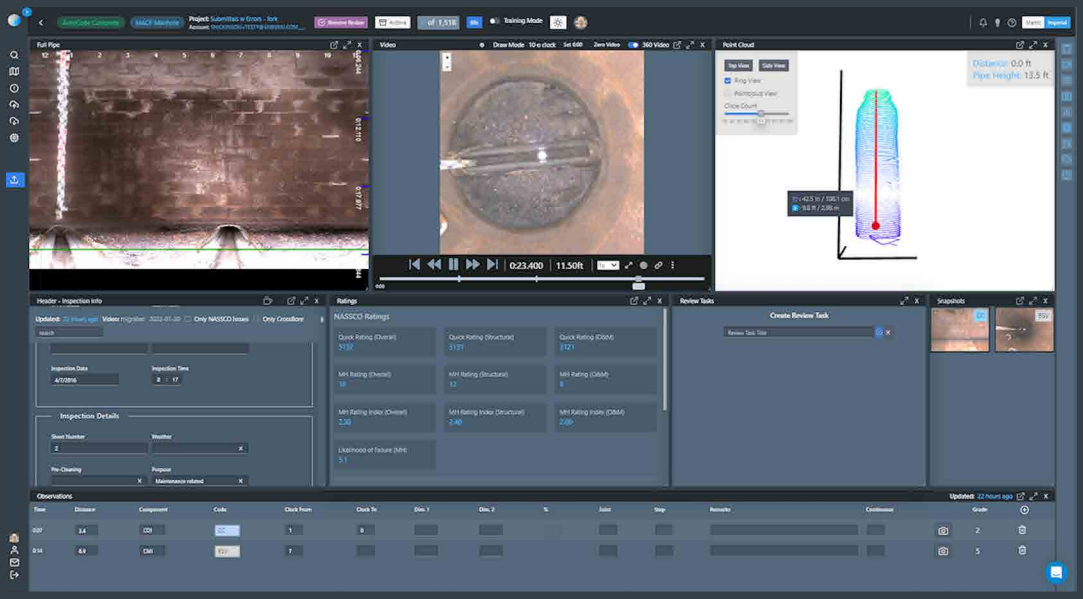
As of 1 January, 2022, the business will be conducted exclusively under the name Pipetronics GmbH & Co. KG. All employees of the former Pipe-Seal-Tec move to Pipetronics.

In the opinion of the management, the combining of forces is the correct strategic answer to seize upon industry growth opportunities and deliver continued product innovation and consistent, reliable operational performance. In addition, the merger will put the Pipetronics GmbH & Co. KG in a better position to navigate an evolving industry, ensuring continuity, continued innovation in products, and the overall long-term stability of the business.

The business division of seals, cuffs, and accessories will continue to operate from the branch in Rhein-Ruhr.

www.pipetronics.com

SEWERAI ACHIEVES NASSCO MACP® 'MANHOLES' CERTIFICATION



SewerAI, based in Walnut Creek, California, USA and creator of AutoCode™ and Pioneer™, has achieved NASSCO MACP certification for import and export of sewer manhole (MH) data (also increasingly referred to as 'maintenance holes') for condition assessment.

SewerAI Corporation has achieved certification from the National Association of Sewer Service Companies (NASSCO) for use of the Manhole Assessment Certification Program (MACP) in software import and export in its award-winning Cloud platform for inspection data management, Pioneer™, enabling SewerAI to provide condition assessment deliverables from inspections of vertical drainage structures in accordance with an industry standard common throughout North America. This latest certification is in addition to the Lateral Assessment Certification Program (LACP®) received in August 2021, and the Pipeline Assessment Certification Program (PACP®) software certification SewerAI received in March 2021.

SewerAI provides wastewater condition assessment services leveraging AutoCode™ which is a computer vision technology that automatically identifies conditions in CCTV and Digital Side Scan (DSS) inspection data. >

NASSCO CERTIFIED SOFTWARE

SewerAI's industry leading cloud platform for inspection data management, Pioneer™, is now certified to provide MACP deliverables to the wastewater industry. A growing number of sewer utilities, services contractors, and consulting engineers have chosen to innovate by leveraging AI and cloud computing to lower inspection costs, accelerate processes, and render higher quality data that drives strategic asset planning.

This latest NASSCO certification means the Pioneer™ platform now provides seamless conversions from archival MACP datasets coming from previously-certified legacy inspection software platforms, of which there are many.

According to the EPA in the USA, there are approximately 20 million MHs in the country, and these structures perform critical functions in sewer collection systems by enabling pipe connections and changes in a sewer's trajectory downstream, and also by providing access points for maintenance, rehabilitation, and inspection. Because MHs are installed at varying depths with components interfacing with streets and surface features, these structures must withstand a wide variety of different deterioration mechanisms from changes in the weather, in elevation of the groundwater table, as well as the defects affecting pipelines, such as Hydrogen Sulphide (H_2S) corrosion. Because of this, it is imperative wastewater utilities conduct rigorous and accurate inspections of MHs to properly plan for future rehabilitation or replacement.

"The ability to provide contractors, consulting engineers, and wastewater utilities with MACP deliverables, in addition to our existing offering for mainline and lateral sewer condition assessment, means our customers can now comprehensively understand the entirety of the wastewater collection system"

According to Eric Sullivan, a NASSCO Trainer as well as SewerAI's Director of Business Development: "The ability to provide contractors, consulting engineers, and wastewater utilities with MACP deliverables, in addition to our existing offering for mainline and lateral sewer condition assessment, means our customers can now comprehensively understand the entirety of the wastewater collection system." Regarding what motivated SewerAI to pursue the MACP offering, Mr Sullivan mentioned: "We have always listened intently to the needs and feedback from our customers, and the requests for an MACP solution were difficult to ignore, especially as this portion of our overall business has grown exponentially these last 2 years. We are very excited to continue to enable our customers to evolve beyond outdated legacy software platforms and workflows by leveraging our technologies."

SewerAI's dual offering of its AutoCode™ AI computer vision tools and its Pioneer™ cloud-based platform enables wastewater utilities to extend the Remaining Useful Life (RUL) of their assets by reducing inspection costs, accelerating office and field workflows, and contributing to an elevation in the quality, accuracy, and consistency of condition assessment data.

www.sewerai.com

2022
NO-DIG LIVE

NO-DIG LIVE 2022

13-15 September

East of England Arena & Events Centre, Peterborough, PE2 6XE







BOOK YOUR STAND TODAY

Contact the sales team
E: tdorrell@westrade.co.uk &
gking@westrade.co.uk T: +(0)1923 723 990

The UK's only event dedicated to trenchless technology

Featuring the UKSTT Gala Dinner & Awards Ceremony

The UKSTT Awards

in association with Westrade

Wednesday 14 September

Sponsorship opportunities available
Please contact Gary King gking@westrade.co.uk
or Trevor Dorrell tdorrell@westrade.co.uk

www.nodiglive.co.uk

Organised by

Supported by

Official Media Partner
TRENCHLESSWORKS

Supported by UKSTT Patrons

MOVEMENTS AT ALLEN WATSON

Wash-Over Auger storage at Allen Watson.

The Allen Watson Limited (AWL) website has been reconstructed giving information for trenchless pipe installation techniques. At the new site visitors can read case studies of projects and see animations of trenchless pipe installation techniques, career information and request for a quotation.

Further to this it was also recently announced that at the Annual UKSTT AGM held at Camden House, Kenilworth, UK, AWL's project manager Simon Marsh was elected on to the UKSTT Council. His 30-year experience will be of assistance to an organisation which has been at the forefront of the UK Trenchless Industry. >

Ancillary equipment recently purchased by Allen Watson.

The Wash-Over Auger delivery arriving at Allen Watson's depot.

A screen shot from the new website.

AWL also continues to invest in new equipment, with the purchase of wash-over augers and ancillary equipment. This investment will allow a guided auger bore without the need for a reception shaft including an existing in-service manhole.

The GAB (Guided Auger Boring) machine will pilot from the drive shaft to a point at the line and level required, then the wash-over augers and cutting head which are inside a sacrificial steel sleeve, as the augers rotate will slide along the pilot rods maintain the required line and level. When the drill is complete the augers and pilot rods are retracted back in to the drive shaft.

Advantages of this technique include:

- No reception shaft required
- Reduction in the mechanical connections between each stage of the GAB
- Removes an installation process thus reducing programme time

On a recent project for Flood Alleviation In Battersea, London, UK AWL carried out a Guided Auger Boring Project. Titled Grayshott Road Flooding Main Works Battersea the project was supporting Cappagh Contractors Construction (London) Limited which was carrying out the civils package which included the shaft sinking, manhole construction, pumping station and rising main installation.

The project was a flood alleviation scheme to reduce the risk of flooding to properties located in the Grayshott and Ashbury Roads areas. A design was produced which would provide relief sewers to intercept the property connections of the affected properties to a new pumping station which was to be constructed in the carriageway in Ashbury Road near the junction with Grayshott Road.

In total the scope of works for the project required Cappagh Contractors Construction (London) Limited and Allen Watson to construct:

- Construct a new pumping station of 2.5 m internal diameter at a depth of 4.5 m to sump level, complete with two wet well submersible pumps
- Construct four manholes at depths between 2.3 m to 3.5 m
- Install 107 m of DN225 Vitreous Clayware surface water sewer and a 7 m DN225 Vitreous Clayware sewer

Due to the sensitivity of the scheme, close collaboration between Thames Water and Cappagh/AWL with the residents was required to ensure a high-quality level of communications to the progress of the construction.

The works took place within a residential parking zone so all site transport had to be agreed with the London Borough of Wandsworth including the suspension of residents parking bays. Also, the construction works affected access to private property occupied by residents so a safe system of works was required.

https://allenwatson.com or to see the video of the Battersea site works: https://bit.ly/3ozkm4w

NAYLOR INDUSTRIES HOSTS LORD-LIEUTENANT OF SOUTH YORKSHIRE

Lord-Lieutenant of South Yorkshire visits Naylor in January 2022.

Naylor Industries plc, the family-owned construction materials manufacturer, has hosted a visit by Her Majesty's Lord-Lieutenant of South Yorkshire in recognition of its Clayware business winning a Queen's Award for Enterprise. Professor Dame Hilary Chapman DBE toured the Wombwell manufacturing site with group CEO Edward Naylor and met with employees including long-serving members of staff and new apprentices.

The award in the International Trade category recognised Naylor's global success, most notably with its innovative high-performance clay pipe products Denlok (jacking pipe) and Thermachem, which have been delivered to every continent and 65 countries worldwide.

Mr Naylor said: "We were honoured to receive a visit from the Lord-Lieutenant in recognition of our export growth. Many of our employees have contributed and this prestigious award and special visit are a fantastic recognition of their efforts over many years. As someone who has had a long and distinguished career in nursing, Dame Hilary fully understands the importance of people to the success of any organisation."

Mr Naylor had earlier attended a Windsor Castle reception for Queen's Awards winners alongside Princess Anne and Prince Charles.

It has been a busy quarter for Naylor Industries, a fourth-generation family business with six manufacturing sites across the UK, including three in the Barnsley area, and more than 400 employees, with the company also receiving external recognition of both its diversity and its health and safety.

The company was highly commended in the corporate category of the Women of the Future Awards for having a culture which recognises and promotes the contribution of female talent. Mr Naylor said: "We are very lucky to have such a talented group of senior women at Naylor and hope this recognition will inspire the next generation of female leaders to join us."

Naylor also won the British Ceramic Confederation's Pledge Award of Excellence for overall progress in health and safety. Mr Naylor said: "It has been an extraordinarily challenging two years, but our Environment, Health and Safety director Keren McBratney and her team, including former apprentice Jesse Taylor, have done exceptional work in keeping everyone safe during the pandemic and providing wellbeing support in areas such as mental health. All of these achievements demonstrate the positive culture we have established at Naylor Industries for the benefit of our staff and customers."

www.naylor.co.uk

WESTRADE GROUP LTD

NO-DIG EVENTS

International No-Dig events brought to you by the industry's world experts

NO-DIG ROADSHOW BELFAST 2022

15 June 2022
Crowne Plaza, Belfast, Northern Ireland

NO-DIG LIVE 2022

16th Biennial Exhibition, Live Demonstrations and Technical Sessions
13-15 September 2022
East of England Arena and Events Centre, Peterborough, UK
www.nodiglive.co.uk

NO-DIG HELSINKI 2022

ISTT's 38th International No-Dig Conference and Exhibition
3-5 October 2022
Messukeskus Helsinki Expo and Convention Centre, Helsinki, Finland
www.nodighelsinki.com

TRENCHLESS EGYPT 2023

Part of the Trenchless Middle East Portfolio
March 2023, Cairo

t: +44 (0)1923 723990 e: trenchless@westrade.co.uk w: www.westrade.co.uk twitter: @WestradeGroup

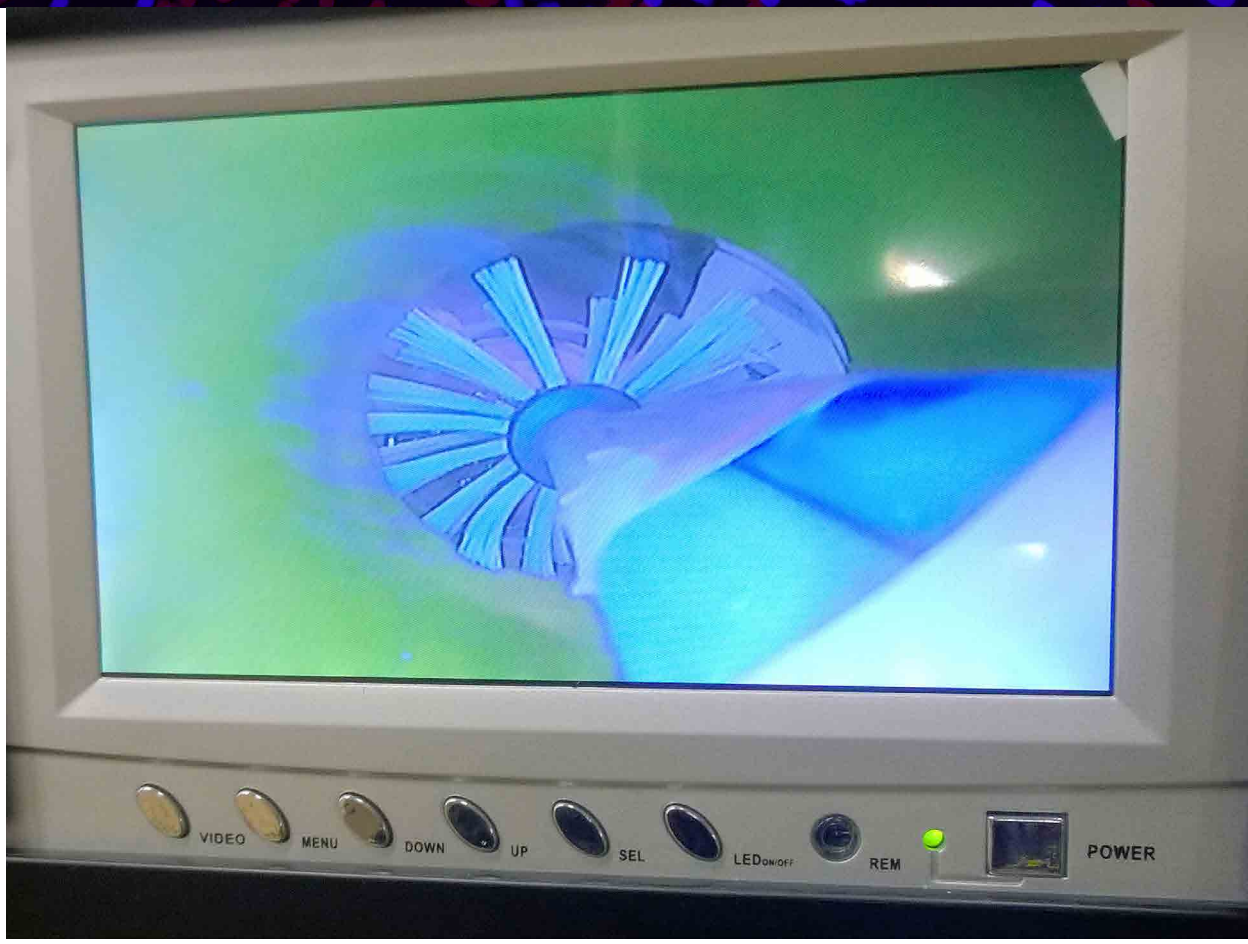
FOCUS

PIPELINE REHABILITATION

REHABILITATION OPTIONS FOR THE 21ST CENTURY

A ProKasro light train.

It has been almost 50 years since the first pipeline CIPP (Cured-In-Place-Pipe) renovation lining systems were introduced to the market by Eric Wood the inventor of the Insituform Process. During that time there have been various incarnations of the technology from hot water cured through assisted ambient cure and light cure systems. >



The Picote Brush Coating System lining a pipe.

There have also been several other pipeline rehabilitation options developed from spray lining techniques and hand applied linings through Sliplining and Modified Sliplining to Spiral Wound and Sectional Liners.

Whilst most of these options are fairly widely used across the globe, it is CIPP linings that appear to take much of the lion's share of the market. We shall however take a quick look at the non-CIPP options first.

HAND AND MECHANICALLY APPLIED COATINGS

Where pipe deterioration is not too advanced or where the client/owner is trying to prevent deterioration, it is often not necessary to utilise structural liners. Here it is possible to use hand applied, sprayed, or mechanically applied (spray) coatings. These coatings can either cement mortar or resin based.

Hand applied coatings require a man-entry operation to install the liner. This can be achieved using either a trowel or a hand-held spray gun. More often these days a spray system is utilised to apply such coatings using pump-powered systems with specially design rotating spray heads that are moved through the pipe at a set rate to provide the thickness of coating required. This can be for both mortar and resin-based applications. The technique can be applied to most commonly used pipe diameters.

One recent development in this area has been the introduction of a brush-based resin coating application system. With this option a mechanical 'miller machine', such as the Picote Millers, provides the rotational impetus to a set of brushes within the pipeline is supplied with a resin feed. The resin is brushed against the pipe wall to form the coating which can be up to 4 mm thick. One advantage claimed for this system is that whilst sprayed applications give a nominal thickness this does not always take account of pipe wall deformations and so may leave dimpling in the final coating. >

Sliplining with Naylor Denlok jacking pipe.

SLIPLINING OPTIONS

There are several forms of what have commonly become known as 'Slipining' techniques. The simplest of these is where a new pipe is passed through the deteriorated host pipe. The diameter of the liner pipe is determined by the minimum diameter of the host pipe depending on any deformation that may have occurred as part of the deterioration process, ground movement of failure of the original pipe material.

By inserting a new pipe inside the old generally leaves an annulus between the liner and the host pipe which it may be necessary to grout to close off infiltration from the surrounding ground and prevent its transfer to another part of the network. The major problem here is the loss of capacity as compared to the original pipe, something that may be significant depending on the flows the renovated pipe is required to handle over time and as conditions vary.

Fold & Form Modified Sliplining.

MODIFIED SLIP LINING

Where a tight fit liner is required to minimise loss of capacity within the host pipe, various methods have been developed and these are generally known as Modified Slip Lining techniques.

One of the more common forms of Modified Slip lining is the 'Fold & Form' technique. Here the liner pipe may be either thicker or thinner walled depending on the application which again may be either a gravity or pressure pipe requirement.

The liner, which is originally circular, is chosen so that it will form a close and tight fit against the inner wall of the host pipe. The tight fit requirement normally means that the liner cannot be passed directly into the host pipe as in Sliplining, so the liner pipe is passed through a folding machine which uses a die to deform the liner pipe into either a 'U' or 'C' configuration. This action in effect reduces the liner pipe's cross-sectional profile to one that is much smaller that the host pipe it is designed to line. The folding process can be done either on-site of off-site at the factory or depot before transportation. The advantages of either option vary depending on the application. Once the liner is installed over the length of pipe that is being renovated it is place under pressure using either compressed air or pressurised water. >

Primus Line insertion underway.

APS Dubai Manually Installed Danby Spiral Lining.

One area where this fold & form technology has also taken hold is that of lining pressure pipes where for example Primus Line® offers a range of liners for just such a purpose. Primus Line® is a versatile liner system for the transport of liquid and gaseous media. The flexible liner, reinforced with aramid fabric, and the specifically developed connectors form a high-performance solution for the trenchless rehabilitation of pressure pipes or for setting up a robust independently placeable flexible line. The liner is supplied folded. That way Primus Line® can be installed even in pipes with the same nominal diameter. Adhesive tape keeps the liner in its U-shape until it is pressurised to about 500 mbar. This pressure causes the liner assumes its original round form once inside the host pipe.

SPIRAL WOUND LINERS

Spiral wound liners come in both hand constructed and machine constructed types. Both generally utilise the same basic materials to form the liner. The liner is provided as a profile strip of PVC, steel reinforced PVC or HDPE plastic which comes loaded on a reel. To form the lining the profile plastic is pulled off the reel and fed to the construction crew in the host pipe or into a spiral winding machine located either within the host pipe or at the entrance to it, depending on how the machine operates. >

Channeline Sectional lining segments.

An Oval Amiblu NC line segmental lining being installed.

The winding machine rotates to bring the flat plastic profile into a spiral so that the edges of the strips to interlock forming a pipe that becomes the water-tight liner. The host pipe diameter pays a significant part in selection of the process to be used. The in-pipe travelling winder can also be utilised for lining non-circular cross-sections.

SECTIONAL LINERS

Sectional liners are supplied as liner segments that are usually factory-manufactured to a specification that can be designed and made to fit any particular pipeline configuration including smaller linking segments to run around bends. They tend to be constructed of GRC, GRP or RPM materials and the liner dimension is normally restricted by the minimum internal dimension of the host pipe. Given the rigid nature of the liner section the use of a flexible jointing material between adjacent section ends may be necessary particularly at bends. The technique may be labour intensive for the transport and positioning of the liners involved. There is also a need for confined space training and legislative requirements. Most if not all sectional lining installations usually require the annulus between liner and host pipe to be grouted and given the lengths involved in most projects this requires careful planning and execution to ensure that a fully grouted product results. Two of the most well-known names in the sectional liner field are Amiblu with its circular and non-circular liner options (more of which can be read elsewhere in this issue) and Channeline (which has featured in a previous issue of Trenchless Works).

CIPP HISTORY

As previously mentioned CIPP linings have been around for some 50 years and are available in various forms for a variety of diameters and using a number of curing techniques. >

An installed Insituform Pressure main CIPP liner showing an end seal.

An Insituform Steam CIPP Liner installation during curing.

When CIPP began the most common curing technology was Ambient Cure, arguably the most utilised curing method in the CIPP industry. In this method the liner cures in the ambient temperature without any assistance from heat or other curing external influences. There are a variety of different resins available for Ambient Cure which can be manipulated by the user for longer or shorter curing times.

Due to the working time of the resin the liner must be impregnated by the engineer on site before being pulled or inverted into the host pipe This option does offer the advantage of a small on-site team and a small on-site footprint.

Ambient Cure can be incredibly cost-effective, with a relatively fast installation process and limited equipment requirement. It is however not practical for use on longer length, larger diameter jobs. It is generally recommended that Ambient Cure installations are not carried out on any diameter liner larger than 225 mm and longer lengths may be limited due to the time constraints of the resin cure.

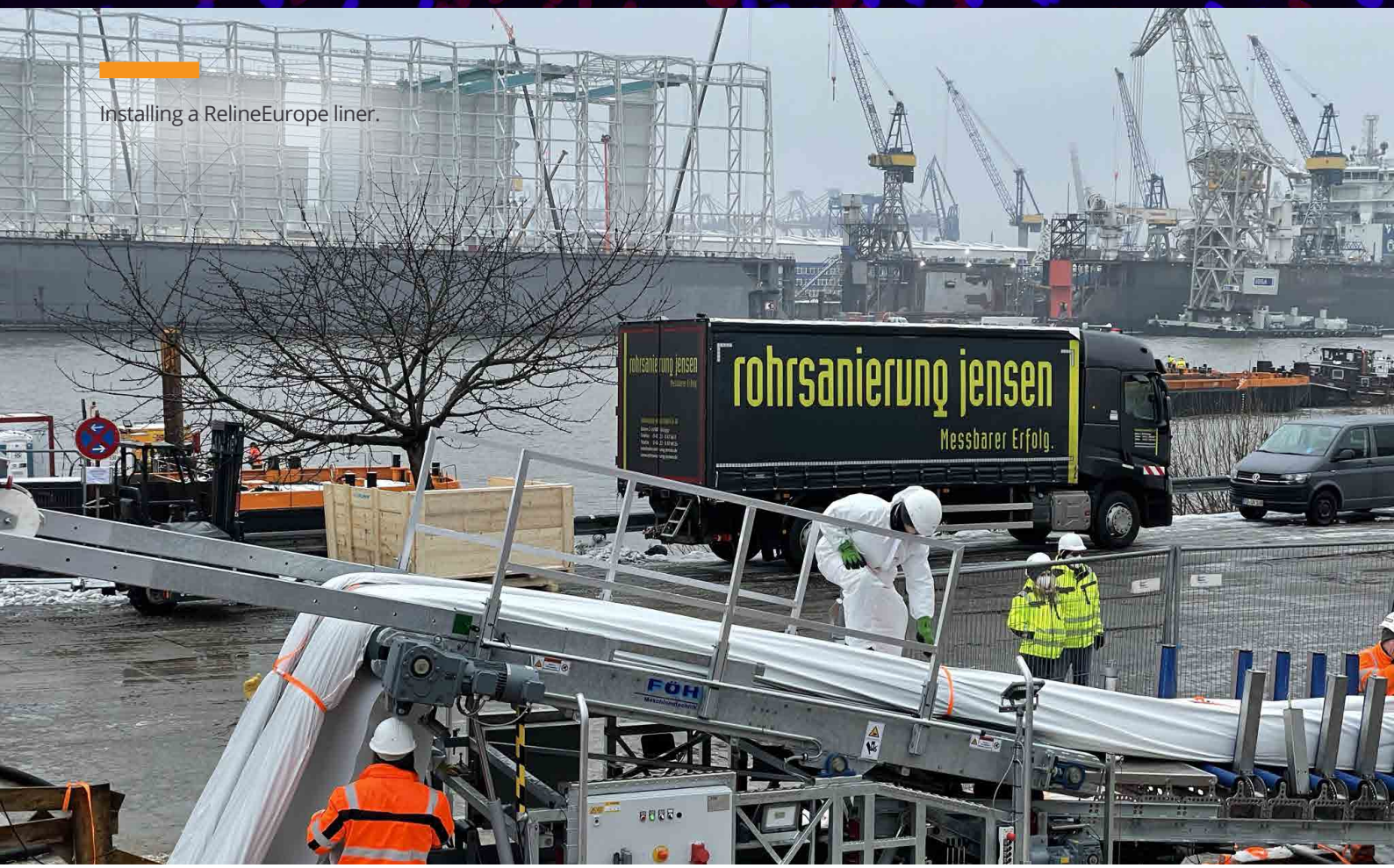
Eric Wood's CIPP technique was a Hot Cure method using heated water that was used to invert the liner into the host pipe. This requires using a hot water boiler to cure a liner. The Hot Cure method can be used for long length and large diameter installations and involves factory impregnation of the liner prior to delivery to site in refrigerated transport.

Hot Cure speeds up the cure speed of the liner and there are a variety of different resins available with the possibility of using some chemically resistant resins. More recently it has become possible to line Pressure Pipes. This technique does however have a relatively large installation footprint due to the requirement of a water source and tankers and the boiler system.

Over time the CIPP industry explored further curing methods such as Steam Cure. This involves the addition of steam, using a steam generator, to cure the liner once in the host pipe, passing steam through the liner until it is cured.

As with Hot Cure, Steam Cure liners are factory impregnated and delivered to site in refrigerated transport. This is a reasonably low-price methodology after the initial cost of the steam boiler and requires less water supply than Hot Cure as no tanker is required to dispose of wastewater, ultimately reducing on-site footprint and cost.

Steam Cure is suitable for liners up to 2,000 mm diameter but there is the added potential of 'cold spots' if there is pooled water within the pipe or laterals. On site health & safety guidelines must be stringent given the large quantity of hot steam being emitted from the boiler and a larger compressor is usually required compared to a hot water cure. >



Installing a RelineEurope liner.

MOVING TOWARDS THE LIGHT

More recently there has been a significant move across the CIPP sector towards light curing techniques.

A completely different method of cure originated with the introduction of UV Cure. The liner is pulled through the host pipe using a winch and a UV light train is electronically pulled through the pipe, prompting the liner to cure. UV Cure is suitable for curing liners up to 1,600 mm diameter and is becoming a popular methodology due to its fast cure time and high strength characteristic.

Further to the development of UV Cure has come UV LED Cure, one of the latest cure methods in the CIPP industry. UV LED cure is a fast, safe, and simple curing process with a much smaller on-site footprint than all other curing methods. It is the only cure method on the market that has the capability to cure both standard UV glass reinforced liners and felt liners impregnated with UV LED resin. UV LED Cure uses styrene free resins meaning there is no odour on site. UV LED methods also dramatically reduce the time required for pipe rehabilitation. The lightweight and portable curing equipment means access to small working areas is achievable and less power is required than with traditional systems. UV LED is capable of curing liners both horizontally and vertically. There is however, currently a limit to the cure ability of UV LED to liners up to 600 mm diameter.

There has also been the introduction of Bluelight cure technology. The Bluelight PAA-F liners are available in diameters of DN70 to DN100, DN100 to DN250 with PAA-G liners up to DN400. The curing reels are far more reliable than removable heads due to the reduced handling of the equipment. There is also a patented cooling process which prevents moisture and contaminates coming into contact with any electronics and with zero moving parts in the head itself this PBF claims offers a greater reliability than other systems on the market. >

InPipe Liners are available to various configurations.

The curing heads are available in 3 different sizes from the small light head for DN70 to DN125 and the ball light head for DN100 to DN200 and then the large light head for DN100 to DN400 the advantage of the small and ball light head is that it can negotiate 90° bends in the DN70 and DN100 liners. The smaller 40 m reels are better suited for difficult access areas where the liners are usually shorter.

For the more traditional UV market some figures are available, although these may be 'ball-park' estimates. Across Europe for example there seems to be something of an imbalance when it comes to the uptake of UV light cure lining systems with these figures showing that the:

- UV share of CIPP in the UK is approximately 37%
- UV share of CIPP across all of Europe (including the UK) is approximately 61%
- UV share of CIPP in Germany is approximately 66% (note: Germany is believed to cover approximately 50% of the total European CIPP market)
- UV share of CIPP across all of Europe including the UK but excluding Germany is approximately 55%

This would seem to indicate that in the European market the lion's share of CIPP installations is now completed using UV light cured lining techniques. The UK is some way behind with just around 37% of its CIPP market being UV light cure-based. These figures do not however take account of any market share for LED or other systems installations.

Lately however with many authorities and governments providing guidelines and legislation that requires the removal of these noxious substances from the environment, there has been a drive towards reformulated resins that do away with the styrene base using an epoxy base.

One such example that was recently announced as about to hit the market is from InPipe in Sweden. Inpipe Freeliner as it is known is claimed to be the world's first fiberglass reinforced liner that is free from both styrene and Bisphenol A, another chemical that is on the removal list.

LIGHT CURE AVAILABILITY

Whilst light curing systems have been around for many years, the past few years have seen a significant push towards smaller more portable systems that care aimed at the smaller diameter end of the market and the smaller contractor, where more traditional curing techniques still proliferate but where the need for market change is becoming ever more apparent. Several companies are involved in the sector as follows:

BKP Berolina – The Berolina-Liner System is a cost-effective and efficient method for sewer pipe rehabilitation. Compared with other methods energy consumption is reduced significantly thanks to optimised production, transportation and installation conditions. Since 1997, BKP has successfully produced UV light-curing and glass fibre reinforced tube liners. >

A BRAWO Magnavity LED MEGA II light head.

The highly portable Brawo Magnavity LED cure lining system.

Different liner types are available to meet most requirements for sewers in need of rehabilitation including:

- Berolina-HF-Liner for higher mechanical characteristics – Due to the special construction of the glass sheets and higher glass content, the Berolina-HF-Liner achieves higher mechanical characteristics resulting in a reduction of the structurally required wall thickness compared to the normal Berolina-Liner. The resulting lower weight allows easier handling. The Berolina-HF-Liner is also available with Integrated Enhanced Security (IES) which means a smooth slip film is no longer necessary for the pulling in with the result that installation time can be reduced by up to 60 minutes.
- Berolina-LP-Liner for application in the low-pressure range – The Berolina-LP-Liner (LP=Low-Pressure) is used in wastewater pressure pipe rehabilitation. By using very resistant glass and the particularly favourable structural arrangement of the glass sheets, a maximum internal operating pressure of 3 bar is possible. The standard Berolina-Liner was modified and used for the low-pressure range under the name Berolina-LP-Liner in order to rehabilitate pressure pipes too.

Brandenburger – Brandenburger develops and manufactures pipe liners in-house for trenchless sewer rehabilitation. The pipe liners are hardened with UV light, forming a new pipe within the old one. As the dimensions, cross-sections and mechanical loads differ depending on the pipe to be rehabilitated, the company offers a suitable product for every situation combined with technical advice.

With liner wall thickness ranging from 3 mm to 5 mm, the various liners available from Brandenburger are applicable to pipes of diameter from DN150 to DN1600.

Brawo Systems – According to Brawo Systems, which has C J Kelly International Ltd and S1E as distributors in the UK, the BRAWO Magnavity light curing systems is Smart – Efficient – Powerful. These three attributes it is claimed stand for the innovative BRAWO® Magnavity system, which makes light curing even smarter, more efficient and more powerful. The system consists of a choice of two intelligent LED heads, a 50 m long combination hose with integrated energy and compressed air supply, a retraction unit and a control box. The innovative, unique design of the LED head allows it to be retracted simultaneously with the inversion of the liner. Curing is thus carried out immediately after installation of the liner, without the need for additional insertion of the eel. In this way, a complete work step is saved, and even with long pipes and ducts, one access point (e.g. inspection opening) is sufficient for the rehabilitation. >

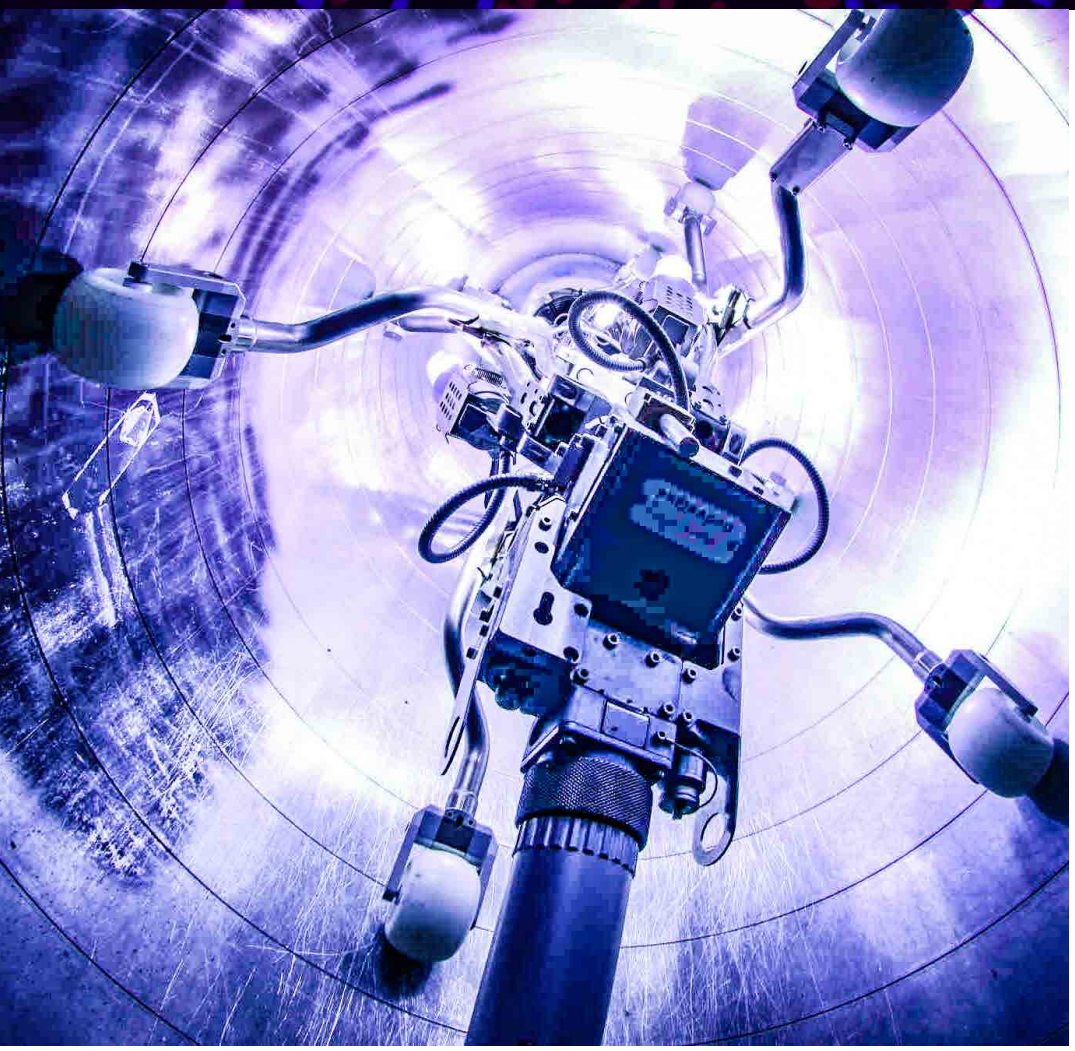
The Bluelight system.

In addition to the already familiar Nano LED head with 96 high-performance UV LEDs for use in pipe diameters from DN 70 to DN 250, there is now also the new, extremely powerful Mega LED head. Thanks to its 192 high-power UV LEDs and the associated greater light output, up to approximately 70 % faster curing is possible compared to the Nano LED head. The Mega LED head is suitable for rehabilitating the dimension ranges DN 125 to DN 300. From a pipe diameter of DN 150 upwards, pipes with bends can also be rehabilitated economically and efficiently.

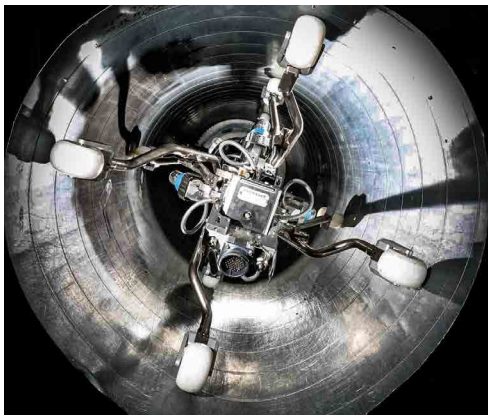
Further to these developments, Brawo Systems has also recently introduced the new BRAWOLINER 3D DN 200-300, which now optimally complements the ever-popular 3D liner product range. This means that all nominal diameters from DN 50 to DN 400 can be served, even when there are dimensional changes in the pipe run. The BRAWOLINER 3D DN 200-300 is compatible with the Brawo I, Brawo III and BRAWO LR resin systems. Curing can be carried out as usual with steam, hot water, light or ambient temperature.

PBF Drainage – Bluelight is claimed to be the most developed system available with over 12 years of experience and that it is the only pure LED light cure equipment compared to the other systems which are UV LED. PBF Drainage (PBF) has been the UK agent for Bluelight since 2018 when it purchased what was believed to the first LED light curing equipment in the UK. Not long after the company set up its agency agreement with Bluelight gmbh.

The growing demand for Styrene free resins, has meant a vast growth in demand for LED curing equipment. Water companies are guiding contractors away from styrene especially in or around properties where the risk of exposure is greater. This has led to more and more contractors investing in modern high-quality equipment. >



A selection of ProKASRO UV cure light trains.



The Bluelight PAA-F liners are available in diameters of DN70 to DN100, DN100 to DN250 with PAA-G liners up to DN400. The curing reels are far more reliable than removable heads due to the reduced handling of the equipment. There is also a patented cooling process which prevents moisture and contaminates coming into contact with any electronics and with zero moving parts in the head itself this PBF claims offers a greater reliability than other systems on the market.

PBF is now impregnating Bluelight LED light cure liners in the UK utilising the most up to date impregnation system available, with automatic dosing, temperature-controlled impregnation, and calibrated roller gaps, it is possible recreate the high specification of materials used throughout Europe.

PBF can supply both the felt inversion liners and the glass liners both impregnated with its patented styrene-free vinylester resins, both types can only be cured using PBF's own system working at 450 nm (nanometre) wave length which is proven to be the most efficient light wavelength.

ProKASRO – ProKASRO has been producing its KASRO UV curing systems since 2003 for the installation of CIPP pipe liners in an efficient manner. The KASRO UV CCU is applicable to pipe diameters from DN150 to DN1200 and is available with a curing cable length from 200 to 240 m. The equipment is highly mobile, compact and equipped with four wheels so that pipeline rehabilitation can be operated within the narrowest of streets. The system operates as a complete control unit above an electrically-driven cable drum with the operation, display and datalogging being carried out via a 21 in (530 mm) Touchscreen PC. The systems can be installed in a vehicle and is inclusive of a device for tele maintenance via remote control. The KASRO light sources available include: 8 x 400 W; 8 x 600 W and 8 x 1000 W. >

Reline UV REE2000 and REE4000.

Various light sources are also available depending on the project being undertaken. These include the KASRO UV light source chain for DN150 to 500 pipes; the KASRO UV light core for DN550 to 1200 pipes and the KASRO UV light core for DN1000 to 1600 pipes.

Reline UV Group – The RELINE UV Group offers customised equipment, perfectly matched to the company's Alphaliner product range to ensure successful renovation projects. The innovative UV technology has been developed and produced in-house. This system technology was developed from practice for practical applications. UV curing systems from the RELINE UV Group have what is claimed to be the highest curing performance on the market and are equipped with intelligent, permanent performance monitoring that automatically compensates for drops in radiation power of each individual emitter. The company offers two systems the REE2000 and the REE4000. Details of the Alphaliner systems can be found elsewhere in this issue.

The RSM Speedylight+ system.

RSM Lining Supplies – RSM offers the SPEEDYLIGHT+ which is a fast, UV LED curing systems for reinstatement of up to 70 m of 100 to 300 mm (4 in to 12 in) diameter pipe in one installation, featuring an innovative, patent pending, rotating UV LED design, delivering high energy density at the surface of the liner.

The system offers the facility to cure both felt and glass fibre liners; increased installation productivity; Interchangeable rotating curing heads; Deeper curing penetration; Two curing heads for different working diameters; negotiation of 90º bends and an All-in-One package with integrated power supply and no interconnecting cables.

S1E – S1E exclusively offers the Starlight UV curing system from IST with the capacity to rehabilitate smaller mainline and lateral pipelines from a single machine, with fast cure times. IST's original NuVision UV curing system is in use in every continent in the world. The Starlight system takes NuVision's technology further and offers a product for smaller-bore pipelines. >

SAERTEX-LINER UPgreen.

SAERTEX multicom – SAERTEX multiCom introduced what is claimed to be the world's first GRP liner for trenchless rehabilitation of potable water pipes with UV curing in 2016. Today the company claims to be setting additional milestones in order to save even more CO_2 with this environmentally-friendly technology and make its product range even more sustainable. Together with Scott Bader, one of its strategic partners, the company has now implemented a significant innovation in the sustainable production of GRP pipe liners known as SAERTEX-LINER® UPgreen.

UPgreen technology is a sustainable process optimisation in the production of glass fibre reinforced pipe liners. For impregnation of the SAERTEX LINER® carried out at the factory, SAERTEX multiCom® relies on unsaturated polyester resins (UP resins) from Scott Bader which are manufactured with a new, climate-friendly production method. Since the last quarter of 2020, 70% of the UP resins supplied have been produced with the new technology. As a result, in the last quarter of 2020 alone, 270,000 kg of CO_2 have already been demonstrably saved with around 160,000 running meters sold. That corresponds to the CO_2 footprint of 723 flights from Frankfurt am Main to New York.

UPgreen technology is used for all SAERTEX-LINERs in the product range that use UP resins. These GRP pipe liners are used for trenchless rehabilitation of municipal sewers and pipelines. The environmentally-friendly changeover of the UP resin system has no impact on the technical properties of the products. Therefore, customers do not have to take any technical changes into consideration for their projects. In addition, all further developments are in harmony with all globally-existing product approvals, so they remain valid. So far, SAERTEX multiCom® has launched the UPgreen technology in Europe. China and the USA will follow in the future.

The fact that increasing numbers of equipment offerings and wider ranges of installation options are now available give credence to the fact that light cure lining has yet to come fully of age, particularly in the UK – but it is getting there.

INTERNATIONAL NO-DIG 2022 HELSINKI

THE 38th INTERNATIONAL NO-DIG

Conference and Exhibition
3-5 October 2022

Messukeskus Helsinki Expo and Convention Centre, Finland

International No-Dig Helsinki is the major annual international gathering for trenchless technologists to meet and discuss the latest industry developments.

- Reach new markets at this major event targeting influential audiences to be drawn from the European markets, as well as attendees from further afield
- An opportunity to display and demonstrate products to a highly targeted audience
- Ensure your brand has a profile in the presence of the industry's premier decision makers
- Take a leadership position and play a major role within the Trenchless/No-Dig sector
- Be seen at the region's only industry specific exhibition and conference with a proven track record that truly demonstrates Trenchless/No-Dig technology and its capabilities
- Be seen alongside influential supporters representing Europe

To be seen amongst the worlds leading providers and show your innovations, book a stand at International No-Dig Helsinki.

Contact Paul Harwood at pharwood@westrade.co.uk or +44 (0) 1923 723990

CALL FOR PAPERS NOW OPEN FOR SUBMISSION

Organised by

WESTRADE GROUP LTD

iSTT

ISTT

Diamond Sponsor

PICOTE LIFE FOR PIPES

Platinum Sponsor

GEO NEX

Supported by

GSTT TRENCHLESS MADE IN GERMANY

made in Germany

FIWA

Official Media Partner

TRENCHLESSWORKS

Bronze Sponsor

TRELLEBORG

HELSINKI visithelsinki.fi

INFRA

SKTY

BIOGENIC CORROSION AND ITS EFFECT ON PORTLAND CEMENT WASTEWATER INFRASTRUCTURE

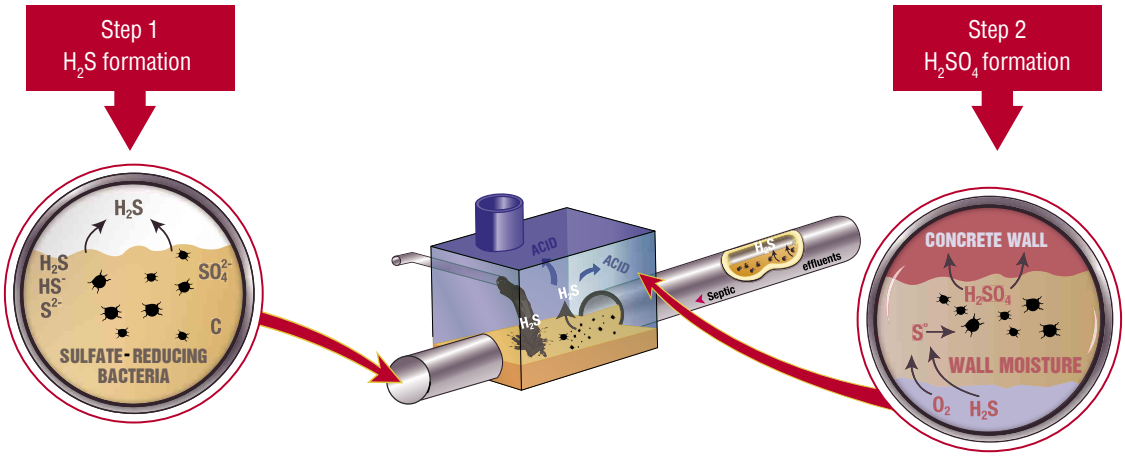
Protection of a sewer manhole with a spray lining of SewperCoat®.

Biogenic corrosion of portland cement.

Around the World, deterioration of wastewater collection infrastructure due to H_2S biogenic corrosion is a serious problem for owners and operators. Wastewater collection infrastructure such as gravity pipes, manholes, tanks, lift stations, control structures, and force mains are typically constructed with Portland cement concrete. Portland cement is a calcium silicate and its hydration inescapably liberates calcium hydroxide $Ca(OH)_2$. Sewer bacteria excrete sulphuric acid H_2SO_4 which reacts with the liberated calcium hydroxide with the reaction:

$$Ca(OH)_2 + H_2SO_4 \quad \text{----->} \quad CaSO_4 + 2H_2O$$

This reaction produces gypsum and water. In a humid sewer environment, gypsum is dissolved. This ongoing disruptive phenomenon continually leaves a fresh layer of Portland cement for attack. >



Mechanism of sulfuric acid formation.

The H_2S biogenic corrosion mechanism is a well-known phenomenon but the specifics of the process are sometimes misunderstood. Surprisingly, wastewater itself is rarely corrosive. The corrosion begins with H_2S created by the decomposition of the organic materials within the wastewater. This H_2S builds in concentration in the areas of laminar flow. The H_2S is then released into the sewerage network in areas of turbulent flow (outfall and force main type situations). Turbulent flow can occur in numerous areas of the system, including piping systems, manholes, pumping situations, treatment plants, etc. This turbulent flow causes the dissolved H_2S to become an airborne H_2S gas. The H_2S gas is heavier than air and initially exists above the effluent level, dissolving in the moisture on the concrete surfaces above the flow level. As water is formed by the oxidation of the hydrogen, the H_2S gas deposits elemental sulphur onto these surfaces. This elemental sulphur is a food source for naturally occurring bacteria present in the sewerage system. These bacteria use H_2S gas as a nutriment, in presence of oxygen from air and the by-product of the bacteria's digestion process is sulphuric acid. It is this sulphuric acid that is corrosive to wastewater structures, not the H_2S gas itself.

Factors that can enhance this biogenic corrosion cycle include long retention times, high ambient temperatures, flat terrain, and low flow values. With the current growth of outlying suburban areas, feeding into the existing infrastructure of larger metropolitan areas, these factors are becoming increasingly prevalent throughout the world as treatment plants are commonly several miles from the city centre, requiring very long distances to transport the effluent.

Contrary to the chemistry of Portland cement, the hydration process of calcium aluminate cement does not produce calcium hydroxide but liberates calcium aluminate hydrates and $Al_2O_3.3H_2O$ 'gibbsite'. The gibbsite liberated from calcium aluminate cement hydration is not susceptible to H_2S attack. At pH levels above 3.5 the gibbsite is insoluble and blocks the pores of the concrete, protecting it from the ingress of acid. Below a pH of 3.5 the gibbsite contributes to neutralising the acid at the surface by the consumption of hydrogen ions:

$$2[Al_2(OH)^3]^{3-} + 6H^+ \text{ —-> } 2Al^{3+} + 6H_2O$$

The measure of an acidic pH is a measurement of the molecular concentration of hydrogen ions (H^+). Therefore, the more H^+ ions there are in solution, the lower the measured surface pH will be. In the equation above 6 H^+ ions are removed from solution making them neutral. This is the 'neutralisation capacity' of a calcium aluminate. This neutralisation reaction releases alumina ions (Al^{3+}) which have an inhibitory effect on the metabolism of the bacteria creating the acid. By removing hydrogen ions from solution, the surface pH is locally raised. The released alumina ions react with the bacteria present to slow their activity. Calcium aluminates act as a Protective - Reactive Barrier, greatly reducing the corrosion of the concrete. >

History of calcium aluminate use in wastewater.

Manhole coated with SewperCoat®.

The more gibbsite available, the more corrosion resistant a calcium aluminate-based product will be. A typical calcium aluminate mortar contains 20% to 35% calcium aluminate cement, with the remaining 65% to 80% being a natural aggregate system such as silica sand, limestone, granite, etc. While a calcium aluminate/natural aggregate material will perform better than a Portland cement based material, only the 20% to 30% cement portion will have the ability to neutralise acid and inhibit bacterial activity.

SewperCoat® by Imerys is a 100% calcium aluminate mortar (both cement and aggregate system), 100% of the product has the ability to neutralise acid and inhibit bacterial activity.

SewperCoat® is a cured-in-place, spray-applied cementitious liner that, it is claimed, delivers a unique, proven, and radically different trenchless repair strategy, trenchless repair with an easy-to-apply cementitious system able to resist the most severe biogenic corrosion conditions. SewperCoat® bonds well to moist surfaces, and provides rock solid structural rehabilitation within a few hours.

Calcium aluminate cement has been used to protect sewer structures since the 1950's when it was applied in Perth, Australia. South African pre-casters have been lining precast pipes with calcium aluminate cement since the 1960's. Since the late 1970's Ductile Iron Pipe (DIP) for wastewater has been lined with calcium aluminate mortar which became the EN standard. In 1991 the Sewpercoat® brand was born and it was applied for the first time to rehabilitate a manhole at the Hampton Roads Sanitation Department in Virginia, USA. In the UK, calcium aluminate cement was selected by Wessex Water to rehabilitate Shaft 13 at the Coastal Interceptor Sewer (CIS). After rehabilitating a few smaller assets to conduct due diligence on calcium aluminate cement, shaft 13 was scabbled back to the substrate, shotcreted by a make-up layer of SRPC concrete, and over-coated by a 40 mm veneer of Calcium aluminate cement for protection. Since 1991 SewperCoat® has been the solution of choice for asset owners to protect their structures from H_2S biogenic corrosion around the world.

For more information: sewpercoat@imerys.com

GREENER PATCH REPAIR WITH RECYCLED PLASTICS

S1E Operations Manager, Russell Edwards, has introduced recycled plastic to the Pipe Doctor range.

Recycled lay flat tube (LFT) and groundsheet are being phased into the Pipe Doctor patch repair materials by manufacturer S1E, which will save a total of almost 7 tonnes of virgin plastic per year.

"The recycled plastic performed excellently in tests, so customers will not see any difference in practice, just a slight change in colour." stated S1E Operations Manager, Russell Edwards. "The change is great for the environment as well as being a step in our journey of continuous improvement and environmental responsibility." >

The recycled plastic (right) performs the same as the virgin plastic (left) but is slightly different in colour.

The recycled plastic is being phased in to Pipe Doctor patch repair kits and bulk materials.

The change applies to all Pipe Doctor LFT and groundsheet, including bulk materials and those used within the Pipe Doctor patch repair kits. Recycled plastic is defined as that which contains 30% or more of recycled material and can contain up to 70%. This is the definition used in, for example, the Government's new Plastic Tax, which is due to take effect in April. The material can be recognised from the slight brownish-grey tint to it.

"We are making the switch now as we have now discovered an alternative plastic that works really well." explained Russell. "Tests in the past, of previously available material, have not given the results we would want to see and that our customers need, which is why we did not make the change before. Recently, our supplier sent a delivery of recycled material for the S1E team to test. We were surprised with the excellent results this time. I have since been reassured by the supplier that this recycled blend can be replicated for each S1E order without issue. We will be stringently testing each roll of material to ensure compatibility as we phase this new material in, but I do not foresee any problems."

New deliveries of plastic to S1E will contain the recycled plastic from now on and will be received by customers as stocks of the previous material are phased out.

www.s1e.co.uk

S1E

New off-the-peg bundle - now available

Starlight UV lining, for smaller bore pipes

New ‘ready-to-go’ bundle ideal for DN150-400 pipes:

- Starlight unit
- Starlight installation kit
- Cable drum 90m
- Light chain 4 x 400W
- Booster 4 x 400W
- End caps DN 150-350
- End caps DN 400
- Deflection roller kit
- Spare parts kit light chain 4 x 400W
- Repair kit cable

Call now for a demo on 01226397015

E: contact@s1e.co.uk T: +44 (0)1226 397015 www.s1e.co.uk

LIVE RISER TRANSFER

The live riser connection at Shropshire House.

Steve Vick International's (SVI) Contract Service team recently assisted Cadent with a Live Riser Transfer project at Shropshire House in North London, UK.

Following a survey of the high-rise block of flats, carried out by Cadent, severe corrosion was identified on the inlet gas supply at the base of the riser, just above ground level. Cadent immediately started planning the best method of remedying to remove the risk.

One option was for the riser pipe to be completely replaced but this would have affected 46 flats and caused significant disruption to the residents living in Shropshire House. It would also have been a costly exercise. With the customer at the forefront of its mind, Cadent decided to contact SVI to see if its Contract Service team could assist by performing a Live Riser Transfer. This is a technique which allows a gas riser within a building to be partly renewed or transferred to a new main without switching off the customers gas supply. The Live Riser Transfer technique is available for use on 1 in to 6 in (25 mm to 150 mm) diameter low pressure services.

The SVI team surveyed the riser and confirmed that the technique would indeed be suitable. It was therefore agreed between Cadent and Steve Vick International that two connections, at 3 in (75 mm) and 2 in (50 mm) diameter, would be replaced.

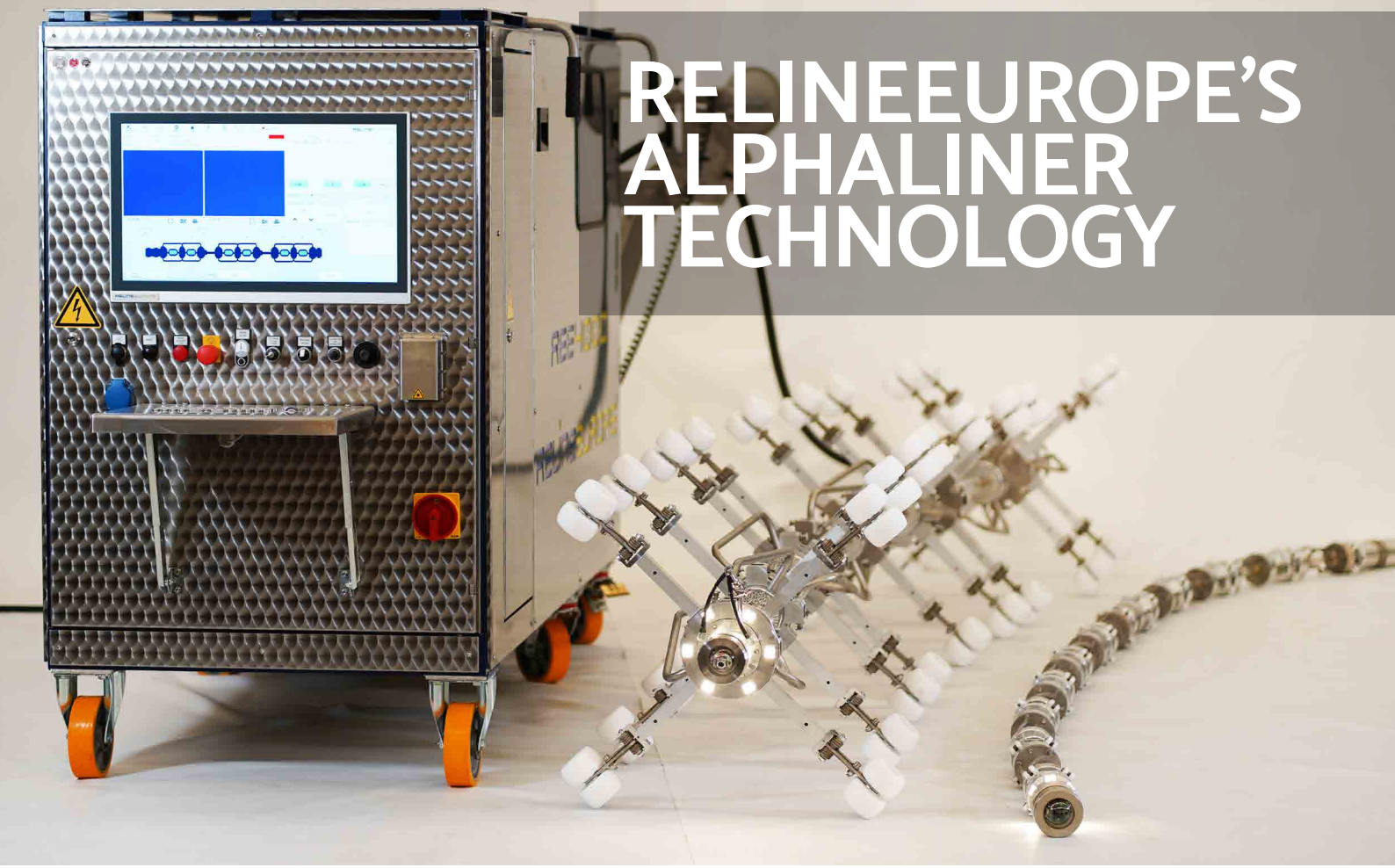
K-S Pipe Contractors constructed the welded steel on the new transfer and Steve Vick International fitted and tested the new connections.

Dean Tattam, Lead Delivery Engineer at Cadent commented: "The Live Riser Transfer technique is a significant game changer as it allows for the partial renewal of a riser. This significantly cuts time onsite and reduces costs, but the real benefit is that there is no customer interruption to any supplies and avoids the need to enter flats to carry out works to restore the gas. This technique is especially important where there are vulnerable customers present."

The project was completed in 14 days without a single customer having their gas supply interrupted.

www.stevevick.com

RELINEEUROPE'S ALPHALINER TECHNOLOGY



An Alphaliner UV unit with a selection of UV light trains.

The Alphaliner system from Relineeurope has been available on the rehabilitation market now for some time.

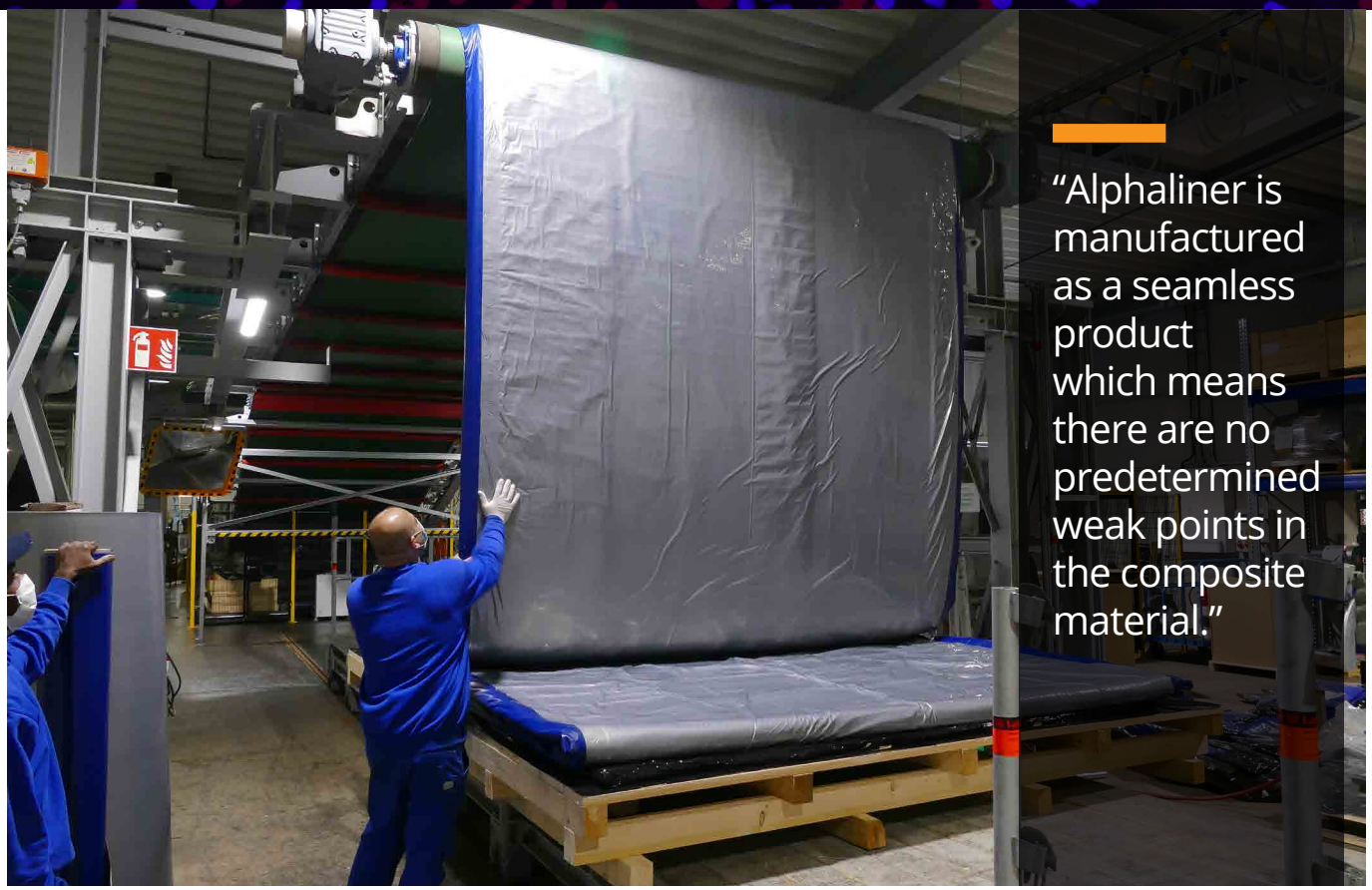
As compared with some other systems Alphaliner offers higher storage stability and can generally be stored at temperatures between 5°C and 30°C for up to half a year. It is also claimed to offer more cost-effective transport options, as no just-in-time transports to the job site are required and deliveries to different job sites can be carried out together.

It also offers flexible site handling, as the liner does not break if it is not processed immediately. This gives advantages in water management (by-pass), traffic control and robot use. There is also no styrene-contaminated curing media (water or steam), there is only a comparatively low styrene odour due to leaking compressed air that is used to inflate the liner.

It is also claimed that the Alphaliner offers higher material characteristics, which bring with it lower wall thicknesses and lower curing times and therefore lower manufacturing costs as well as hydraulic and processing advantages. The resin-rich layer on the inside of the liner gives the liner better resistance to mechanical and chemical attacks as well as better hydraulic behaviour due to the extremely smooth inner surface. The system also offers smaller site footprint than other systems and les potential for pollution.

Pure UV-light curing, in combination with the RELINE UV-Equipment, of liner thickness up to 20.5 mm is also available and during installation the liner is monitored permanently and protocolled without gaps.

Before curing, a camera is passed through the liner once in position to establish if there are any existing irregularities that can be detected and eliminated before curing. With the UV equipment used continuous video or recording of photographs is possible. >



"Alphaliner is manufactured as a seamless product which means there are no predetermined weak points in the composite material."

Preparing an Alphaliner prior to delivery.

During curing, continuous documentation is carried out using the camera, control units (bulb power) temperature sensors, curing speed monitoring as well as inside pressure over the entire liner length.

Set-up and curing pressures used in the installation process are usually in the lower midfield range of commonly used values. As a result, this improves safety and offers further advantages on site including quicker packer (end cans) installation, less air volume requirement and therefore compressor performance is optimised.

LINER PRODUCTION

Alphaliner is manufactured as a seamless product which means there are no predetermined weak points in the composite material. The fibreglass mats are put through a pre-impregnation process and thickening of the resin before the liner is manufactured. This improves the control of homogeneous impregnation of the composite material.

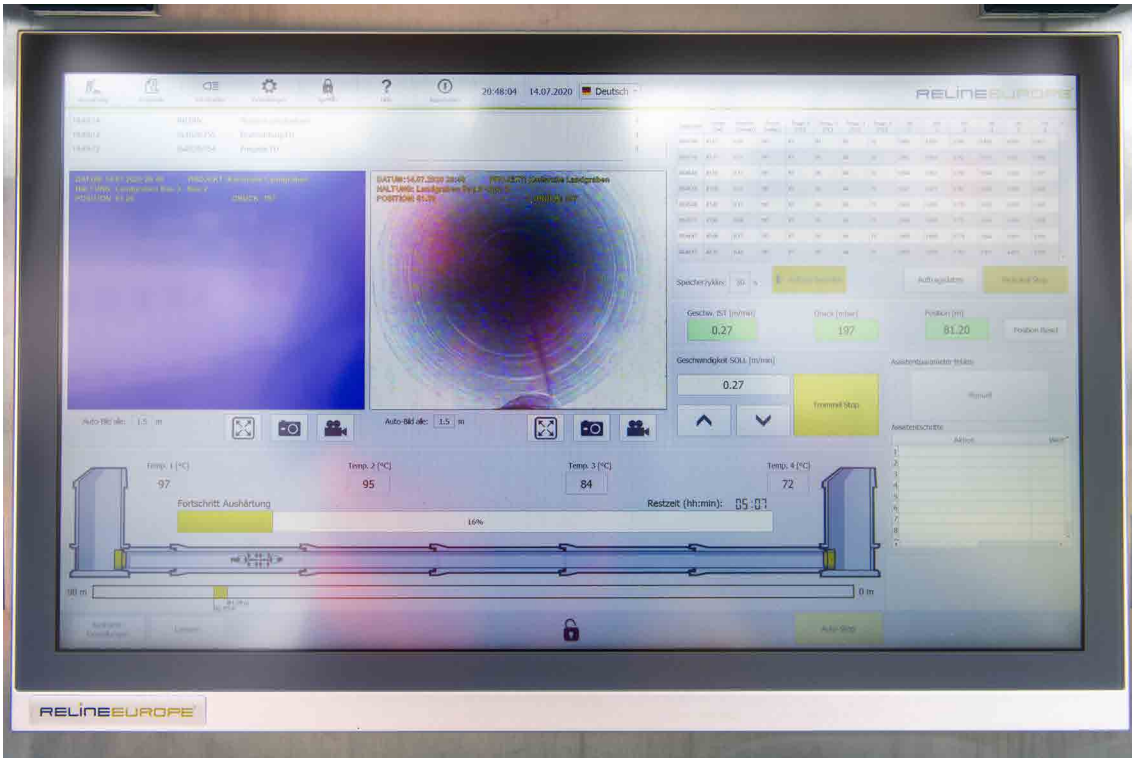
The company also utilises a completely automated documentation system for the raw materials and manufacturing processes in a sophisticated database. This makes the production of the individual liner absolutely reproducibility and improved development (R&D) activities.

Steps in the production process are carried out in wall thicknesses of 0.7 mm. This allows relatively fine coordination to meet static requirements. Lower wall thicknesses and lower curing times and therefore lower installation costs as well as hydraulic and processing advantages.

ON SITE

Six or nine consecutive UV-bulbs are used during installation. This causes the liner to be irradiated homogeneously over a large area and over a longer period thereby improving the complete curing of the liner. Additionally, considering the irradiation of a large area with the light-chains, the curing speed is very quick compared to a light-core or even a double core set-up. >

During the installation process continuous monitoring takes place.



An electronic control unit (with individual electronical ballasts for each UV-bulb) automatically checks each UV-bulb power. The UV-bulb power is kept constant at a pre-set value using the control unit. Age-related decreases of the UV-bulbs performance is therefore always compensated for during curing.

The UV-bulb power can be controlled in 100 W increments (with the REE4000 system this can be done individually and without defined increment limitations). This allows faster curing speeds of the light-chains, so lower personnel costs and lower temperatures inside the liner which avoids gluing of the inner film to the composite), especially when curing in smaller diameters. There is also automated ignition of the individual UV-bulbs of the light-chains which avoids errors caused by improper ignition. The light chains are divided into three parts. This reduces the length and weight of the chain to be installed and allows better handling in manholes or narrow shafts. It is possible to cure short length liners with a reduced light-chain of two parts only.

Also available is a variety of light sources (small, medium, and large) for optimised curing of all pipe profiles and sizes with the required thickness. This means that the ideal configuration of light sources with high effectiveness in curing time and job site costs can be achieved.

Relineeurope supports new installation partners and difficult projects at all times as well as offering regular visits or emergency attendance on the job site by its experienced application engineers. As a result, there is a constant exchange of experience between the installation partner and the manufacturer and therefore a continuous improvement of all production steps from production in the factory to the final product on the job site is guaranteed.

Overall Relineeurope offers a comprehensive quality management (TQM– Total Quality Management) system for its quality characteristics from raw material to cured final product to complement the installation partner's internal quality management system and demands for continuous further development of material and application quality.

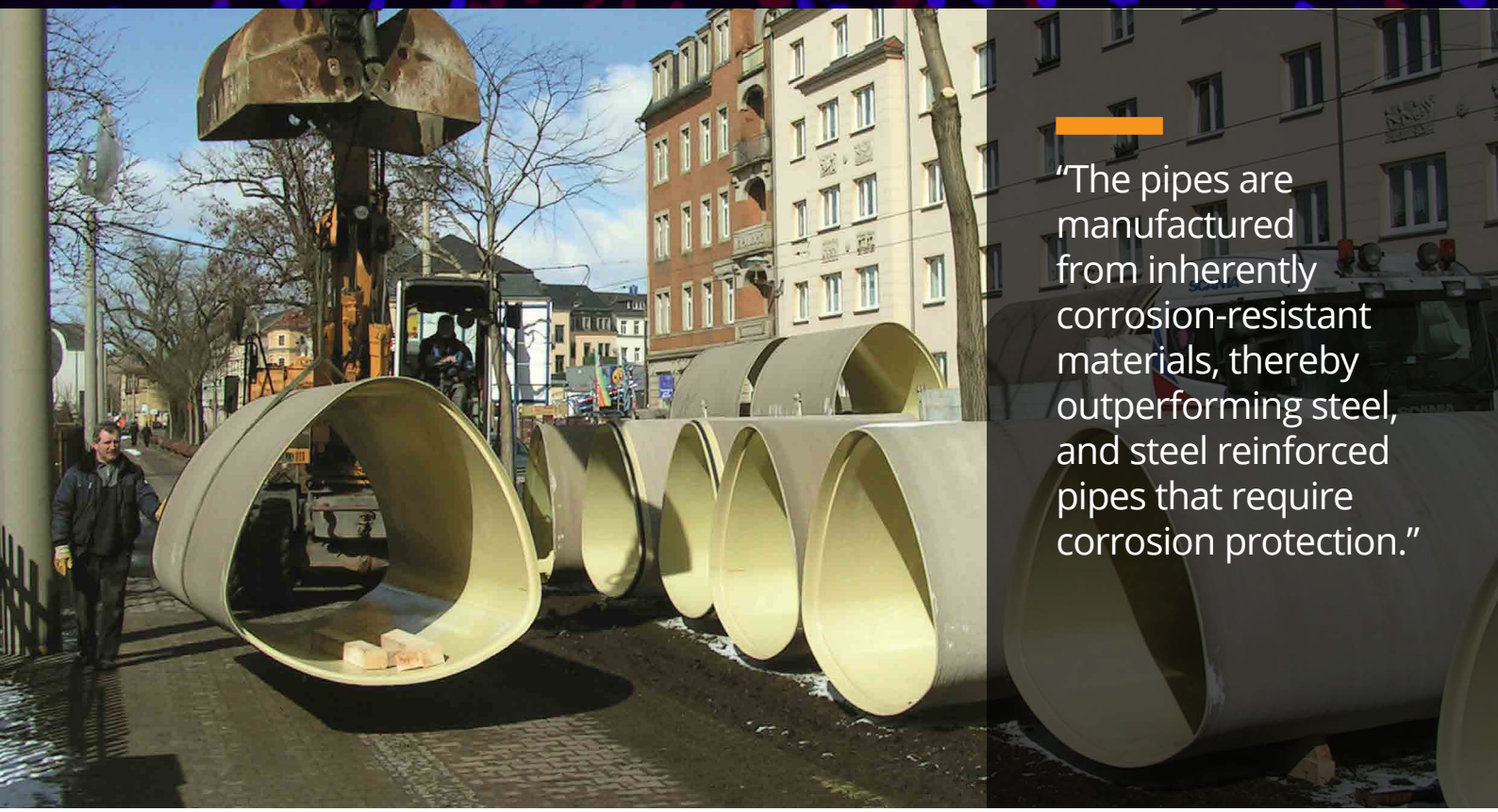
www.relineeurope.com

SEGMENTAL LINING – THE AUSTRIAN OPTION

An Amiblu circular liner section.

Amiblu is a global leader in glass fibre reinforced plastics pipe systems (GRP). With over 60 years' experience, Austria-based Amiblu produces and supplies customised solutions for sustainable water management worldwide with Flowtite and Hobas GRP pipe technologies.

The business has developed manufacturing processes to offer a full range of compliant systems to relevant EN and ISO standards giving customers the confidence to deliver sustainable solutions with long-term asset values. Amiblu's mission is to speed up the world's transition to sustainable water solutions with environmentally sympathetic systems for sewage, drinking water, hydropower, water storage, relining and trenchless applications and is challenging an established market with the inherent corrosion-free characteristics together with high abrasion resistance synonymous to Amiblu's GRP pipes. >



"The pipes are manufactured from inherently corrosion-resistant materials, thereby outperforming steel, and steel reinforced pipes that require corrosion protection."

Amiblu's segmental liners can be manufactured to required shapes and sizes.

Trenchless technology is a growing global market for the installation of new, or replacement or rehabilitation of existing underground pipes and culverts with minimal disruption caused to the environment or surrounding infrastructure. Amiblu provides a strong offering to the trenchless market in both pipe jacking and rehabilitation systems for existing networks whether they circular or non-circular.

Relining Pipes

Amiblu's relining pipes are manufactured in both circular and non-circular options. Circular and non-circular structural sliplining systems are installed the world over, with many benefits including high strength performance from light weight pipes, abrasion and corrosion resistance, optimal hydraulics, minimal maintenance and a remarkably long, design life exceeding 150 years offering both sustainable and resilient solutions to asset owners.

The pipes are manufactured from inherently corrosion-resistant materials, thereby outperforming steel, and steel reinforced pipes that require corrosion protection. The pipes are also resistant to UV light and have an extraordinary resistance against acid and chemicals making them an ideal choice to combat failing pipelines subject to H_2S attack, ground salts and saltwater conditions. The smooth internal veil to Amiblu's relining pipes is abrasion resistant and offers excellent and continuous, hydraulic performance (k= 0.01 – 0.016 mm (Colebrook-White)) throughout the life of the pipe.

These lining pipes are applicable where there are failing pipes which need renovation or where pipes their strength increasing in situations such as sewers, culverts, stormwater systems and attenuation systems. If a concrete, brick-built or cast-iron pipe is failing it must either be replaced or relined. These assets common amongst the owners and operators of Water Companies, Rail Networks, Environment Agencies and various local government authorities.

Amiblu's circular relining pipe is made bespoke for each project, to the required performance and dimensional criteria. These pipes are available in pipe diameters from DN250 up to DN3500 in lengths of 1 m, 2 m, 3 m and 6m in stiffness classes from SN5,000 to SN1,000,000. >

Installing Amiblu NC line segments.

Non-Circular Liners

The Amiblu NC Line has been developed by researchers and scientists at Amiblu culminating in a pipe with a long, estimated service life, increased acid resistance and with an impact resistance making it easier and safer to handle and perform to ISO 16611, the international standard for non-circular pipes.

The non-circular profiles are produced using filament winding technology. They can be customised according to project requirements and easily adapted to different types of shapes and geometries.

The non-circular range is available in sizes from 300 mm wide x 500 mm high up to 4 m diameter.

Structural performance

Amiblu offers a full support service to ensure that all relining pipe systems are designed to be project specific in respect of the shape or pipe diameter, pipe lengths to suit access and most importantly structural capability. So customers should not be surprised when detailed information is asked for. Amiblu's engineers work with clients at all times. >

Courtesy of Matt Durbin Associates. Gypsy Patch Lane, Bristol Structural Rehabilitation 2021

The annulus between the host and liner pipes is usually filled with pumped grout, securing the liner in position, and assisting with the structural load.

Why GRP structural relining systems?

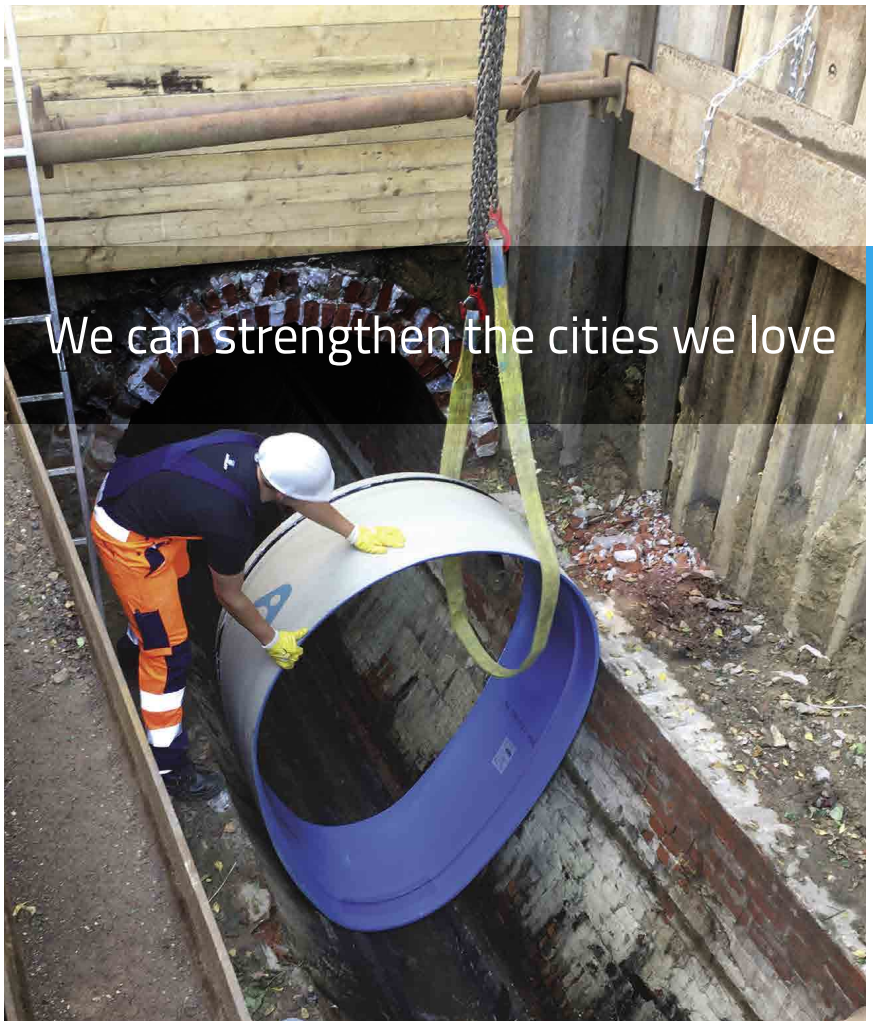
According to the manufacturer of these systems, there are several advantages in using this technology for pipeline rehabilitation including:

- Delivered to site preformed and ready to install.
- Provide structural stability immediately for man entry teams to work within the pipe safely.
- Push-fit jointing system for ease installation, the joints can be glued on site or supplied with an EPDM gasket.
- Over-pumping is not always necessary as the pipes can be installed in wet conditions
  and the flow can be directed through the pipe to allow for the anulus to be grouted.
- Pipe lengths can be manufactured in accordance with the site access.
- No curing time or equipment

In addition to the relining pipes, Amiblu is also able to manufacture access chambers or manholes to fit to the systems to complete the pipeline, again these can be either circular or no-circular or both.

www.amiblu.com

"In addition to the relining pipes, Amiblu is also able to manufacture access chambers or manholes to fit."



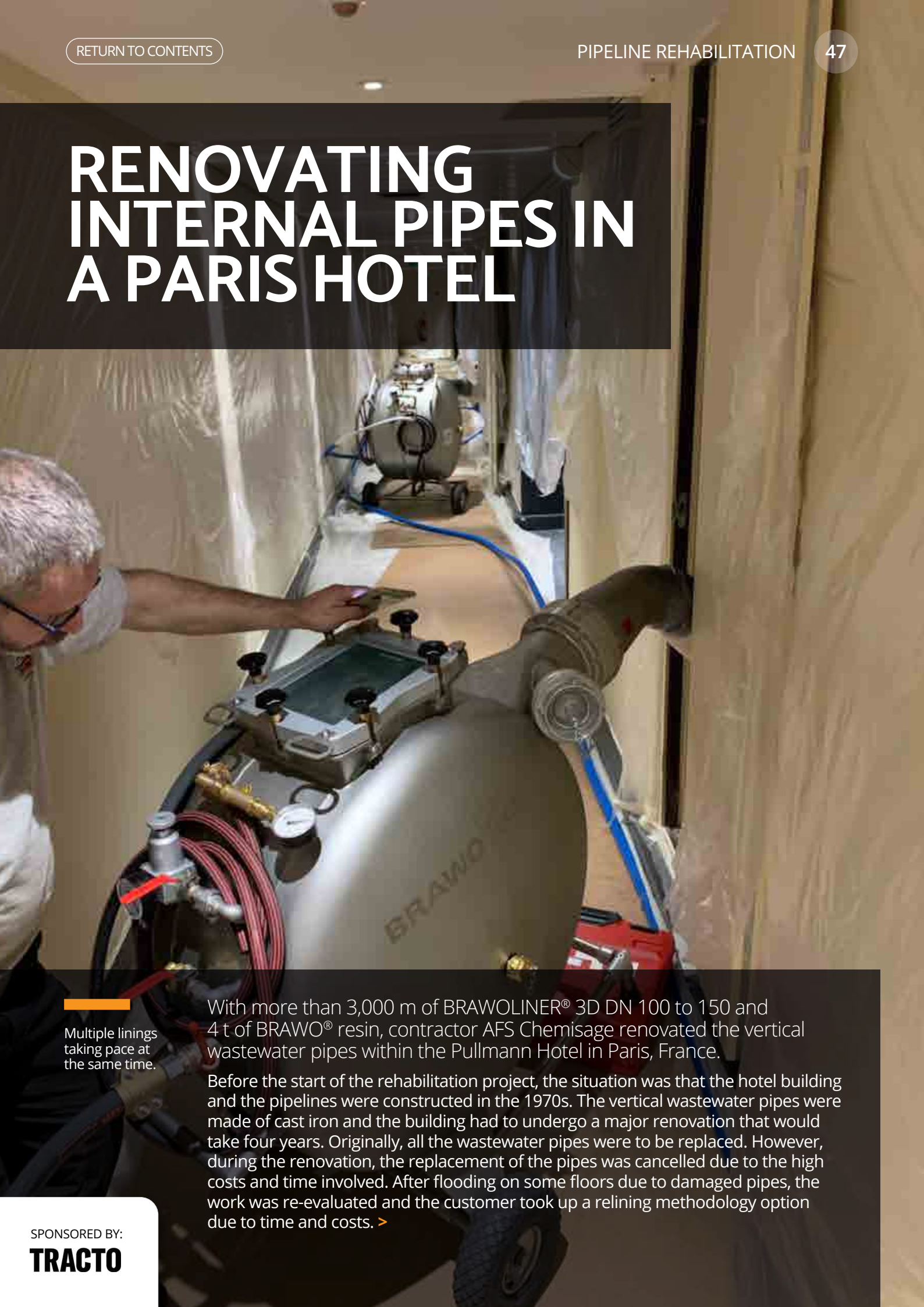
Amiblu®
Pipes designed for generations

Amiblu NC Line
Non-circular pipe profiles in all shapes and sizes

- Sustainable rehabilitation of urban pipe networks
- Open cut and trenchless installation
- Excellent structural stability
- Increased acid resistance
- Asset lifetime 150 years+

www.amiblu.com
united.kingdom@amiblu.com
Tel: +44 7786 013574

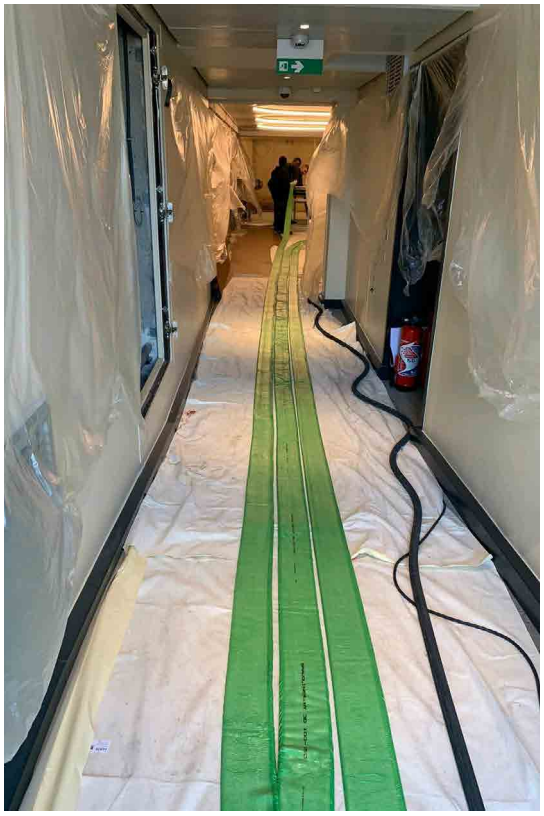
RENOVATING INTERNAL PIPES IN A PARIS HOTEL

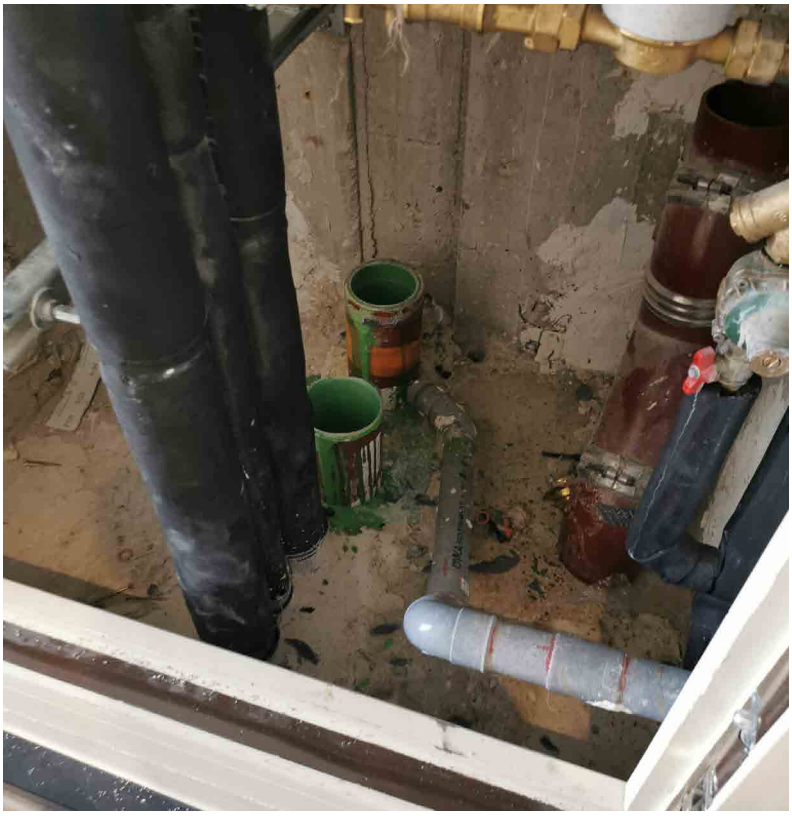


Multiple linings taking pace at the same time.

With more than 3,000 m of BRAWOLINER® 3D DN 100 to 150 and 4 t of BRAWO® resin, contractor AFS Chemisage renovated the vertical wastewater pipes within the Pullmann Hotel in Paris, France.

Before the start of the rehabilitation project, the situation was that the hotel building and the pipelines were constructed in the 1970s. The vertical wastewater pipes were made of cast iron and the building had to undergo a major renovation that would take four years. Originally, all the wastewater pipes were to be replaced. However, during the renovation, the replacement of the pipes was cancelled due to the high costs and time involved. After flooding on some floors due to damaged pipes, the work was re-evaluated and the customer took up a relining methodology option due to time and costs. >





Left: Impregnation of the 70 m of BRAWOLINER®.

Right: Lining of stag pipes from the top floor.

The challenge was the very short time frame allowable, only five weeks, to repair 42 vertical cast iron DN 125 down pipes with the lengths of 70 m and 64 m each. Four personnel were needed to install the liners with ten to re-open the connections.

"The work included cleaning, relining, re-opening connections and reconnecting the pipes. Because of the big job site we had a lot of equipment and people, so there were tight supply demands which had to be delivered 'just in time' on the job site." Said Yaker Ait of BRAWO SYSTEMS. "We managed the supply and service of this big volume project in spite of the extreme length of the liners just as planned."

BRAWOLINER® 3D

The BRAWOLINER® 3D was used on this project due to its extraordinary properties.

As it was specially developed for large dimensional changes or several jumps in dimension in succession, the BRAWOLINER® 3D could be used in diameters from DN 70 to DN 400. The seamlessly knitted liner adapts optimally to any pipe diameter and impresses with an excellent installation result.

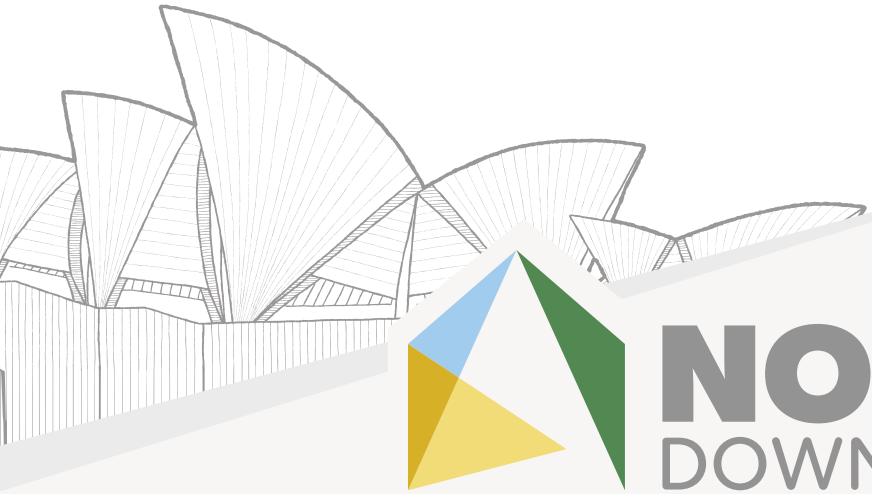
The extremely flexible polyester loop construction allows for enormous lateral expansion. This makes the BRAWOLINER® 3D an optimal rehabilitation solution for difficult wastewater systems.

The BRAWOLINER® 3D was able to demonstrate these unique properties on the Pullmann project. After the installation work, the liners fitted perfectly and crease-free to the old pipes.

FAST HARDENING WITH STEAM CURING

At the Pullmann Hotel, the new BRAWO® SteamGenerator 50 UL was used. Its low weight and mobility on the job site is ideal for installations in small areas and tight conditions, for example like hotel floors or hotel rooms. This led to a fast rehabilitation process and the vertical pipes could be rehabilitated in a few hours in each case.

www.brawosystems.com



14-17 June 2022

International Convention Centre (ICC) Sydney

NO-DIG DOWN UNDER

Building sustainable futures

AUSTRALIAN BORDERS ARE OPEN

INTERNATIONAL GUESTS WELCOME

No-Dig Down Under is Australia's largest conference and exhibition dedicated to the trenchless construction, rehabilitation and location of utility infrastructure.

If you're involved with major tunnelling projects, the installation of major infrastructure that utilises trenchless technology methods, or manage utility assets, No-Dig Down Under is an unmissable event.

Returning in person in 2022, No-Dig Down Under brings together world-leading experts in trenchless technology across three conference streams, alongside the latest in new equipment on display in the exhibition hall.

Tickets are available online now, with FREE entry into the exhibition hall.

www.nodigdownunder.com

PLATINUM SPONSOR

bothar BORING & TUNNELLING

GOLD SPONSORS

Vermeer Australia

HERRENKNECHT Tunnelling Systems

SILVER SPONSORS

Interflow

ROB CARR

BRONZE SPONSORS

WILMOT Pipelining

pipecore

McCONNELL DOWELL CREATIVE CONSTRUCTION 60 YEARS of Creative Construction

bamser Underground Engineering Excellence

CHARITY PARTNER

WaterAid

ORGANISED BY

PRIME CREATIVE media

SUPPORTED BY

ASTT

OFFICIAL MEDIA PARTNER

TRENCHLESS AUSTRALASIA

www.nodigdownunder.com #nodigdownunder

PREMIERE FOR TRENCHLESS PIPE REPLACEMENT IN BOTSWANA

Due to an annual dry season, which usually lasts about 9 months, the semi-desert climate and the average temperature climbing by 3°C, Botswana suffers from a permanent water shortage. To satisfy the water demand of the public and the cattle, groundwater which cannot re-generate so quickly, has to be used to great effect. That is why Botswana urgently needs to extend its water supply network and most of all to improve its condition. >

Use of the GRUNDOBURST static pipe bursting rig is learnt very quickly in training, with the QuickLock rods ensuring fast installation progress at the jobsite.

The new water supply pipes were replaced without any damage to adjacent service lines.

"It was the very first project in Botswana where trenchless technology was applied to renew service pipes."

At a jobsite in Francistown about a year ago, static pipe bursting was the remedy. A total of 1,700 m of old pipes were replaced by new HDPE pipes with a larger diameter. In detail 150 mm diameter pipes made of PVC were expanded to 200 mm and 250 mm diameter respectively, as well as Asbestos Cement (AC) pipes which were upsized from 400 mm to 450 mm diameter. Focus Engineering Solutions, which carried out the work, showed a great sense of pioneering, while at the same time demonstrating ways to repair the countries pipe networks at lower costs and also at a much quicker pace in future. It was the very first project in Botswana where trenchless technology was applied to renew service pipes.

To ensure the success of pipe renewal, TRACTO decided to send an expert to Botswana, who spent a whole week training the machine operators at the jobsite in order to get them acquainted with the GRUNDOBURST 800G which the company had supplied and basically train them 'on the current job'. Apart from general method information, useful tips and tricks for daily routines were passed on, general maintenance work was explained, as well as training with regard to transport, set-up and disassembly of the bursting rig. Now the company and the operators are able to carry out upcoming jobsites themselves and furthermore can pass on their own knowledge about trenchless pipe replacement to construction companies and institutions in other regions of Botswana, which will allow maintenance of the network in a country with a desperate need for its water supply to improve as quickly as possible.

This was the first project of its kind in Botswana to utilise pipe the pipe bursting method. It has the potential to set new standards for pipeline construction and replacement in the country and the African continent!

www.tracto.com

HDD CONNECTS NEW HOUSING DEVELOPMENT TO THE POWER

Commencing the pullback operation of the pipe bundle.

Flowtek HDD UK Limited was recently employed as Principal Contractor by Scottish and Southern Energy PLC along with project consulting engineer Veda Associates Limited to install a cable duct to carry a 33 kV mains supply beneath the Arborfield Bridge at Church Lane, Shinfield, Berkshire, UK. Located just south of the M4 motorway near the town of Reading, the installation was required to connect a new, large housing development in the area to the main power grid.

PLANNING

As part of the planning operation, bore holes were dropped along the route where possible to determine ground conditions. A radar scan was also completed to locate any utilities and trial holes were used to prove these targets to provide a safe working route. Flowtek undertook the full design on this project.

These ground investigations also showed that the conditions in the area comprised largely gravel near surface with London Clay laying below this. At the bridge site not only did the installation have to cross beneath one of the bridge foundations but also two water courses. >

Left: Preparing the pilot drillhead.

Middle: The pilot bore holing out on target.

Right: The drill launch site showing the completion of the pipe bundle pull-in.

This made any option other than a trenchless solution impossible. It was decided to utilise Horizontal Directional Drilling (HDD) to complete the works. Planning of the crossing showed that the drilled bore would need to pass some 24 m below the bridge foundation, so it was decided to install the cable duct with a 300 mm diameter bore.

Special permission had to granted by Reading University for the operation to be allowed access to the worksite selected for the drill set-up.

INSTALLATION

Using its broad base of experience in the HDD field, Flowtek choose to utilise its Ditch Witch JT8020 drilling rig along with a Prago 1,000 gal (4,500 l) mixing unit with a hopper and a twin 1,000 gal (4,500 l) mixing unit. The guidance system for the bore was provided by Brownline Guidance.

The pilot bore was achieved with a Gyro-based drill head of 8 in (200 mm) diameter. The pilot bore was reamed to size using Ditch Witch Kodiak Reamers of 12 in (300 mm), 16 in (400 mm) and 20 in (500 mm) diameter. To pull the product pipe into place, the Flowtek crew used Mud Tight Gold Towing Heads from Brewis Engineering Limited.

Once the main bore and reaming operations were completed the team pulled in a bundle of two ducts using a barrel reamer lead. The two ducts comprised both 200 mm and 110 mm SDR11 Black Electric Ducts. The 200 mm diameter duct was installed to carry the main electric cables with the 110 mm diameter duct being used as the comms duct. Both duct pipes were provided as 12 m long >

The drill operator's control panel for steering the pilot bore.

> "The Ditch Witch JT8020 delivered with excellent results along with support from Ditch Witch UK. "

sticks by Wolseley of Chesterfield. All pipes butt-welded to current water standards and internal/external de-beaded. A Fusion Provida butt-fusion machine was utilised to create the pipe strings required each to a length of 324 m. A CCTV survey of the completed pipework was undertaken prior to installation to prove all internal beads had been removed.

The programme of work commenced on 28 August 2021 with the trial holes. Traffic Management was set up to enable the trial holes to be carried out. Two trial holes were placed in the roadside verge to determine which utilities existed and at what depths. An electromagnet utility survey was also carried out.

The drilling rig and support equipment was mobilised to site on 4 October with the work site and traffic management around the site being in place by 5 October. A check utility scan was then completed and the necessary access pits excavated. The drill rig and guidance system were set-up on 6 October and drilling commenced on 7 October.

On completion of the pilot bore and reaming stages and preparation of the pipelines and internal inspection confirmed, the pipe installation took place on 18 October. The site was cleared completely by 20 October with traffic management and complete demobilising happening on 22 October.

During the course of the installation works, the only problem encountered was flooding in the access field due to heavy rainfall at the end of the completed HDD work. Flowtek had constructed its own site compound and welfare facilities. With this being full design and delivery project, Flowtek had allowed for this area to be matted out so that it did not destroy the field due to construction traffic. This meant that the crew simply had to wait for the water table to go down before removal of all matting and no damage was done to the field. Flowtek also cleared a running ditch that was over grown for the water to flow as it should.

Commenting on the project for Flowtek Chris Preston, managing director said: "This was a very challenging project with drilling down to a depth of 24 m. However, with the expert guidance of Browline utilising the Gyro Equipment giving pin-point accuracy throughout the bore and with a dedicated and experience drilling team the project was completed to a very high standard and within the predicted time frame. The Ditch Witch JT8020 delivered with excellent results along with support from Ditch Witch UK. A big well done to all the teams and suppliers involved for a successful installation."

www.flowtekhdduk.co.uk

MICROTUNNEL SUPPORT IN A DIGITAL WORLD

The Akkerman SL60C unit on site at Fort Lupton.

As essential infrastructure projects continue, an increased demand for highly skilled field service technicians challenges manufacturers to provide adequate training for new operators. Installed as a standard option for new Akkerman microtunnelling systems, MTBM Cloud Data allows for secure, real-time monitoring and permissioned control. Akkerman's MTBM Cloud Data software communicates through a web-based portal and displays live operational data with a historical graphical interface. Enhancing the once state-of-the-art report generator tool, the MTBM Cloud Data enables the contractor to grant permission to all required individuals to view real-time operational functions of the system. >

Screen shot of the information provided by the Akkerman MTBM Cloud Data software.

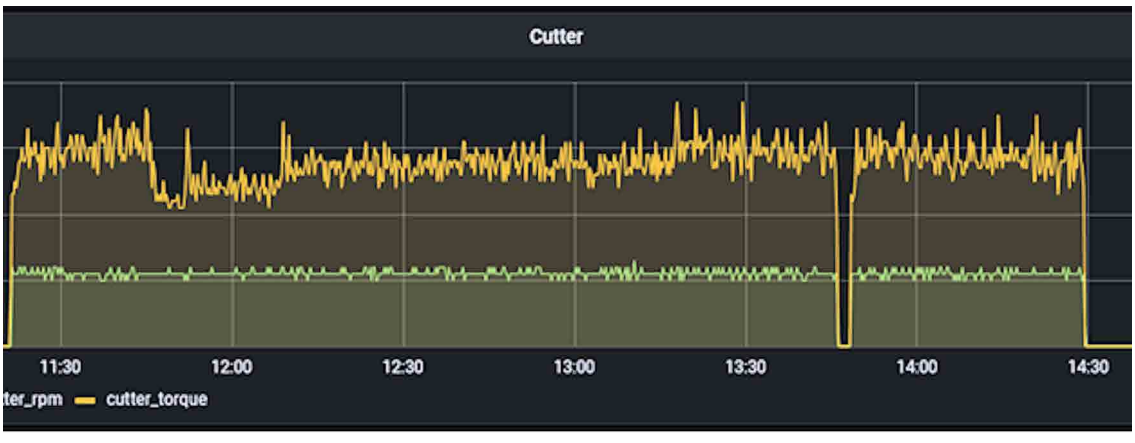
Jake providing home support.

On a recent project in Fort Lupton, Colorado, USA, BTrenchless mobilised its SL60C unit outfitted with an increase skin to install 800 ft (224 m) of 66 in (1,675 mm) diameter Hobas pipe through ranging geology. After a broken bone from a recent dirt bike accident that left him unable to travel, Jake Howton was able to remotely train and monitor project activities while in constant communications with the operator. Connected through headsets for immediate communication, Jake assisted the operator for three weeks while crews tested, launched, and successfully completed the microtunnelling drive. Although Jake did not have access to control the MTBM during training, he was able to instruct on the proper procedures to set control flags, monitor MTBM performance and offer advice as geological conditions changed along the alignment. Jake Howton said: “The ability to train through the MTBM Cloud Data works very well. You have a one-on-one experience with the operator.”

As technology continues to advance in microtunnelling equipment, so does the need for continued education of crew and staff. Akkerman’s MTBM Drive Data software is designed to allow the transfer of this knowledge to a team at the speed of the digital era.

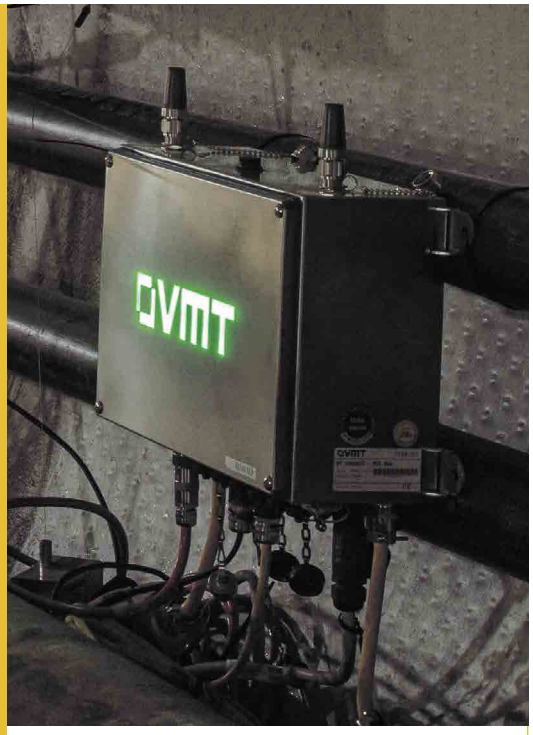
www.akkerman.com

A second screen shot of the type of information provided by the Akkerman MTBM Cloud Data software system.



WLAN included!

A real advantage that provides great support and time savings during repair and maintenance work in small diameter tunnels.



Just one of the benefits offered by **TUnIS Navigation MT** - our new, unique microtunnelling navigation platform.

www.vmt-microtunnelling.com

VMT

SMART Torque®
Electronic Torque Wrench By Norbar®

THE SMART WAY TO RECORD MECHANICAL JOINT INSTALLATION

Accurate Torque Force Data | Geo-Log Images
Sequence Assistance | Full Traceability & Assurance

AVAILABLE FOR HIRE NOW

Contact us 01582 699343

SUNBELT® RENTALS

SVI PROVIDES VARIED TRAILER SOLUTIONS

The SVI 180 Trailer carrying a 175 m pipe coil for Hyrotech.

Steve Vick International (SVI) recently assisted Hydrotech Water Services (UK) Ltd on a project in the New Forest, in southern England by adapting its Pipe Coil Trailer to take 175 m coils of 180 mm diameter PE pipe. Previously the trailer had carried a maximum 100 m of 180 mm diameter PE pipe.

Hydrotech was awarded the contract to replace circa 3,500 m of trunk main across Plaitford Common and Canada Common in the New Forest. Initially the company looked to use open cut and replace the main in its entirety but after further consultation with the New Forest authorities and a team of specialist ecologists, it was decided that sliplining would be the preferred method as it would cause less disruption to the area classified as a SSSI (Sight of Special Scientific Interest), SPA (Special Protection Area) and a RAMSAR site (a site of wetlands of international importance). >

The Hexi Trailer being use at Anglian Water.

The old 200 mm diameter PVC trunk main required sliplining with 180 mm diameter PE pipe. Hydrotech was given areas of the common whereby excavation was not permitted and as a result required bespoke pipe coils up to 175 m long to mitigate the environmental risk. Working alongside Westwood Pipelines Limited (a PE pipe manufacturer) the company was able to obtain bespoke coils up to and including 175 m long of 180 mm diameter PE pipe.

Hydrotech then needed to find a way to transport the bespoke coils, it was at this point that Steve Vick International was contacted. Seb, Project Manager at Hydrotech, liaised with the SVI Design and Development team and asked if the SVI 180 mm diameter Pipe Coil Trailer could be modified to take 175 m long coils. Having designed and built these trailers back in the 70's, the SVI team was well equipped to know the capabilities of the trailers and was able to very quickly come up with an engineering solution. The trailer was modified by widening and strengthening the carousel to accommodate the larger coil, this carousel is fitted to all SVI trailers to aid dispensing of pipe onsite.

Hydrotech also used the SVI 180 Pipe Handler and several long pushes were achieved, the longest being 270 m.

Seb Summerell-Youde, Project Manager at Hydrotech Water Services (UK) LTD commented: "During the early stages of the planning process I realised that if we could use bespoke coils of 180 mm diameter PE pipe rather than sticks, it would be far more efficient for this project and allow us to mitigate the areas of environmental No-Dig. The issue I had is that I could not find a trailer that would accommodate the size of coils I needed. It was at this point that I contacted Steve Vick International to see if they could help. The company has been absolutely brilliant from start to finish and both the modified 180 trailer and the pipe handlers have been key to the success of this project." >

The SVI 180 Trailer carrying a 175 m pipe coil for Hyrotech.

The SVI 180 Pipe Handler in operation.

SVI was also asked by Anglian Water to demonstrate its Hexi Pipe Coil Trailer. Following a successful demonstration, Gary Jackson, Senior Delivery Agent IMR Water, commented: “After using the Steve Vick Hexi Trailer, the team expressed to me, that moving forward, wherever we are installing up to 125 mm diameter pipe by directional drilling or insertion, they would be far happier to use the Hexi Trailer than anything else. It became quickly apparent to the team that the Hexi trailer has been designed and engineered with the optimum safety of the operator in mind. The simple things such as hydraulically raising and lowering the retaining bars and the safe access to remove the bands means that this trailer is much safer than the alternatives, and a step forward in improving how we dispense pipe on trenchless installations.”

The Hexi trailer was first identified by one of Anglian Water’s engineers, Lee Forster, with a view to improving the quality of the company’s plant and equipment but also, more importantly the health and safety of its operatives and the communities where works take place.

The Hexi trailer was initially demonstrated by Tom Vick and Shelley Butler, on a live site, to a highly experienced team within Anglian Water. The team particularly liked the trailer for its health and safety attributes. They were impressed that the brakes had to be locked on before any other element can be altered and that by jacking up the pipe inside the trailer, to a point whereby it is dispensed slightly downhill directly from the carousel, instead of being dragged over a set of rollers, makes dispensing effortless and eliminates the need for uncontrolled operative intervention.

Another significant benefit of the Hexi Trailer is that it offers a safe way to transport and store coiled PE, which helps to reduce pipe wastage. By using 500 m long coils for example, useful lengths can be left on the trailer for the next job. This has been proven to reduce pipe wastage by up to 20%.

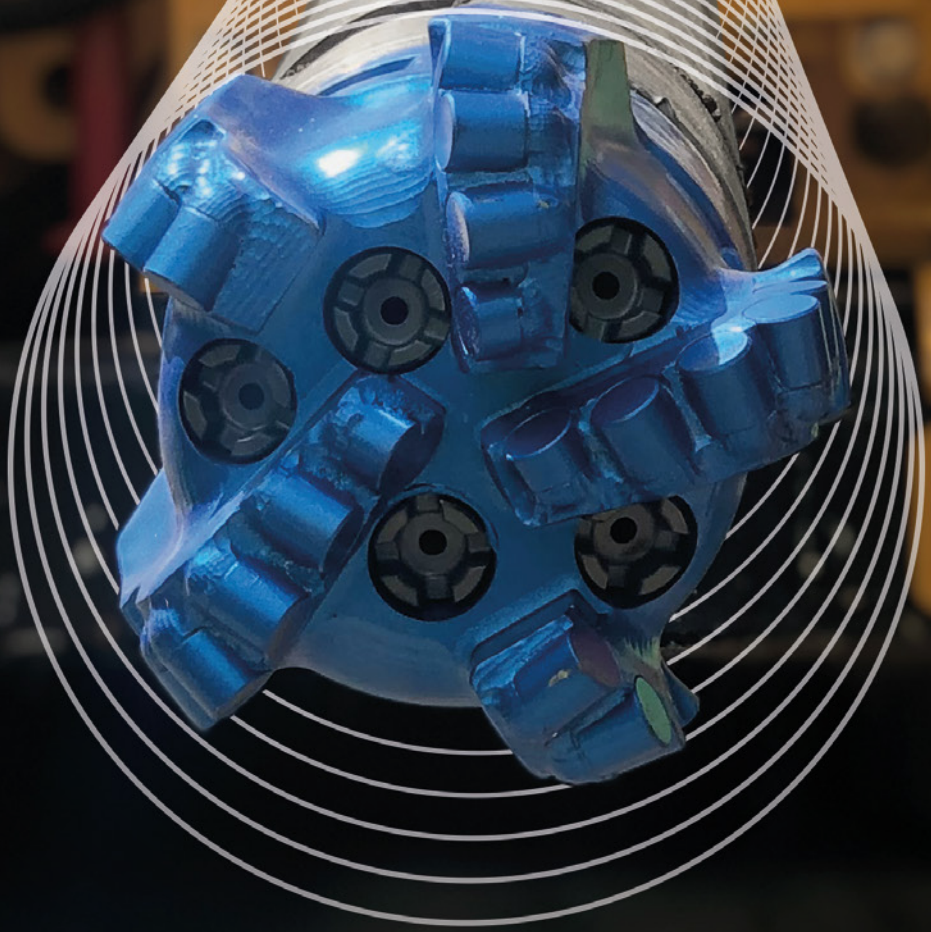
The Hexi Trailer, part of a range of trailers at SVI, can handle coils of PE from 40 mm up to 125 mm diameter. As an example, it can accommodate a 500 m long coil of up to 90 mm diameter or a 100 m long coil of up to 125 mm diameter PE pipe.

www.stevevick.com

INFINITY® | TOOL MFG.

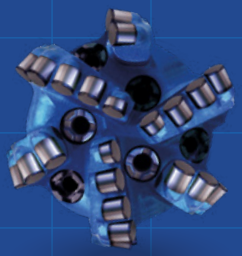
HDD ROCK TOOLS

High-performance, American-made Rock Tools



TRICONE HOLE OPENERS

TRICONES



PDC BITS

PDC REAMERS

DIRECTIONAL HAMMER BITS

+44 1422 484984 | infinitytoolmfg.com

istt.com

SOCIETY NEWS

ISTT News brought to members by Trenchless Works

A MESSAGE FROM THE CHAIR

Jari Kaukonen, Chair, International Society for Trenchless Technology

Hi ISTT members! And Happy Chinese New Year!!

I am full of hope that the world is opening again after the pandemic period.

The programme for the International No Dig show in Helsinki is almost ready. The one piece missing is the post conference tour on Thursday 6 October which every Affiliated Society can vote for out of five different possibilities. The programme gaining the most votes will win and will be the one which will be arranged. I am so eager to see the final number of delegates visiting Helsinki. Everyone should now book time from their calendar for the beginning of October for the visit. I am quite sure that you do not want to be disappointed. We will have a meeting with Paul Harwood of the Westrade team at the end of March to prepare every step for the trenchless week. After that you will hear more about the arrangements. The call for papers to the conference is now open on the conference webpage and to keep yourself updated about the arrangements please visit the show website: www.nodighelsinki.com and book the week from your calendar and send your paper in.

At the end of February I have a meeting with Peter and Enrico to prepare the last year of my chairmanship and other subjects we have in front of us before our council meeting in Helsinki on 2 October this year. I am sure that we will have many attendees for the council meeting because there will be elections through the Affiliated Societies and members for the next chair and vice chairs.

The big show, NASTT's annual conference will take place in Minneapolis, USA in April and I will be present. I am happy to have the possibility to meet many of my American colleagues at last after the lock down. Before that the Danish society No Dig Infra has its annual meeting at the beginning of March. I would like to be there too but I have already reserved a skiing holiday the in north part of Finland, actually quite close to Santa Claus' office. The next week No Dig Berlin will take place during the Pipeline Technology Conference on 8-9 March 2022, the first time in conjunction with the PCT. That will be worth of visiting (but I am still skiing in Lapland). In the middle of March ISTT will make an official trip to check the potential for the next International show after Helsinki which is scheduled to be in Mexico city. After the Mexico show we will have a show in the Asia-Australia time zone, maybe in Dubai. That will be decided in Helsinki where we have the next council meeting.

I wish to all of you a nice springtime and have a good start to this new year.

"The call for papers to the conference is now open on the conference webpage and to keep yourself updated about the arrangements please visit the show website: www.nodighelsinki.com"

istt.com

SOCIETY NEWS

ISTT News brought to members by Trenchless Works

NO DIG BERLIN, SYMPOSIUM AND EXHIBITION ON TRENCHLESS TECHNOLOGY

The NO DIG BERLIN, symposium and exhibition on trenchless technology will be held in Berlin on 8-9 March 2022, and is the first time being held in conjunction with the Pipeline Technology Conference (PTC)

This is a special trade event in Berlin, the capital of trenchless technologies. Every year NO DIG BERLIN will offer industry professionals an interesting platform for state-of-the-art trenchless construction techniques and is again one of the top events at ptc.

The conference programme will include four high-profile panel discussions in which current challenges for the industry will be discussed, with its international speakers, the language of the conference will be English. In addition to cyber security and decarbonisation, the issues of public perception and the shortage of skilled workers will also be discussed. The core of the event, however, is the technical conference programme with 30 technical sessions in which more than 100 speakers report on new technologies and application examples. Two special case study sessions will give participants a deeper insight into the technical challenges of specific projects (GET H2, River Humber pipeline replacement).

For more information and to view the conference programme in full please click here:

www.pipeline-conference.com/pdf/ptc-2022/no-dig-berlin-2022-conference-program.pdf

istt.com

SOCIETY NEWS

ISTT News brought to members by Trenchless Works

CHANGE AT THE TOP OF THE FiSTT TREE

Perti Leppänen, Chair, FiSTT

FiSTT recently unveiled Perti Leppänen as its new Chair, replacing Timo Kyntäjä who had been in the position since early 2020. FiSTT started life in 1999 as the Association for Unearthed Technology in Finland and was founded by a keen group of developers, contractors and designers. FiSTT is proud to be an economically independent and non-profit-making association that is also a member of the International Society for Trenchless Technology (ISTT) and aims to promote the use of innovative methods and good practice in the field.

The Finnish Society for Trenchless Technology has greatly developed its operations in recent years to the extent that they have been entrusted with the organisation of the 2022 ISTT International No-Dig Conference which takes place in Helsinki between 3 and 5 October. Details of the programme can be found on the website https://www.nodighelsinki.com/.

Pertti Leppänen, new Chair of FiSTT, says of his appointment: “I have been involved in the work of FiSTT’s Board of Directors in previous years as a Vice Chair and I am now grateful to serve as Chair of FiSTT’s Board of Directors for the next two years. This year is going to be spectacular for our Society. As many of you will know, we are holding the International No-Dig 2022 Conference & Exhibition in Helsinki when the members of FiSTT are looking forward to meeting all of the delegates arriving from around the world. At the moment, we are preparing a new kind of visitor experience for the event which we are calling ‘Trenchless Week’. I am convinced that we are putting together a great event that will offer new contacts, new information and new ideas for all the delegates.”

2023

TRENCHLESS EGYPT

TRENCHLESS EGYPT

Part of the Trenchless Middle East Portfolio

CAIRO MARCH 2023

International Exhibition and Conference featuring:

- No-Dig (NDRC) Technology
- Underground Infrastructure
- Pipeline Technologies
- Underground Utilities

Be part of the Egypt infrastructure development project, book your stand today

- In excess of $400 billion planned construction & Infrastructure Projects
- A forecasted population in excess of 128 million by 2030
- Ageing infrastructure
- Forecasted to be the 7th World's largest economy by 2030

Contact: Paul Harwood or Stuart Hillyard
Email: pharwood@westrade.co.uk or shillyard@westrade.co.uk Telephone: +44 (0)1923 723990

Organised by

WESTRADE GROUP LTD

Supported by

iSTT International Society For Trenchless Technology

GSTT TRENCHLESS MADE IN GERMANY

made in Germany

Official Media Partner

TRENCHLESSWORKS

Media Partner

TRENCHLESS ROMANIA MAGAZINE

istt.com

SOCIETY NEWS

ISTT News brought to members by Trenchless Works

CIPP REHABILITATION MATERIAL AND PERFORMANCE

Category: Rehabilitation
Presenter: Jan Borje Persson
Organization:
JBP Composites S.L.
Date: 14 April 2022
Time:
10:00 am EST-US,
22:00 Beijing,
16:00 Berlin
(Duration: approx 1 hour)

Since its introduction in the early 1970s CIPP has been one of the most frequently used trenchless technologies for rehabilitation of gravity pipe networks, and subsequently for pressurised pipes as well.

From the early years, synthetic fibers were the material used as a carrier to the resin, in the manufacturing stage, until the uncured liner was installed and cured. The technical performance of the cured liner was dependent, in large part on the resin used.

During the 1980s several companies started to use more advanced materials which led to birth of reinforced CIPP. Material and the design of CIPP liners in both gravity and pressure applications have progressed especially during the last 20 years. Today we see structural CIPP applications in a large range of diameters and pipe shapes in many countries across the globe.

This webinar will look retrospectively at the development of both gravity and pressure CIPP applications, to give the audience an informed view as to what technical degree the technology for CIPP has evolved, in terms of materials, design and application technology, to achieve final pipe performance in meeting today's requirements and relevant standards.

www.istt.com/index/webapp-registrant-form/id.15

HOSTED BY

SUPPORTED BY

OFFICIAL MEDIA PARTNER

TRENCHLESSWORKS

NO-DIG TURKEY 2022

TRENCHLESS TECHNOLOGIES,
INFRASTRUCTURE CONSTRUCTIONS
MACHINERY AND EQUIPMENT FAIR
2-3 NOVEMBER 2022 - ISTANBUL

Istanbul Lutfi Kirdar International Convention and Exhibition Centre

2-3 November 2022

In Conjunction With

6th WATER LOSS FORUM & EXHIBITION
SU KAYIP VE KAÇAKLARI FORUMU & FUARI
2-3 Kasım / November 2022 / İstanbul
www.waterlossforum.org

SU YÖNETİMİ ÖDÜLLERİ
WATER MANAGEMENT AWARDS
2022

ORGANIZED BY

maven
Some Make We Create

Harbiye Mah. Darülbedai Cad. İstanbul Lütfi Kırdar Kongre Merkezi
Blok No:4 İç kapı No:2 Şişli / İstanbul - TURKEY
T. +90 212 352 03 93

For Exhibition and Sponsorship Enquiries
Ms. Nurdan BAYRAM
nurdan@maven.events

For General Enquiries
Ms. Zumra KAYA
zumra@maven.events

istt.com

SOCIETY NEWS

ISTT News brought to members by Trenchless Works

CALL FOR ABSTRACTS FOR INTERNATIONAL NO-DIG HELSINKI 3-5 OCTOBER 2022

Abstracts sought:

The submission portal for No-Dig Helsinki is now open for the 38th ISTT International No-Dig Conference & Exhibition taking place in Helsinki 3-5 October 2022.

Interested authors are invited to submit abstracts (200 words), a brief biographical sketch, 80 words of summary, and a photo. The deadline for abstract submission is 1 April 2022. Abstracts will be reviewed by the ISTT Program Committee. Authors will be notified on 1 May 2022.

Submit your abstract from here:
https://www.callforpapers.nodighelsinki.com/

The deadline for abstract submission is 1 April 2022.
Abstracts will be reviewed by the ISTT Program Committee. Authors will be notified on 1 May 2022.

Conference Schedule

Notification of acceptance:
1 May 2022

Draft paper due:
15 June 2022

Review sent back to authors:
15 July 2022

Final paper due:
15 August 2022

For any questions regarding the conference, please contact:

conference@nodighelsinki.com
or to find out more about the event please visit the website:
https://www.nodighelsinki.com/

istt.com

AFFILIATED SOCIETIES

ISTT Affiliated Societies around the world

Austrian Association for Trenchless Technology (AATT)
c/o TU Wien Resselgasse 5,
1040 Wien, Austria
Phone: +43 664 5184084
Email: office@grabenlos.at
Web: www.grabenlos.at

Brazilian Association for Trenchless Technology (ABRATT)
Alameda Santos, 1773 – Jardim
Paulista Sao Paulo
01419-002 Brazil
Phone: +55 11 983893450
Email: hrosas@abratt.org.br
Web: www.abratt.org.br

Australasian Society for Trenchless Technology (ASTT)
18 Frinton Place Greenwood,
6024, WA, Australia
Phone: +61 (0)8 9420 2826
Email: jeffpace@astt.com.au
Web: www.astt.com.au

Bulgarian Association for Trenchless Technology (BATT)
Kaprinka Lake Village Kazanlak
6100, Bulgaria
Phone: +359 2 4901381
Email: info@batt-bg.org
Web: www.batt-bg.org

China Hong Kong Society for Trenchless Technology (CHKSTT)
Tsimshatsui Post Office 91499 Kowloon
Hong Kong
Phone: +852 9201 1952
Email: chkstt@gmail.com
Web: www.chkstt.org

China Society of Geology – Trenchless Technology Committee (CSTT)
Xicheng District Room 151, 26
Baiwanzhuang Street, Xicheng District,
Beijing 100037 China (PR)
Phone: +86 10 6899 2605
Email: yan64843889@126.com
Web: www.cstt.org

Chinese Taipei Society for Trenchless Technology (CTSTT)
3F, No 92, Roosevelt Rd., Sec. 4,
Zhongzheng Dist, Taipei City, 100
Taiwan
Phone: +886 2 2362 0939
Email: zoradcrc@gmail.com
Web: www.ctstt.org.tw/en_index.asp

Czech Society for Trenchless Technology (CzSTT)
Bezova 1658/1 ,147 14 Praha 4 Czech
Republic
Phone: +420 244 062 722
Email: office@czstt.cz
Web: www.czstt.cz

Danish Society for Trenchless Technology – NoDig Infra (DKSTT)
Odinsvej 29 Silkeborg Denmark
Phone: +45 50894489
Email: tina@juul-consult.dk
Web: www.nodiginfra.dk/nodig-infra/startside

Finnish Society for Trenchless Technology (FISTT)
c/o Sari Pietilä
Haapasuonkankaantie 10
90830 Haukipudas, Finland
Phone: +358 504132484
Email: info@fistt.net
Web: www.fistt.net

French Society for Trenchless Technology (FSTT)
4 rue des Beaumonts, F-94120
Fontenay Sous Bo, France
Phone: +33 1 53 99 90 20
Email: contact@fstt.org
Web: www.fstt.org

German Society for Trenchless Technology (GSTT)
Kurfürstenstr. 129 (Building:
German construction association)
Berlin, Germany
Phone: +49 30 81 45 59 84
Email: beyer@gstt.de
Web: www.gstt.de

istt.com

AFFILIATED SOCIETIES

ISTT Affiliated Societies around the world

Italian Association of Trenchless Technology (IATT)
Via Ruggero Fiore, 41 Rome Italy
Phone: +39 06 39721997
Email: iatt@iatt.info
Web: www.iatt.it

Iberian Society for Trenchless Technology (IBSTT)
C/ Josefa Valcarcel, 8 – 3a
PTLA 28027, Madrid, Spain
Phone: +34 913 202 884
Email: ibstt@ibstt.org
Web: www.ibstt.org

Japan Society for Trenchless Technology (JSTT)
3rd Floor, Reed-C Bldg., 2-11-18,
Tomioka, Koto-ku, Tokyo 135-0047 Japan
Phone: +81 3 5639 9970
Email: office@jstt.jp
Web: www.jstt.jp

Latin American Society for Trenchless Technology (LAMSTT)
Medellín Highway (Calle 80) KM3.5
via Bogotá-Siberia south side, Bogotá
Terrestrial Cargo Terminal, Office C-12,
Cota – Cundinamarca, Colombia
Phone: +57 1 8764675
Email: cistt.arlex.toro@lamstt.org
Web: www.lamstt.org

Malaysia Association for Trenchless Technologies (MATT)
No 44, Jalan Dungun, Damansara Heights,
Kuala Lumpur 50490 Malaysia
Email: trenchless@matt.org.my
Web: www.matt.org.my

North American Society for Trenchless Technology (NASTT)
22722 29th Drive SE, STE 100,
Bothell, WA 98021
Phone: +1 888 993 9935
Email: info@nastt.org
Web: www.nastt.org

Netherlands Society for Trenchless Technology (NSTT)
Postbus 79, 3769 ZH Soesterberg,
Netherlands
Phone: +31 346 723450
Email: info@nstt.nl
Web: www.nstt.nl

Polish Foundation for Trenchless Technology (PFTT)
Ul. Warkocz 14, 25 - 253 Kielce, Poland
Phone: +48 41 34 24 450
Email: parkaa@tu.kielce.pl
Web: www.pftt.pl

The Russian Society Trenchless Technology Association (RSTT)
Severny proezd 12, Balashikha Moscow
region, Russian Federation
Phone: +7 (495) 521 78 82
Email: gnb.06@mail.ru
Web: www.s-gnb.ru

Southern African Society for Trenchless Technology (SASTT)
1053 Hyde Avenue, Eldoraigne ext 1,
Centurion Gauteng, South Africa
Phone: +27 (0) 82 551 7458
Email: director@sastt.org.za
Web: www.sastt.org.za

Singapore Society for Trenchless Technology (SgSTT)
84 Toh Guan Road East, Singapore Water
Exchange , #02-02 608501, Singapore
Phone: +(65) 97124054
Email: singaporestt@gmail.com
Web: www.sgstt.org.sg

Scandinavian Society for Trenchless Technology (SSTT)
SSTT Service AB, Box 22 307 104 22,
Stockholm, Sweden
Phone: +46 8 508 938 00
Email: Kontakt@sstt.se
Web: www.sstt.se

Turkish Society for Infrastructure and Trenchless Technology (TSITT)
Kucukbakkalkoy Mah. Ali Ay Sok. No:3/2
Atasehir 34750 Istanbul, Turkey
Phone: +90 216 469 75 65
Fax: +90 216 469 75 69
Email: info@akated.com
Web: www.akated.com

Ukraine Association for Modern Trenchless Technology (UAMTT)
83A Srednyaya Str., Odessa 65005 Ukraine
Phone: +380 50 3953280
Email: trenchless.as@novatec.ua
Web: www.no-dig.odessa.ua

United Kingdom Society for Trenchless Technology (UKSTT)
Camden House, Warwick Road,
Kenilworth, Warwickshire, CV8 1TH, UK
Phone: +44 (0)192 651 3773
Email: admin@ukstt.org.uk
Web: www.ukstt.org.uk

SOCIETY NEWS

ukstt.org.uk

Society News brought to members by Trenchless Works

HELLO FROM THE CHAIR

Dawn Greig, Chair, UKSTT

"Let's help everyone 'Think Trenchless First'."

Hello everyone, I hope that you are all enjoying the new look Trenchless Buzz magazine? Give us your feedback, we are always happy to take on board your comments and suggestions.

We also want your news! Send us your success stories, newsflashes and innovations, deepening our understanding of trenchless technologies and their applications. Let's help everyone 'Think Trenchless First'. While you are already submitting your member news items – why not take those projects or new technologies and submit them for the UKSTT Awards? We would be really happy to help you get started, check out the guidelines on the website www.ukstt.org.uk or give myself or Lynn a call to find out more. Remember, your achievements advance our entire industry! #uksttawards

UKSTT has had some excellent meetings in the last few weeks, preparing the conference for No-Dig Live later this year. We are working on a very exciting theme for the dinner, I must admit I thought last year would be hard to beat, all I can say at this point is I like my Martini shaken and stirred! I strongly advise you to book early, details will be available very soon but you can also let Lynn know in advance if you want to secure your place.

Fear not, we have a few in-person events before then. Firstly, our Masterclass on 'Updates on CIPP technology over the last 10 years', which will be held at Woodland Grange near Leamington on 10 May, followed by a Roadshow in Belfast on 15 June. Council Member Shauna Heron has yet again pulled it out of the bag with an impressive conference programme which is well worth a trip to the Emerald Isle. Contact Lynn or Westrade Group for further information.

Finally, Covid restrictions may be coming to an end but please continue to look after yourselves and one another.

Stay safe – Dawn x

UKSTT – 1ST EUROPEAN CONFERENCE WEBINAR PART 2

15 MARCH 2022, 12 NOON (GMT)

Please join UKSTT on Thursday 15 March at 12 pm for Part 2 of the 1st European Conference webinar series.

Presented by Olivier Thépot, Ph.D. and Federica Fuselli, Rotech Srl, the webinar will cover presentations on:

Response of a curing in place liner in cast iron water pipe to joint expansion due to permanent ground deformation or seismic wave and

A unique example of close fit lining technology for the renewal of water pipes along the bridge 'Ponte Punta Penna' in Taranto

To register for this free webinar visit: **Registration**

Lynn Maclachlan, Associate Director for UKSTT

LYNN MACLACHLAN – ASSOCIATE DIRECTOR FOR UKSTT

UKSTT recently announced the promotion of Lynn Maclachlan to Associate Director from her previous post of Business Development Manager.

Chair Dawn Greig commented: "I am delighted, not only for Lynn, but also for the UKSTT with this new appointment. The UKSTT has gone from strength to strength in recent years and with Lynn's dedication for the Society, support for the Board and innovative drive, we look forward to a bright future."

Lynn Maclachlan, Associate Director said: "I am thrilled to be promoted to Associate Director for UKSTT. Having worked for the organisation for many years I have caught the trenchless bug and am looking forward to having a more strategic role within the company and to the challenge in raising awareness of the trenchless techniques available."

UKSTT AWARDS WEDNESDAY 14 SEPTEMBER 2022 CALL FOR ENTRIES

Each year the UKSTT makes annual awards to promote excellence in trenchless technology, and this year the awards will be made at the Society's Gala Dinner that is being held in Peterborough on Wednesday 14 September 2022. Held during the biennial No-Dig Live conference and exhibition, the Awards recognise the outstanding contributions made by organisations and individuals to the promotion, use and development of Trenchless Technology in the previous calendar year.

The awards themselves are open to all aspects of Trenchless activity. Entries for overseas projects will be accepted provided they are submitted by UK companies who either did the work or supplied the equipment as well as entries submitted by overseas companies for work carried out in the UK.

For each of the categories a panel of independent judges, many of whom are not necessarily members of the Society, will be carefully selected to be representative from a broad cross section of the relevant industries.

The Categories for the UKSTT Awards are:

- **Innovative Product**
- **Application of Digital Technology**
- **Renovation Water & Wastewater**
- **Renovation Energy & Communications**
- **New Installation Water & Wastewater**
- **New Installation Energy & Communications**
- **Young Professional**
- **Environmental Award**

For further category information and criteria or to access the online application form please visit the UKSTT website: https://www.ukstt.org.uk/ukstt-awards/

Deadline date for entries is the 18 May 2022 >

SPONSORED BY:
TRACTO

Deadline date for entries is

18 May 2022

Who will receive the Chair's award for 'Young Professional' at the UKSTT Ceremony in June this year?

Will this be you?

Every year, the UKSTT presents the winner of the 'Young Professional' category with a £2,000.00 bursary to help fund their travel and accommodation to any part of the world, allowing them to undertake further research into their chosen area of Trenchless Technology.

The Society recognises the need to encourage the work that young professionals are bringing to the industry and are keen to recognise this at the awards ceremony.

Young Professionals (<30 years) are asked to submit a 1,500-word entry that best demonstrates their contribution to the field of Trenchless Technology. UKSTT will be looking for evidence of an understanding of Trenchless Technology, the individual's contribution made, the quality of the submission and the candidate's vision for the future of Trenchless Technology.

Deadline date for entries is the 18 May 2022.

The entry form and rules & guidelines can be found here https://www.ukstt.org.uk/young-professional/

SPONSORED BY:
TRACTO

THINK TRENCHLESS FIRST – UKSTT

Using trenchless techniques, to install, replace or repair underground pipelines, is not only less disruptive but is also a cost effective and environmentally-friendly way of doing so.

Why dig when you can 'Go Trenchless'! There are so many reasons why choosing trenchless techniques can be the best option for everyone, including;

- Less $C0_2$ Emissions
- Cost effective
- Less disruptive to the general public and the local eco system
- Time saving
- Safer

UKSTT can help you decide if Trenchless methods are suitable for your project. Our website has a dedicated link for visitors to raise any technical enquiries they may have concerning trenchless technology and whether it may be applicable to any specific project: https://www.ukstt.org.uk/technical-enquiry/.

Any enquiries received are circulated to Corporate Members and if more detailed advice is required UKSTT have a dedicated team who will advise separately. All technical enquiries are stored on the members only area of the UKSTT website.

For all your trenchless solutions and latest news visit the UKSTT website https://www.ukstt.org.uk/

UKSTT TECHNICAL ENQUIRY SERVICE

The UKSTT website has a dedicated link for visitors to raise any technical enquiries they may have concerning trenchless technology and whether it may be applicable to any specific project: https://www.ukstt.org.uk/technical-enquiry/.

The organisation has had some interesting enquiries recently ranging from invitations to tender in various locations of the UK and Europe while others received are looking for advice and proposed solutions for projects currently on-going. All of these enquiries are circulated to UKSTT's Corporate Members and if more detailed advice is required UKSTT has a dedicated team who will advise separately. All technical enquiries are stored on the members only area of the UKSTT website.

For all your trenchless solutions and latest news visit the UKSTT website https://www.ukstt.org.uk/

MEMBERSHIP BENEFITS

Contractors & Consultants

- OPPORTUNITIES
- NETWORKING
- DISCOUNTS
- SPEAKER POOL
- MARKETING
- RESEARCH

To find out more please scan the QR code to go directly to the membership page of our website. Alternatively, please visit www.ukstt.org.uk.
You can call us on +44 (0)1926 513 773 or email us: admin@ukstt.org.uk

SCAN ME

6th EDITION Trenchless Romania

Conference & Exhibition

SAVE THE DATE — **14th of June 2022** — **Bucharest**

Initiator

TRACTO

Platinum Sponsor

HERRENKNECHT
Tunnelling Systems

Gold Sponsor

blejkan
INGINERIA CONSTRUCȚIEI

Official Media Partners

Mașini Utilaje pentru construcții

TRC
TRENCHLESS ROMANIA CLUB

Trenchless Romania

voltrak
UTILAJE PENTRU FORAJE ORIZONTALE

GSTT

ARA
Asociația Română a Apei

UKSTT

ASOCIAȚIA ROMÂNĂ PENTRU SMART CITY ȘI MOBILITATE

ARACO
ASOCIAȚIA ROMÂNĂ A ANTREPRENORILOR DE CONSTRUCȚII

ADUC
ASOCIAȚIA DISTRIBUITORILOR DE UTILAJE PENTRU CONSTRUCȚII

PSC

aatt

OGL

AHK
Deutsch-Rumänische Industrie- und Handelskammer
Camera de Comerț și Industrie Româno-Germană

PETROLEUM CLUB ROMANIA

AFOR
ASOCIAȚIA DE FIBRĂ OPTICĂ DIN ROMÂNIA

www.trenchless-romania.com

EVENTS AND MEETINGS

2022

March 7-10: 17th Pipeline Technology Conference
Estrel Congress Center, Berlin, Germany.
No-Dig Berlin, in conjunction with the ptc – Pipeline Technology Conference: 8–9 March 2022.
Details from:
https://www.pipeline-conference.com/no-dig-berlin

March 15: 1st European Conference Webinar – Part 2
To register for this free webinar visit:
https://register.gotowebinar.com/register/7171405583291412236?source=UKSTT

April: SAO Paulo No-Dig Show
Sao Paulo, Brazil.
Details from: www.saopaulonodig.com.br

April 15–17: ITTC China 2022
26th China International Trenchless Technology Conference (ITTC) & Exhibition
Suzhou International Expo Centre, Suzhou, China
Details from:
http://www.cstt.org.cn/Yhome/Index/index.html

May 16-17: 4th Trenchless Balkans Conference and Exhibition in conjunction with 4th Water Loss Forum Balkans
Grand Hotel Italia in Cluj-Napoca, Romania
Details from: https://www.trenchlessbalkans.com/

May 30-June 3: IFAT 2022
Munich, Germany.
Details from: https://www.ifat.de/en

June 15: No-Dig Roadshow Belfast 2022
Crowne Plaza, Belfast, Northern Ireland

June 17-24: North American Tunnelling Conference (NAT) 2022
Philadelphia, USA.
Details from: http://natconference.com/

September 13-15: No-Dig Live 2022
Peterborough, UK.
Details from: www.nodiglive.co.uk
Includes the UKSTT Gala Dinner and Awards Ceremony

October 3-5: No-Dig Helsinki 2022
Helsinki, Finland
Details from: www.nodighelsinki.com

October 24–30, 2022: bauma
Munich, Germany
Details from: www.bauma.de/

November 2-3: No-Dig Turkey 2022
Istanbul Lutfi Kirdar
International Convention and Exhibition Centre
Details from: https://www.nodigturkey.com/

If you have an event, course or meeting scheduled and would like to add it to this listing please forward details to: editorial@trenchless-works.com