TRENCHLESSWORKS

THE VOICE OF THE TRENCHLESS COMMUNITY

ISSUE 178 JUNE 2021

Official Magazine & Media Partner: UKSTT

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CONTENTS

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ARTICLE	PAGE
SPOTLIGHT	5
NEWS	
ALLEN WATSON TEAM EXPANDS TO MEET DEMAND	12
UTSI ELECTRONICS TURNS 21	13
EXPANDING CUSTOMER SERVICE AND REPAIRS	16
NEW SPECIALIST DRAINAGE DISTRIBUTOR FOR RIDGID® CAMERAS AND TOOLS	19
AUGER BORING	
SEWER DIVERSION FOR SMART MOTORWAY CONSTRUCTION	22
HDD	
CONNECTING FIRST NATIONS COMMUNITIES TO THE NETWORK	27
MAXIMUM FLEXIBILITY, MINIMUM RISK	33
SUCTION EXCAVATION	
NEW BREAKER BOOM FROM RSP	37
MTS DELIVERS NEW DINO 12 SUCTION EXCAVATORS ACROSS THE UK	39
PIPELINE REHABILITATION	
SIMPLE, FAST AND SUSTAINABLE RENEWAL OF DISTRICT HEATING PIPES	42
DIEPPE REHABILITATION OF THE OVOID RAINWATER NETWORK	44

ARTICLE	PAGE
CIPP QUALITY: NO REASON TO PANIC	48
RENOVATING VITAL DUCTING AT A CANCER TREATMENT CENTRE	53
TUNNELLING	
MEGA-SIZED CROSSOVER MACHINE IN TURKEY	58
ASSET MANAGEMENT	
WATER PIPE INSPECTION AND LEAK DETECTION SUCCESSES	62
API-PIPA LIVE WATER PIPE INSPECTION AND CLEANING VALIDATION	66
ACCESSORIES & SERVICES	
EDF BOOSTS ITS SMART METER SAFETY AND TECHNOLOGY WITH SMARTESTER	68
ISTT SOCIETY NEWS	
ISTT A MESSAGE FROM THE CHAIR	72
ISTT NEWS – VALE MENNO HENNEVELD	73
CSTT – THE CHINESE SOCIETY FOR TRENCHLESS TECHNOLOGY	75
TRENCHLESS CASE STUDIES FROM CHINA	79
UKSTT SOCIETY NEWS	
HELLO FROM THE CHAIR	86
EVENTS AND MEETINGS	
EVENTS AND MEETINGS	102

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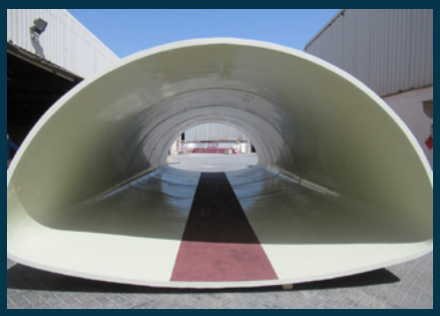
Trenchless Works is published 12 times a year by Westrade Group Ltd I Carotino House| Bury Lane I Rickmansworth I WD3 1ED I UK

ISSN 2049-3401

CHANNELINE
GRP Structural Lining Systems



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CHANNELINE
Beyond the Ordinary

Beyond the Ordinary

SPOTLIGHT

Paul Harwood, Managing Director, Westrade Group & Publisher, Trenchless Works

I am delighted to be able to share two exciting updates in this month's Spotlight, both of which will further improve education and knowledge transfer within the trenchless sector. Firstly, JBP Consultancy Service Asia (JBP) and Indah Water Konsortium (IWK) have agreed a Memorandum of Understanding that will see the two organisations co-operate to provide professional development and trenchless technology related training for the water and wastewater sector.

Under the terms of the agreement, JBP will provide a comprehensive programme of training and professional development courses focusing on techniques, methods and technologies for trenchless pipeline training, assessment, maintenance, and rehabilitation. IWK will encourage its own members and stakeholders to always use the trained and certified personnel offered by JBP. IWK's training centre will also be used as the primary training venue. Both parties will use their extensive networks to promote the courses provided by JBP and work to establish Kuala Lumpur as a regional centre of excellence for knowledge exchange and training for the trenchless sector.

I have been fortunate enough to be involved with the Asia trenchless market for almost 20 years. I had the pleasure of witnessing first-hand the positive feedback and effect the JBP training programme had when held during our Trenchless Asia events. I think this is an excellent platform that I am sure will improve certification within the industry.

I'm also pleased to announce that the conference programme for this year's No-Dig Live has just been published on the event website www.nodiglive.co.uk. It includes some fantastic new elements bursting with innovation.

No-Dig Live takes place at the East of England Arena & Events Centre between Tuesday 14 and Thursday 16 September. Visitor registration is now open – to register please **click here**.

"No-Dig Live takes place at the East of England Arena & Events Centre between Tuesday 14 and Thursday 16 September. Visitor registration is now open – **click here**"

JBP LAUNCHES NEW TRAINING PLATFORM

A training certificate awarded to a successful candiate

JBP announces its market leading training platform is being rolled out globally, available in situ when circumstances require, or through a virtual learning environment offering options of blending learning with live access to JBP trenchless experts.

Utilities and municipalities from all over the world are now able to improve their effective management and assessment of Trenchless projects by accessing the JBP training platform, soon available in Spanish and Portuguese language, and providing certification and validation to the trenchless industry. Contractors and consultants will enhance their delivery of successful completion, with investment in professional development and training for their managers, engineers, and technicians.

Training is available in situ when circumstances require, on-line through a fully developed learning management system (LMS), or with blending learning giving live access to JBP experts. Above all, it's a training solution which provides employers with industry standardisation from a brand they can trust.

Industry leaders

JBP has built its enviable reputation by providing face-to-face and on-line professional instruction delivered by highly regarded trenchless experts. With multiple agreements already confirmed including IWK municipalities, and the Malaysia Association of Trenchless Technologies (MATT), utility companies and contractors across the globe are already experiencing the benefits for themselves, and their network of engineers and technicians. The company's extensive trenchless training programs provide the latest technical insight, together with hands-on practical experience for trenchless practitioners wanting to expand their knowledge and enhance their professional competencies. >

Well attended training courses are run across the globe

With over 35 years of working in the Trenchless sector JBP has a deep appreciation of the absolute importance of professional training and education to support proper investigation and assessment, effective decision-making, and ultimately successful implementation and completion using trenchless solutions. Its training portfolio includes courses in all aspects of trenchless technologies and applications for sewer assets management, including CCTV, robotics, pipe rehabilitation and reporting software. These cover the complete process from cleaning, inspection, reporting and assessment, through to choosing and applying the most appropriate and effective technology.

Key to JBP's ability to deliver the most up to date and high-quality training across all its programmes is its use of sector experts that are currently working in the field. All its training partners are selected for their knowledge, extensive hands-on experience, and technical expertise in their specific fields.

JBP trenchless expertise

Dr Dec Downey has over 45 years' experience in water and wastewater pipeline construction and rehabilitation and is widely regarded as one of the pre-eminent experts in the application of trenchless methods and technologies. Dr Downey is a past Chairman of the International Society of Trenchless Technology and holds the ISTT Gold Medal for his contribution to our industry. He has also been recognised with a UKSTT Lifetime Achievement Award and the Japan Micro-Tunnelling Association's Kurose Prize.

"I am excited by the launch of the programme and optimistic that our collaboration will facilitate a high level of skills development and technology transfer in challenging markets."

"Participation with JBP to put new trenchless training material on a fully developed professional platform has been a very interesting challenge in the current climate of travel >

Left: Borje Persson & Dec Downey

Below: Tom Sangster, Civil Engineer, Downley Consultants & Eng. Hamza

Frank Reilly, Head of Marketing & Communications and Project Manager, Trenchless Training

and assembly restrictions, quite different from my past experiences with ASCE Pipelines Course development and ISTT Masterclasses. I am excited by the launch of the programme and optimistic that our collaboration will facilitate a high level of skills development and technology transfer in challenging markets." commented Dec Downey

Tom Sangster, Civil Engineer, Downley Consultants is a leading expert in pipeline condition assessment and has undertaken and managed many water and sewer pipe inspection, condition assessment and rehabilitation projects throughout the world. Now operating from Switzerland, Tom has been working with JBP for many years, and offers great value into the JBP training line up.

"With respect to training in trenchless rehabilitation, I firmly believe that there is a real need for professional training in all aspects, from CCTV and defect coding through reporting and condition assessment to developing rehabilitation programmes, that is independent of commercial vendors" said Tom.

Albert Herber is also supporting the JBP training platform, with pipe assessment material and is one of the pioneers in Germany with regard to UV cured CIPP lining.

JBP's courses help utility companies and municipalities improve their effective management and assessment of trenchless projects while contractors and consultants will enhance their delivery of successful outcomes, with investment in professional development and training for their managers, engineers, and technicians – a direct benefit the bottom line. >

Overview of key JBP Courses

Technologies, Methods & Management

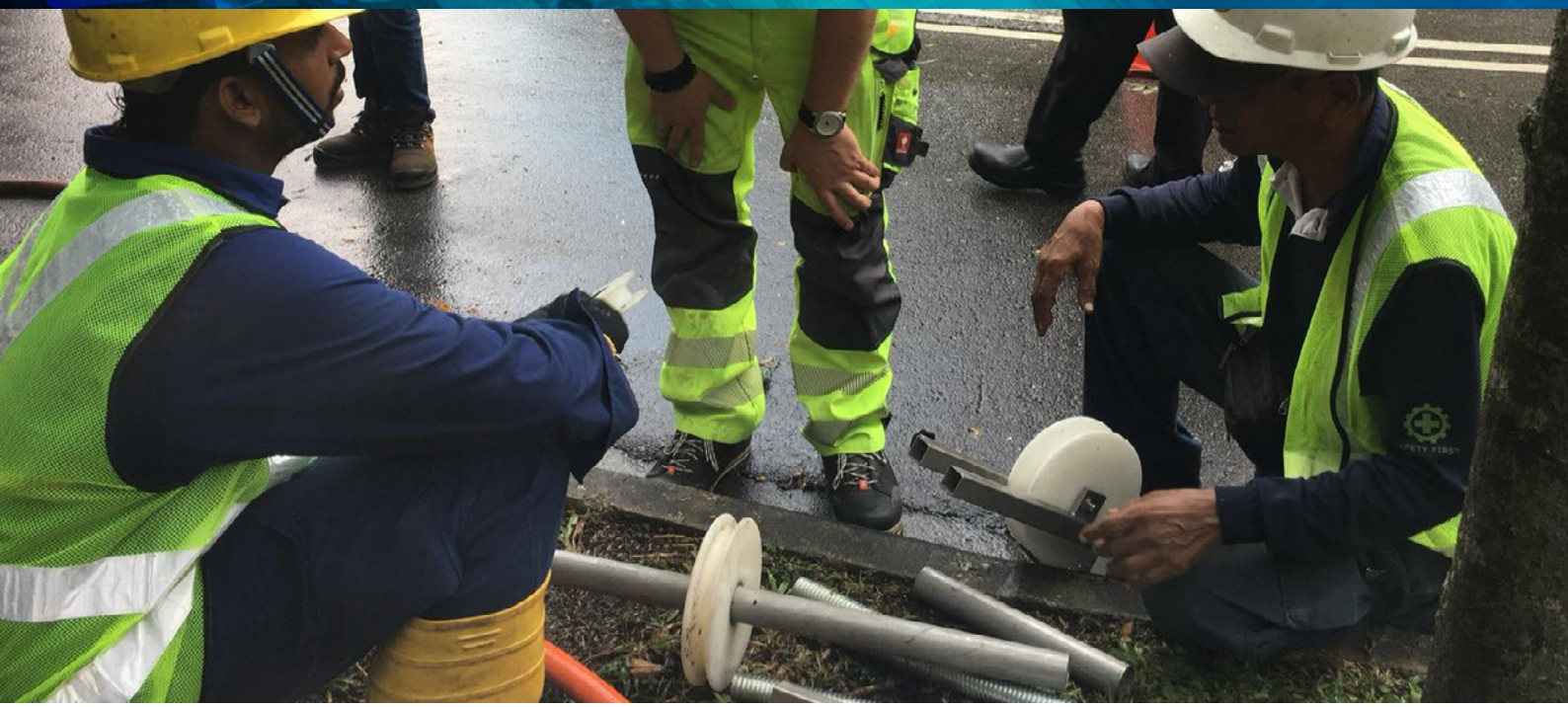
These courses deliver an introduction to the range of available trenchless technologies and methods for those who may be new to the sector, as well as more detailed technical training for those who already have hands-on experience. This results in enhanced professional competency when selecting, working with and applying trenchless solutions. Organisations sending their employees on a JBP Trenchless Training courses will benefit from greater professional competency and informed knowledge when their technicians and engineers are applying their skills and delivering services to clients.

Pipe Rehabilitation

Covering the theoretical and technical aspects of a wide variety of pipe rehabilitation methods these courses offer practical instruction and demonstrations wherever possible and aid the appropriate selection and application of technology. Contractors and other stakeholders offering CIPP installations services can be confident of the professional competency of their staff while helping site and desk engineers for utilities provider to improve their decision making.

Cleaning, Inspection and Assessment

Courses in sewer condition assessment and classification, CCTV inspection and use of robotics deliver enhanced competency in this vital area of trenchless technology. These courses will certify participants in delivering applicable skills in carrying out cleaning, inspection or assessment. >



> "The aim of JBP's new Trenchless Training platform is to extend the reach and accessibility of training programmes across the industry, and support professional development and knowledge exchange."

In addition to the above, JBP will continue to work with its partners to develop new courses to meet the professional training needs of stakeholders throughout the industry. The company will be expanding the platform, in the near future, to provide a multi-lingual offering across its range of training programmes.

Students are also fortunate to benefit from the experience of founder and Managing Director of the JBP Group, Borje Persson and Frank Reilly, who created and implemented the platform.

Head of Marketing and Communications at JBP, Frank Reilly said "The aim of JBP's new Trenchless Training platform is to extend the reach and accessibility of our training programmes across the industry, and support professional development and knowledge exchange. This educational focus is, in my view, the bedrock of new innovations and effective application of existing technologies and methods - essential to any industry or sector if it is going to thrive and innovate. Our objective is to combine the strengths of our own experience with that of the many experts working throughout the industry, and provide a platform to share that expertise, to educate and inform the next trenchless generation."

JBP will be exhibiting at various Trenchless and No-Dig events over the next 12 months. Visitors to JBP's stand will be able find out more about the course on offer as well as how the exciting new blended platform can help improve the competency and knowledge of their operational and support teams.

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ALLEN WATSON TEAM EXPANDS TO MEET DEMAND

Ian McBride

Scott Shorthose

Allen Watson Ltd (AWL) which claims to own and operate the most extensive and diverse range of boring equipment in the UK, with three offices based in West Sussex, South Yorkshire and Essex, has further expanded its team to meet business demand and increase its capacity and future potential for continued growth.

Ian McBride has joined in the position of General Manager and brings with him over 37 years' experience in civil engineering with a strong bias of tunnelling and a range of No-Dig techniques gained throughout the UK, Ireland, Saudi Arabia and Bahrain. He also brings with him a wealth of experience in growing new businesses as well as expanding established businesses and AWL is looking forward to further developing its exciting portfolio of No-Dig works throughout the UK, under his leadership.

Scott Shorthose has joined as Operations Manager. He brings with him 14 years' experience in the trenchless drilling industry and has a strong background in construction, engineering, project planning and project management. His enthusiasm, positive can-do attitude and determination to succeed together with his dedication to working alongside an experienced workforce will further enhance onsite operations.

Martin Watson, AWL Managing Director commented: "'The success of Allen Watson Ltd is in its people and we are delighted to welcome Ian and Scott to the team which further strengthens our capabilities. We look forward to our continued success in the field and planned expansion, continuing our reputation as one of the UK's leading trenchless drilling companies."

www.allenwatson.com

UTSI ELECTRONICS TURNS 21

The Utsi Trivue

Utsi Electronics, one of the UK's premier designers and manufacturers of Ground Penetrating Radar (GPR) systems reached the significant milestone of 21 years in business on 8 June, 2021.

While GPR today may be regarded as a very established, recognised and respected technology that is regularly relied upon within many fields of endeavour around the world, it was not always like that.

Before the millennium, when the very first Utsi designed GPR prototype was busy proving its worth to the archaeological world, things were very different. Back then anyone would have struggled to find anyone outside of the scientific community who had heard of GPR, let alone knew what it >

Groundvue 3.8

Groundvue 3.8 mounted on a vehicle hitch

An Utsi early wooden prototype

was or, what it was used for. Now, there is hardly a country on the entire planet that does not regularly have someone doing something with GPR.

Over the 21 years since being founded on 8 June, 2000 Utsi Electronics has built itself an enviable reputation amongst discerning GPR professionals working within the worlds of Environmental research, buried utility location and Inspection of highways and bridges, right through to those working on the non-destructive testing of concrete structures, detection of land mines and Forensic examination. The company has continued to innovate as its grown and with it the 'Groundvue' range of GPR produced by the company has also grown and now features a wide range of models from single channel general use systems and specialist handheld units for NDT use, through to vehicle based Multi-channel, Multi frequency systems for operation at posted traffic speeds.

At the beginning of 2021, the company took a major step change in its journey path when it passed from the hands of the Utsi family into those of another but no less renowned UK manufacturer of GPR technology in the form of PipeHawk plc group. Until now these two stalwarts of the UK GPR scene have carved their own place in the history of UK GPR with very different approaches to system design. With them now being in common hands raises the interesting prospect of working together on the innovations of tomorrow. Shall the future usher forth a flurry of hybrid systems such as a multi frequency e-Safe, a cart -ased e-Spott or even a Multi-channel Groundvue array equipped with automated 3d processing, or will we see something completely radical and new emerge? Happy Birthday Utsi Electronics!

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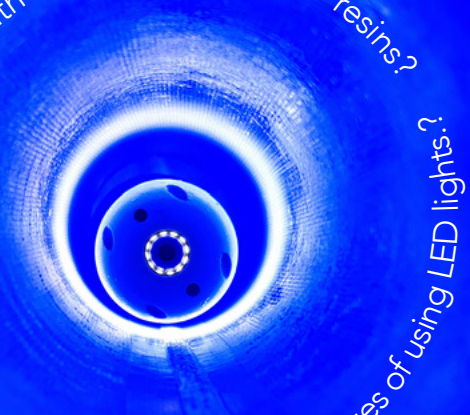

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EXPANDING CUSTOMER SERVICE AND REPAIRS

RSM Lining Supplies Global Ltd introduced robotic equipment to its product portfolio back in 2017, realising shortly after that it was encountering delays in repairs when sending equipment back to the manufacturer in Europe.

To combat this and ensure the high service level the company prides itself on was maintained, the decision was made to create an in-house repair facility – the Service and Repair Centre was born. RSM now has the capability to repair its full range of equipment, reducing time scales and ultimately costs by the elimination of transport charges.

A technician was employed to oversee all repair processes and a multi-purpose, bespoke Service and Repair Centre was built at the Head Office in Doncaster, UK. Over time, the repair services have expanded rapidly, with the number of employees in this department increasing from one to four in the last two years. The company now has a team with responsibility solely dedicated to these areas, to ensure they provide optimum care to any item of equipment. Whether that be through routine services, repairs due to wear and tear, or on-site emergencies - the goal is to continue to support the customer long after a purchase has been made.

As the Service and Repair Centre has grown, two separate divisions have developed – the Robotics Repair Centre and General Maintenance and Repair Team. >

"The repair services have expanded rapidly, with the number of employees in this department increasing from one to four in the last two years."

"Our Service and Repair Centre is an integral part of our sales platform – we not only offer high-quality equipment, but we provide the service and support structure to go with it."

The areas the Robotics Repair Centre covers includes:

- The repair/service of RSM's range of:
  - Sewertronics Systems (Speedylight+ and LEDRig)
  - Dancutter Systems (Superflex and Maxiflex)
  - Rausch Camera Systems >

The General Maintenance and Repair Team are responsible for:

- Constantly servicing and maintaining RSM's extensive fleet of hire equipment.
- The repair/service of RSM's range of:
  - Sluices (200, 225, and 300)
  - Boilers (Hot Water and Steam)
  - Inversion Drums

RSM keeps a vast array of spare parts in stock for all pieces of equipment to ensure there is the best chance possible to meet customer's timescale requirements. Sales Director, Phil Steele, commented: "Our Service and Repair Centre is an integral part of our sales platform – we not only offer high-quality equipment, but we provide the service and support structure to go with it".

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NEW SPECIALIST DRAINAGE DISTRIBUTOR FOR RIDGID® CAMERAS AND TOOLS

S1E Limited is now a RIDGID distributor and stockist

Well-known the world over for durable tools for professional tradespeople, RIDGID now has a new UK distributor for its cameras and pipe locating devices in the specialist drainage sector.

RIDGID has teamed up with S1E Limited, which supplies leading brands for trenchless repair to drainage contractors, stocking a wide range of items at their South Yorkshire, UK base. The company also has a dedicated Service Centre for maintenance and repair of products, as an additional support to customers. S1E has stated that it can arrange demonstrations of RIDGID products to interested parties at their convenience.

"This partnership adds yet more well regarded, market leading products for our customers."

"This partnership adds yet more well-regarded, market-leading products for our customers, who look for the best tools and methods to adopt within their businesses." commented S1E General Manager, Scott McMurray. "The push-rod reel camera range especially complements the crawler systems we distribute for IBAK, so we can offer an inspection system for all pipeline applications."

"Our products, especially our inspection and locating ranges, are ideally suited for use in the drainage sector, making S1E an ideal distributor for these tools." commented John Muckle, RIDGID's Regional Director for Sales Professional Tools. "S1E is also able to service the products at its Service Centre, so that customers who buy through them are supported in the continued use of our products from both ourselves and our distributor." >

RIDGID's cameras and monitors work together for added features for the user

Wi-Fi connectivity allows the camera image to be streamed to a phone via RIDGID's free app (selected models)

All RIDGID products are covered by their Full Lifetime Warranty. Ranges include:

- SeeSnake® camera reels, including Standard, Mini, Compact, Micro and Max
- SeeSnake® monitors, offering digital reporting and WiFi to connect to a second device (selected models)
- Hand-held video inspection to look into the smallest of spaces
- Utility locating equipment to find buried pipelines or detect a camera position.

RIDGID's camera reels and monitors work together to provide advanced reporting and diagnostics through its patented TruSense HDR technology, which gives a clearer image. The TiltSense feature measures the camera's angle for a full understanding of what the operator can see.

Live-streaming of images to a phone or other device is available with RIDGID's free HQx Live app so that contractors can share results quickly with a second operative or with customers.

"Advanced features make the RIDGID camera range very attractive to our customers. We are certain they will appreciate the added benefits on offer with these ranges." concluded S1E MD, Glenn Cartledge.

www.s1e.co.uk

SEWER DIVERSION FOR SMART MOTORWAY CONSTRUCTION

Established 1984 and now part of the Cappagh Group of Companies, Allen Watson Limited is one of the country's leading specialist No-Dig trenchless contractor's providing solution to a wide range of engineering challenges with a strong client base and excellent reputation.

The company was recently engaged on a project in southern England for the M27 J4 to J11 Smart Motorway Project for a Sewer Diversion at Gantry GY82 for which Southern Water was the client. The work involved a crossing beneath the M27 motorway at Eastleigh near Southampton, UK. >

Allen Watson's GAB155v machine driving the pilot bore for the 120 m M27 crossing

The ground conditions comprised challenging highly swelling clays

"The project was required because an existing sewer passing under the M27 had become filled with concrete during a vertical bore piling operation."

The Consulting Engineer for the works was Robert Walpole and Partners with Cappagh Browne Utilities Limited being appointed as the main contractor.

The project was required because an existing sewer passing under the M27 had become filled with concrete during a vertical bore piling operation. This concrete prevented any insitu repair options being viable. It was therefore decided that a trenchless bored project was required to install a new replacement sewer parallel to original pipeline under the motorway which could then be connected back into existing manholes on either side of the motorway. Allen Watson was appointed to undertake this installation.

Difficult Ground

Ground investigation boreholes were drilled at the drive and reception shaft locations which showed potential for Alluvial Deposits and/or Wittering formation (which is usually described as a Greyish brown laminated clay), wavy- to lenticular-bedded sand interbedded with clay in equal proportions and fine- to medium-grained sparsely glauconitic sand over a London Clay Formation. Water strikes indicate groundwater might also be present in the bore face.

Given the ground conditions and the length of drive involved, at 120 m, a guided auger bore technique was most appropriate to achieve an accurate line and gradient for tying the new pipeline back in to existing levels. This was also coupled with the limited working area available for the new pipe installation. To complicate matters the alignment of the new replacement sewer had to pass through a restricted opening between the newly installed piles >

The American Auger 36/600 which was used to directly install the sacrificial 610 mm diameter steel sleeve casing

Welding an additional length to the steel casing pipe during the installation process

and existing piles while running parallel to and avoiding the existing damaged pipeline. Therefore, precise alignment was essential. This was one of the main reasons why Allen Watson opted to use its specialist Guided Auger system.

System used was a specially manufactured Guided Auger Bore built to Allen Watson Limited's specification, allowing the boundaries of this technology to be extended within the prevailing difficult ground conditions. For the M27 crossing the 120 m long pilot bore was driven using Allen Watson's GAB155v. Once completed and with the heavy wet swelling clay conditions experienced along the route, this machine was demobilised and replaced with Allen Watson's American Auger 36/600 to directly install the sacrificial 610 mm diameter steel sleeve casing.

The works were initially designed as a one bore installation, installing 610 mm o.d. steel casing over 120 m in one continuous length. However, whilst on site the contractor was asked to undertake a further separate 12 m long bore. Initially designed as Timber Heading this option was soon abandoned by the main contractor due to the arduous ground conditions being encountered. This meant that an additional guided auger bore installation was to be undertaken by Allen Watson to complete this section. This in turn meant that the original Guided Auger Bore reception pit had to be converted to enable it to accept one of Allen Watson's compact boring machines to complete this short run to tie the new replacement pipe back into the existing pipe network.

Prior to commencing completing the final design and commencing work two additional boreholes were sunk to reinforce the decision that the boring method selection was the correct one. These ground investigation boreholes were drilled at the proposed drive and reception shaft locations.

New Pipeline

Once the bores were completed and the casing pipes were in place, the final product pipe was installed within the 610 mm o.d. sacrificial steel sleeve. This was a 450 mm i.d. SN8 Ridgisewer drain pipe.

This sewer pipe was held in position within the steel sleeve casing by specially designed and manufactured EPDM centralising bushes that had been fabricated specifically to suit the steel sleeve internal diameter and the new sewer outside diameter. The special EPDM centralising bushes that had been successfully used on previous Allen Watson projects were manufactured and fitted to allow full annulus grout flow, giving a fully grouted support finish to the sewer pipe within the sacrificial steel sleeve.

Initial works on site for the main bore commenced in mid-February 2021 and works were completed in late March. The short second bore followed on once the main works were completed. >

The new sewer pipe with spacer bushes fitted awaiting installation into the steel casing pipe

Installing the Ridgisewer pipe into the steel casing

Installation Challenges

The ground conditions at the site presented various challenges to the installation crew. During the pilot tube installation, injection of a polymer-based drilling fluid allowed the torque and thrust pressures on the boring machine to be maintained at suitable levels while overcoming the ground reactions from the highly swelling clays.

Equally, the conditions proved challenging during the auger boring process that followed. While these conditions were expected the experience, the correct choice of equipment and methodology used by Allen Watson allowed for these conditions to be successfully overcome.

One of the specific stipulations of the project was that the method should avoid all disruption to traffic using M27 motorway above whilst keeping below permitted heave and settlement predications at surface.

Stuart Baldwin Head of Planned Works for Cappagh Browne Utilities Limited stated: "The project to replace the damaged 600 mm diameter sewer under the M27 was especially challenging. Excellent collaboration between Southern Water, CBUL, Cappagh Construction, Allen Watson Ltd and various stake holders was a key to its success. Utilising the specialist techniques and skills available within our parent and sibling companies and the persistence from the Cappagh Construction team and the Allen Watson Ltd drilling team, enabled this extended drive to be completed without disruption to the busy M27 carriageway."

Allen Watson's Operations Manager was site-based throughout the project to provide support to the specialist auger team if needed. The operations manager stated that: "Based on the pressure readings gained from the pilot installation and those taken as the drive passed under the M27, the 120 m length crossing was initially planned utilising Allen Watson's GAB155v machine. However, the high torque experienced during pilot bore was such that it made sense to switch to the contingency equipment after the pilot bore for the 610 mm sleeve installation operation to avoid any downtime should pressures increase further."

Commenting on the project for Allen Watson, Simon Marsh, Project Manager said: "There were some very tight alignment challenges on this project with the route of the new pipeline having to pass through a corridor that was just 1 m wide to avoid existing piles, and this whilst maintaining the required gradient of 1 in 120 with an exacting tolerance over the 120 m length. The ground conditions, consisting of swelling clays, were encountered during the pilot bore installation process. The challenges this presented were increased by the exceptionally long length of the crossing."

Ultimately the project was a success across the board with the new sewer installed, no disruption to M27 traffic and a satisfied client.

www.allenwatson.com

CONNECTING FIRST NATIONS COMMUNITIES TO THE NETWORK

The Vermeer D40x55DR S3 onsite for the First-Nations project

For residents in the Wauzhushk Onigum and Obashkaandagaang First Nations, clean, safe drinking water from the tap is a luxury they had not had access to in nearly a decade.

Located near Kenora, a small city situated on the Lake of the Woods in north western Ontario, Canada, about 124 miles (200 km) east of Winnipeg, both of these communities had been under water-boil advisories since 2012. With funding provided by Indigenous Services Canada (ISC) and the federal government, a project to connect the First Nations' water and sewer infrastructure to the City of Kenora's municipal water system was designed to greatly improve the communities' poor water situation. >

The drilling crew on the Kenora project

The full scope of the project included a new water treatment plant with treatment and disinfection equipment, a below-grade concrete water reservoir under the building, a generator set for backup power, a parking area around the building, electricity and communication lines to the building, a septic field for wastewater, a 246 ft (75 m) long water intake pipe and a 311 ft (95 m) backwash outfall pipe into Lake of the Woods, multiple distribution pumps, and 3,822 ft (1,165 m) of watermain piping. Completed, the new facility was designed to eliminate two long-term water advisories and restore fresh drinking water to the two communities.

To install the water pipes from Kenora to Lake of the Woods, the city's sewer and water department contracted Staal Irrigation & Contracting of Rosslyn, Ontario, for the horizontal directional drilling (HDD) work. Using a Vermeer D40x55DR 3 Navigator® HDD to complete the boring, owner Ian Staal and his crew were able to get their part of the project done in less than seven weeks. "It was quite the project, not your run-of-the-mill drill shot into a lake, that is for sure." said Staal.

DRILLING TO THE LAKE

The project called for the Staal crew to install two pipelines of Schedule 11, HDPE pipe on the Kenora side of the lake. One was 18 in (457 mm) diameter and the other was 16 in (406 mm) diameter. For both pipes, the crew bored a 24 in (609 mm) diameter hole. From where the drill was positioned on shore, each bore was approximately 370 ft (112 m) in length.

Staal said the combination of a Mincon air hammer and INSTA-VIS foam drilling fluid was ideal for tackling the rocky soil conditions for the 5¼ in (133 mm) diameter pilot bore. Powering the Mincon tool was a 1,600 cfm (45.3 m^3/min) air compressor running at 375 psi (2.6 MPa). With this combination of equipment and pressure, Staal said it was all about getting the bore hole right the first time. "You cannot push it, you cannot rush it. You just have to be very methodical and think of every single move because you cannot redo your bore." he said. "Because we were in rock, we really had to pre-plan every single inch, every foot and every percent."

On the way back through the hole, the crew used a Vermeer reamer to expand hole to 12 in (304 mm) diameter. Using the same reamer, but with a different carbide tip on the front end, the crews continued to go back through the bore path, lapping and spinning to make the holes increase from 12 in to 24 in (304 mm to 609 mm). Throughout the bores, the crews used a DigiTrak® Falcon® F5® locating system to track their progress.

"Every time we needed to make a tool change, we had to do it on the lake. On the first bore, we rented a barge with a big crane and used that to help us push out additional rods, giving us >

The Vermeer drilling rig onsite at Kenora

more flexibility. Then we would go down, chain on the end of the pipe and crane it out. As the person on the drill would push up more rod from shore, the crane would give us more leverage and allow the pipe to come up easier." said Staal.

He went on: "Then, we would get the pipe up on the edge of the barge, still connected to the drill, ratchet it all down on the deck of the barge, then lower the drillhead reamer down into the lake and pull it back." Staal added: "It was a bit of a process, so on the second one, instead of using the barge, we used divers."

FACING CHALLENGING CONDITIONS

One challenge Staal's crew encountered during the bores was the ground conditions changing unexpectedly on the lakebed. "It was supposed to be all bedrock. The problem was that about 200 ft (60.9 m) out on the beach shore, there was a section that went from rock to native soil and then went back into rock." said Staal. "Using that much pressure there and trying to hammer through, and then abruptly finding out that it is not all rock, was really surprising, we were probably at a depth of 20 ft (6.09 m) when we hit the dirt pocket."

To alleviate the situation, Staal's crews used fluted reamers with clay cutters on the end of their D40x55DR S3 to clean out the drill hole.

Staal estimated that his crews bored out around 60 ft (18.2 m) from shore and emerged in about 10 ft (3.04 m) of water. Since the crews were going through differing ground conditions, >

The Vermeer D40x55DR S3 was the workhorse on the Kenora project

Staal said that their drilling averages varied widely. “Sometimes we were able to go 10 ft (3.04 m), which is one rod in about 35 to 40 minutes. Other times, it would take 90 minutes or more to do the same amount of work.”

Staal noted that it can be stressful but being patient is the best way to work through these types of challenges. “You have to just be persistent and take your time. I mean, we just let the air and the bit do the work, which meant that sometimes we were sitting there on the drill and going slowly. That is the best way to get the job done right.”

“You have to be persistent and take your time, thats the best way to get the job done right.”

CONNECTING TO THE OTHER SIDE

According to Staal, at the same time his crew was doing the HDD work on the Kenora side, another contractor was doing all the sewer and water lines on the reserve side. That contractor used breakers and vertical drilling to blast the bedrock, then dug the material out of the way and trenched the pipe in.

Once the HDD bores to the lake were completed on the Kenora side, and the trenching done on the reserve side, the project specs called for the two new pipes to be installed on the lakebed a little over 9 ft (3 m) apart. “The timing worked out really well.” said Staal. “While we worked on our bores, the other contractor was finishing the work on the reserve side. We finished up on both sides of the lake at about the same time and were ready to pressure test, set it up and tie it all in together.” >

The Kenora Skyline

The pipe was welded together on the reserve side, and then the pipe, filled with air so it would float, was pulled into place with several boats. Divers connected the pipe to the end of the drill string above the 'daylight hole' (bore exit point on the lakebed), and Staal's crew and their Vermeer D40x55DR S3 drill took it from there.

"When we brought the pipe to shore, we pumped water from our vac truck into the line to act as a counterweight and get the line to lay down in the water so we would have a better entry angle." explained Staal.

"When we brought the pipe to shore, we pumped water from our vac truck into the line to act as a counterweight and get the line to lay down in the water so we would have a better entry angle."

Once the pipe was pulled into position and connected on both shorelines, the two lines were anchored to the bottom of the lake using concrete weights.

For the Staal team, this Lake of the Woods water and sewer project was just another example of how far the company has come in the past decade when they only installed sprinkler systems. Since then, Staal Irrigation & Contracting has expanded to five HDD crews with five Vermeer HDDs and several vacuum excavators.

The Lake of the Woods project was one of the first times the crew has operated a Mincon air hammer, but Staal said the team at Vermeer Canada and Mincon supported them every step of the way. "We really appreciate all the time those folks spent with our guys on this job. They were every bit as invested in seeing us be successful on this project as we were, and that means a lot to all of us." he concluded.

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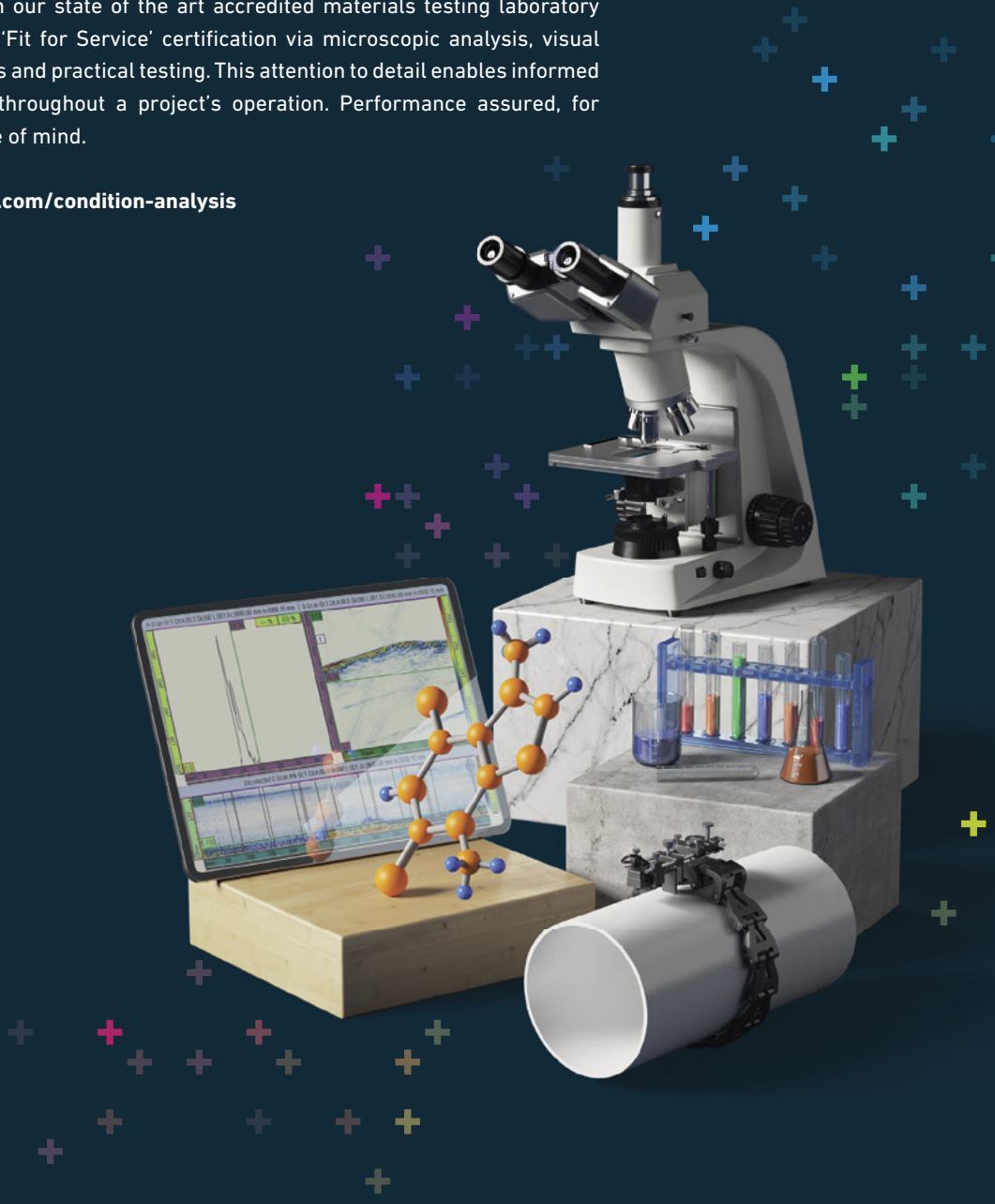

Condition Analysis

MAXIMUM FLEXIBILITY, MINIMUM RISK

TRACTO financing solutions for capital-intensive No-Dig equipment

Using TRACTO's financing solutions, contractors can invest in the success of their business in a flexible and low-risk way

As the only full-range supplier of trenchless technology, TRACTO supplies sophisticated solutions for all areas of pipeline construction and renewal. Decades of experience flow mainly into the premium-quality NODIG systems 'Made in Germany' as well as the companies constant improvement and innovation.

However, the company also uses its knowledge of the industry to offer users of its trenchless technology customised services with high additional benefits. These include flexibly adaptable financing solutions for the entire product range and complementary products at particularly favourable conditions.

Financing enables investment in state-of-the art technology

The civil engineering industry is considered to be very capital-intensive because construction machines are indeed capital goods. In addition, there are seasonal fluctuations to be considered in civil engineering, especially in wintertime. Financing of the equipment by the manufacturer via TRACTO Finance allows users to act flexibly without limiting their financial scope, while securing their investment as much as possible for the whole operating duration. The various financing models are individually tailored to meet the customers need, so that they always have the right state-of-the art equipment available for their individual projects. >

Manufacturer financing ensures that the latest and most efficient bore rigs are available to the user at short notice, e.g. to cope with additional orders or to bridge staff shortages

Starting at a minimum contract value of €100,000, TRACTO finances new and used machines from its own production range. This is particularly advantageous in case of high investment requirements, such as for GRUNDODRILL HDD rigs or GRUNDOBURST pipe bursting systems including accessories because, for example, mixing and/or drive units, or trucks and trailers to form a complete package can also be financed. Of course, the financing offer also applies to all other TRACTO machines, such as soil displacement hammers, ramming machines, mini drilling drilling systems, etc. including accessories and commercial products such as winches or compressors, provided the minimum contract value is achieved.

Quick commitment, no further securities required

Using TRACTO's customised financing solutions, the contractor can concentrate fully on his core business. The financing company can grant a commitment within a short period and usually does not require any further securities for this, which is a major advantage over local banks. The credit line there can be used for other investments where, for example, no manufacturer financing is available. In addition, financing can make a small contribution to alleviating the personnel situation because it enables the replacement of older, operation-intensive machines with more efficient, new equipment at short notice. With the new machine, the contractor can then carry out more jobs with the same number of staff.

As a solvent financial service provider, TRACTO Finance offers classic loans as well as various forms of leasing and hire purchase at excellent interest rates. All financing models focus on the specific requirement of the customer. The hire purchase is the right financing instrument if the customer, as the beneficial owner of the bore rig, wishes to take advantage of the balance sheet amortisation. By agreeing on a balloon payment at the end of the financing period, very low monthly installments can be agreed, which helps the customer to preserve his liquidity.

Specific solutions for individual demands

Economical fluctuations can also be partially compensated by manufacturer financing. For example, through seasonal installments left pending for 3 – 4 months or through modern forms of machine use, such as the so-called Operate Lease. In this case, the customer takes the bore rig for the agreed period of use and simply returns it to TRACTO at the end. He does not have to take care of the utilisation of the machine as that task is done by the manufacturer via its own used machine service team and the worldwide distribution network. This form of financing makes sense, for example, when dealing with additional orders. Here, the contractor often has to complete a task within a certain time, which normally can take several years. This usually calls for new machines. If there is an uncertainty whether the machines can later be utilised after completing the initial task, then Operate Lease would definitely be the right choice. In addition, >

Thorsten Wedi, Head of Financial Services at TRACTO, gives advice on all financial issues

this form of financing also helps with order calculation, as any uncertain assumptions regarding possible recycling proceeds from used machines are eliminated.

The range of TRACTO Finance solutions is constantly being expanded. New, for example, is the easy instalment purchase for brand new NoDig products, which allows users to test the new machine on a jobsite without any financial risk whatsoever.

A safeguard against all possible risks

Regardless of the type and capacity, any financing needs to be as well secured as possible, e.g. in case a bore rig is damaged beyond repair or stolen. This is precisely why TRACTO Finance offers intelligent insurance solutions, such as all-risk cover. This covers every conceivable, unforeseeable damage - except from war or war-like events, nuclear energy, intentional or operational wear and tear - and even from operating errors. In addition, the so-called GAP insurance is included, which covers the difference between the redemption value and replacement value of a machine, for example, in case of theft.

All users, who would like to take advantage of financing through TRACTO Finance are welcome to contact the Head of Financing, Thorsten Wedi for advice at any time. Interested parties can contact him by phone or email. As a rule, you should receive the desired financing offer within a few hours – in some cases even combined with a financing commitment, i.e., in such cases no further documents need to be submitted by the customer. All financing requests and any submitted documents are treated absolutely confidential by TRACTO Finance.

TRACTO Financing solutions

- LOAN – Provides the capital to acquire the machine technology
- LEASING – Provides the machine technology for an agreed period with various options:
  - Full or partial amortisation
  - Terminable contract for maximum flexibility
- OPERATE LEASE – Defined leasing period
- HIRE PURCHASE – Outright ownership of the machine at the end of the hire purchase period
- EASY-HIRE PURCHASE – For newly launched products with rights to return after 1 year

Thorsten Wedi
Head of Financial Services
thorsten.wedi@tracto.com

NEW BREAKER BOOM FROM RSP

The new Breaker Boom suction excavation rig from RSP

RSP UK is thrilled to announce what is claimed to be a world first suction excavator that will transform the plant hire industry! 2021 will see the German-based manufacturer bring a new solution specifically to the UK market.

The 'Breaker Boom' is uniquely designed to break ground alongside the internationally patented RSP Suction Excavator, allowing for a reduction in on-site footprint, saving time and money.

The current model is mounted on a Mercedes Arocs 5 3351 6x4 with double fan but is also available in other configurations. Lloyd Gardener, Director of RSP UK commented: "This has been in the making for some time and we are so pleased to be able to offer this innovative solution to our customers." >

Rear and oblique views of the new Breaker Boom rig

The new technology was developed in Germany but the idea originated from the UK team and is based on customer need and demand for the specialist technology. “The Breaker Boom is a true collaboration project which encompasses our business values; working with our customers to find the right solution.” said Charlie Gardener, Director of RSP. The ‘Breaker Boom’ boasts a combined suction excavator, breaker and on-board compressor making it an ideal self-contained solution. Not only will it reduce plant hire costs but also increase on-site efficiency. It is an ideal solution for highly congested sites and areas as well as inner city work.

Training on the new truck will be available from RSP UK at its dedicated training centre in Roxton. RSP is passionate about increasing industry safety standards to ensure that all operators are correctly using the new technology.

www.rsp-uk.co.uk

MTS DELIVERS NEW DINO 12 SUCTION EXCAVATORS ACROSS THE UK

Russell Fairhurst, Managing Director MTS Suction Systems UK hands over the latest Dino 12 Suction Excavator to Kevin Burke, Managing Director, Suction Excavation UK

Suction Excavation UK Limited, a specialist provider of operated suction systems to the utility, infrastructure, and construction industries, recently took delivery of its new Dino 12 Suction Excavator. Mounted on a VOLVO FMX 500HP Tridem chassis the Dino equipment is the latest addition to SEUK's growing fleet of MTS equipment which is offered on an operated basis across the UK.

This latest Dino 12 features well established MTS twin fan technology as well as the latest Mega Hose boom and IKE rotary suction head as standard. The Volvo tridem chassis it is mounted on ensure that the equipment is suitable for both on-road and construction site applications with class leading manoeuvrability with high spoil capacity. >

"Quote."

Mick Dysart, Managing Director, LMD Vacuum Excavation Ltd takes delivery of the company's new MTS Dino 12 rig

"Although it is always good to add extra capacity, our main driver at LMD is to build on our reputation for having the most diverse and adaptable fleet of vacuum excavators in the UK. "

Kevin Burke, the Managing Director of Suction Excavation UK stated that the unit is an important addition to the fleet helping assist in reaching the company's goals of being a Key Supplier to its client base. He also added that the equipment and support provided by MTS has been key in helping both establish the business and in achieving these goals.

Following the delivery, Suction Excavation UK has placed further substantial orders to aid in its ongoing expansion. Kevin went on to say SEUK's goal was not to be the largest supplier in the industry, but rather to concentrate on establishing and maintaining a client base that considered its service key to their industry. Customer relationships are the key aim and having quality well supported equipment makes that a lot easier.

Russell Fairhurst, Managing Director at MTS Suction Systems UK Ltd said: "It was great to be able to supply a growing and locally based business. Being able to provide the right equipment and importantly the support for that equipment to our clients is what we aim to do. We appreciate we have competition out there and are pleased that Kevin has chosen us not just for his needs to date, but in that he trusts us in going forward with his further orders."

LMD Takes Delivery of a New Dino 12 From MTS UK

MTS UK also recently handed over a new MTS DINO12 Twin Fan unit to its long-standing customer LMD Vacuum Excavation Ltd. This new truck represented a continued partnership with MTS and Mick Dysart, Managing Director of LMD, which started back in 2007/2008.

Russell Fairhurst, Managing Director of Mammoth MTS, recently commented: "I have worked with Mick from the very earliest days of LMD Vacuum Excavation and have seen at first hand the work and dedication taken to build the business to what it is today. These are exciting times in vacuum excavation. I look forward to working with Mick and his team over the years to come."

LMD has one of the largest Vacuum Excavation fleets in the UK, dominated by the MTS Vacuum Excavators, which it will continue to expand with MTS through to 2023 showing continued confidence and commitment to MTS.

Mick Dysart, Managing Director of LMD, recently commented: "Although it is always good to add extra capacity, our main driver at LMD is to build on our reputation for having the most diverse and adaptable fleet of vacuum excavators in the UK. We have just taken delivery of the first MTS six-wheel-drive vacuum excavator in the country and added to our fleet of MTS vacuum excavators built on the Mercedes Benz Econic chassis. These are equipped with Direct Vision cabs that provide superb all-vehicle visibility for works in busy city centres."

www.mammoth-mts.co.uk

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The Bluelight system

SIMPLE, FAST AND SUSTAINABLE RENEWAL OF DISTRICT HEATING PIPES

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Preparing the pipe, the liner and completing the installation of the CarboSeal® liner

CarboSeal® has been developed in cooperation with Nordic network owners that include Vattenfall, Fortum and Hofor. It has been tested and verified in collaboration with RISE, the Swedish Research Institute, and multiple successful pilot installations show that old, leaking district heating networks can be rehabilitated to as new. Old pipes are given new life, with no need to dig out, refill or recycle. By avoiding excavation, the carbon footprint of producing, installing and refilling new pipes is reduced by at least 80%.

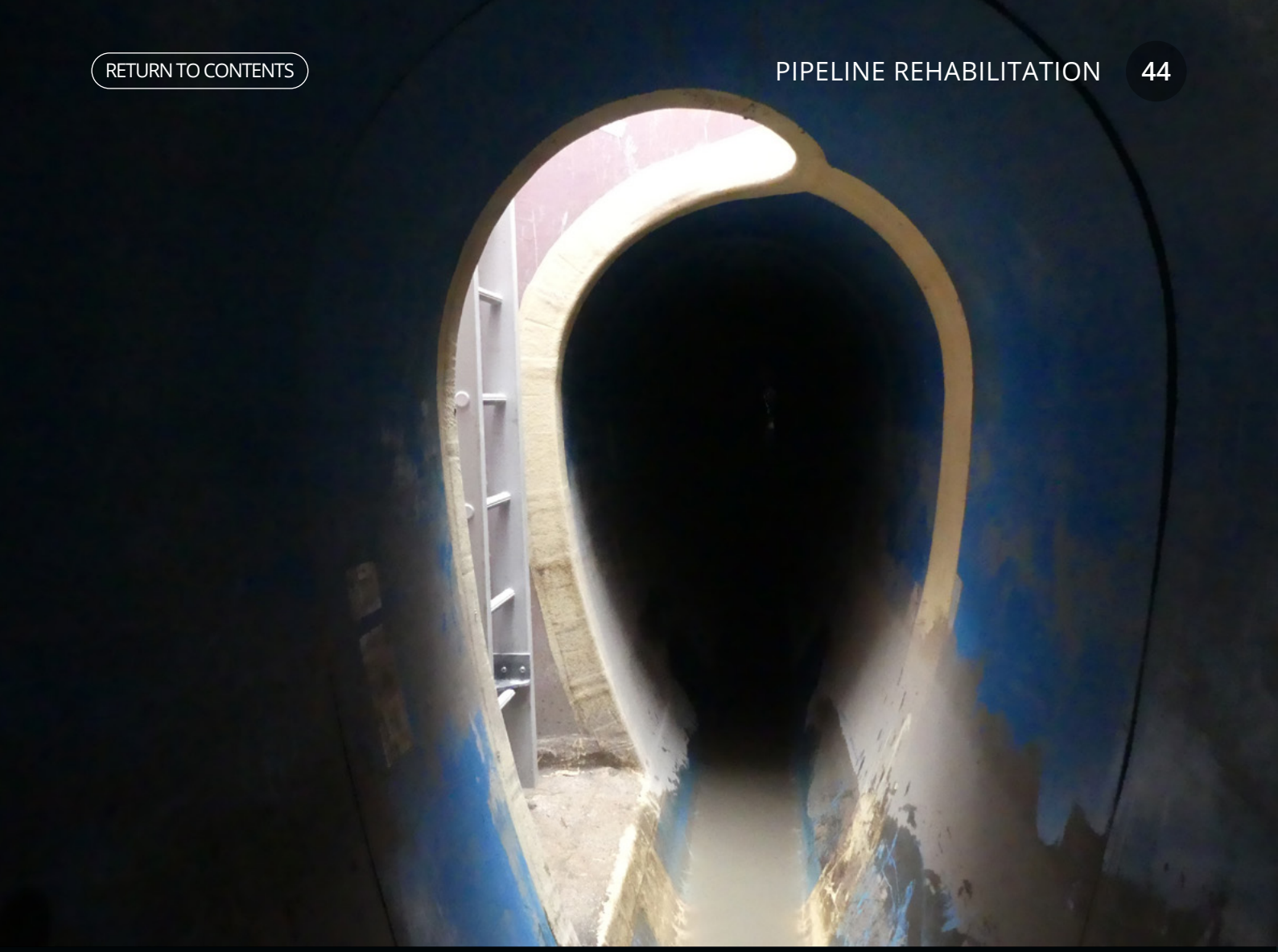
Aging district heating pipe networks mean an increasing number of leaks, which is a growing concern for network owners at a global level. As well as the economic challenge of network reinvestment, there are major challenges in terms of the availability of the necessary competence, capacity and resources to plan and implement network renewal. Digging out and/or identifying new routes for pipes in city centres, under heavily trafficked roads, over bridges or under water is challenging and costly.

CarboSeal® has been developed to offer network owners a fast, simple and sustainable way to fix and replace their ageing networks by relining. Accessed through existing manholes or two small trenches, the pipe is opened, and the pulled-in-place CarboSeal® CIPP liner is installed. As there is no need to apply for approval to excavate, close streets or identify new pipe routes, planning is simple and fast. Installation takes only a couple of days, and sections of hundreds of metres can be replaced in less than a week.

“The patented CarboSeal® system has been developed by an experienced group of network owners, relining companies and materials experts.”

The patented CarboSeal® system has been developed by an experienced group of network owners, relining companies and materials experts, with valuable support from research institutes and district heating associations. Thorough testing and evaluation has confirmed that the system can withstand the high temperatures and high pressures in district heating networks over long periods, which has proved challenging for conventional relining solutions.

The unique fibre architecture of TeXtreme®, the specially developed resin system and BKP Berolina’s proprietary liner manufacturing process enabled the PPR team to devise this unprecedented solution to the growing problem of ageing district heating pipe networks.



DIEPPE REHABILITATION OF THE OVOID RAINWATER NETWORK

The surface water culvert prior to rehabilitation

The Dieppe-Maritime Urban Community recently undertook the rehabilitation of its main concrete stormwater collector dating from the 19th century which is located under the 'Cours de Dakar' road behind the harbour, running at a depth of 5 m over a length of 1 km. The ovoid network had major structural weaknesses that led, between 2014 and 2018, to three roadway collapses; a roadway on which trucks and cranes weighing up to 490 t regularly travel to handle onshore wind turbine blades and heavy equipment at the quayside. >

The Amiblu NC liner pipes measuring 1,024 x 1,923 mm each being 2.50 m long

"To give a lease of life to this 1.20 m wide, 2.20 m high structure, the Dieppe-Maritime Urban Community chose the relining trenchless method to complete the works."

Between October 2019 and June 2020, the Cours de Dakar, main road in the harbour, was the scene of extensive renovation works to reinstate the network to its full structural capacity, restore its watertightness, and protect it against abrasion and corrosion.

To give a new lease of life to this 1.20 m wide, 2.20 m high structure, the Dieppe-Maritime Urban Community chose the relining trenchless method to complete the works.

This less invasive method allowed the contractor, Sade, to install nearly 500 Amiblu NC pipes measuring 1,024 x 1,923 mm and 2.50 m long without opening a trench. In addition to enabling the project to be on time, this method made it possible to reinforce the structure from the inside using GRP pipes and limit inconvenience to local residents. It also monopolised only one part of the road, avoiding closing this very busy road completely.

The NC pipes were inserted one by one into the concrete ovoid network, then transported on a specially manufactured trolley to the installation site where they were joined together to rebuild the inside of the pipeline. The annular gap between the old and new pipes was filled with bentonite grout, forming a complete restructuring composite system. >

Left Installing the liner pipes and right the liner process if completed

The other aspects of the project included the replacement of a grey cast iron wastewater conveyance pipe with a 350 mm diameter, which was supported by concrete sleepers inside the network and over a length of approximately 850 m. This pipe was removed and a new one created under the Cours de Dakar over a length of 1.350 km.

Also, diversion of rainwater usually carried by the network required extensive preparatory work. The water had to be diverted outside the network to allow the work to be carried out inside.

Implementation of an anti-flooding pumping station was also necessary and was subject to the tides, the ovoid network is quickly saturated, which causes flooding. The anti-flooding station will be able to handle up to 4,500 m^3 of water per hour.

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CIPP QUALITY: NO REASON TO PANIC

Andreas Haacker, CEO of Siebert + Knipschild, looks at the big picture when testing CIPP work

With latest reports of declining CIPP liner quality, German testing institute Siebert + Knipschild warns of excessive pessimism. Based on 6,000 samples out of three European countries in one year, the inspection engineers concluded that more installation companies than ever fulfilled the requirements for successful CIPP sewer renovation, rewarded by the Seal of quality. Instead of complaining about a perceived decrease in quality, Siebert's managing director is asking everyone to instead consider the question 'What makes a good CIPP product?'

"Much more than just the source CIPP product, it is the combination of multiple factors including a sensible call for bids, a made-to-measure liner and a successful installation and curing procedure that add up to a final judgment of any given contractor's work." said Andreas Haacker, managing director at Siebert + Knipschild, one of Germany's leading institutes for testing CIPP materials. Quality of the process in particular correlates with a contractor's experience with a system, the equipment as well as personal qualification. >

Further influencing the final judgement is the sense of "next-gen" sustainability, both regarding climate protection as well as the longevity and durability of the CIPP liner. "In short, it is all about having a PLAN. Planning, Liner quality, its Application and Next-gen sustainability all need to be up to par." said Haacker. "Whether you are a client, a contractor, or a manufacturer, each of them is equally key to success."

"We purposefully do not rank the liner manufacturers in our scorings without looking at the contractors' work. This would warp the results. Imagine ranking only the race cars in Formula One, completely ignoring the skill in piloting the vehicles. We look at the full picture instead."

Liner-only rankings are 'like Formula One without a driver'

What liner yielded the best results? This question is flawed in the eyes of Andreas Haacker. "We purposefully do not rank the liner manufacturers in our scorings without looking at the contractors' work. This would warp the results. Imagine ranking only the race cars in Formula One, completely ignoring the skill in piloting the vehicles. We look at the full picture instead." he said.

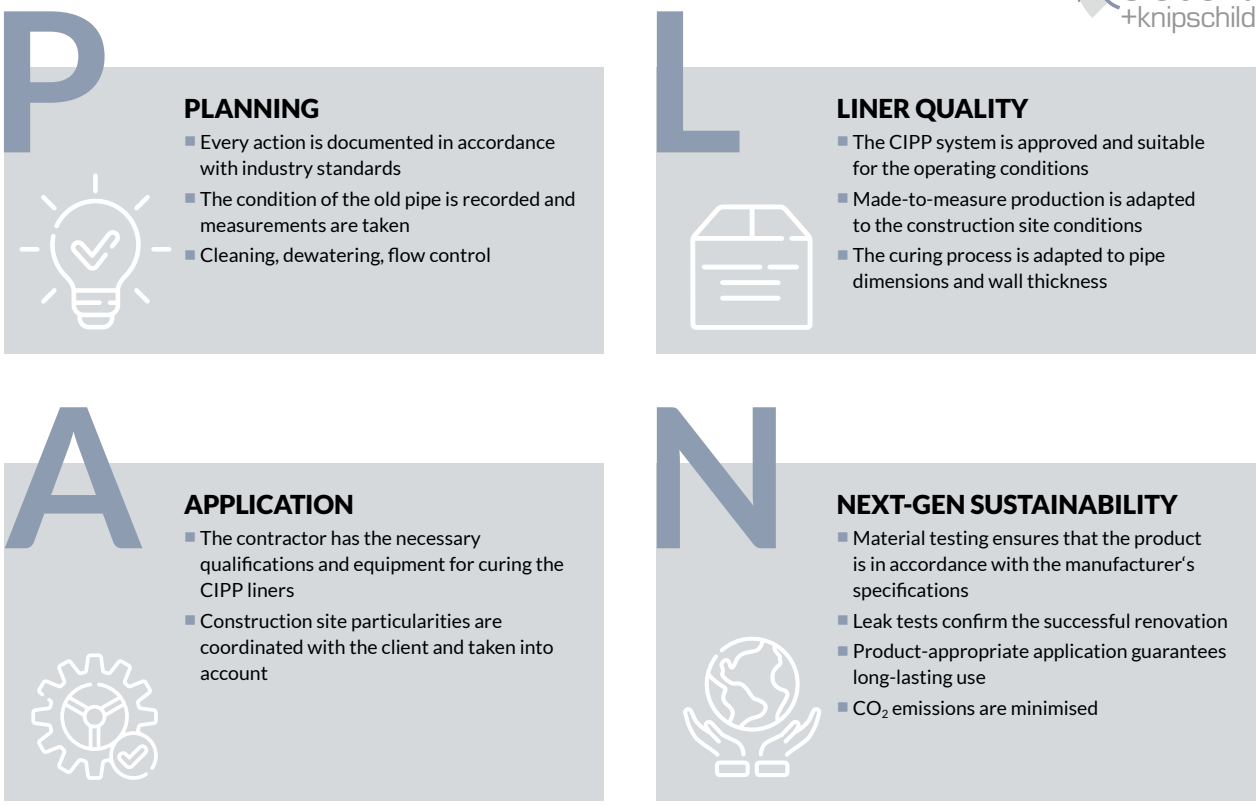
Another point on the chemical engineer's mind was that there is a risky tendency among communal decision makers to minimise prices and maximise pipe diameters at any cost. He said: "It is generally more successful to carefully consider the curing process and adjust the timeframe with regards to the general conditions. Process technology plays a decisive role here. It should be noted that contractors work with different systems regarding their UV curing equipment. This is not always taken into account within the DIBt's qualifying admissions." If no references or previous experiences are available, Haacker recommends ordering residual styrene analyses to assess the successful curing of the entire wall thickness.

Wall Thickness Specifications

One aspect that may lead to confusion is a perceived wall thickness discrepancy between a sample and the product information sheet. Nothing to worry about, said Haacker: "Usually the reason for this is quite banal. Wall thickness specifications in the manufacturer information are not unified. For the test and the static consideration, the wall thickness of the supporting laminate structure is decisive as a reference value, because this already includes the reaction shrinkage. If we receive a sample like that, we usually just ask to clear up this misunderstanding."
As chairman of the board of the pipeline rehabilitation association (RSV), Haacker advocates for a standardised way to note wall thickness to prevent confusion on the construction sites.

Siebert + Knipschild bases its seal statistics on around 6,000 datasets from Germany, the Netherlands and Austria.

Never before have so many contractors been awarded with the seal as this year. "Exceptional standards of quality in every area are becoming more essential for companies. We are seeing an increased effort from contractors to not only fulfil requirements, but also to give clients the safety of a durable and sustainable >



Illustrations: Freepik

product for the next generations." he said. A CIPP liner's depreciation period is usually around fifty years, however, the expected life cycle is much longer than that, according to Haacker.

In the same vein, house connection systems have high requirements for CIPP liners, appearing multiple times in this year's seal statistic. "The companies in this field are increasingly using the seal to build up trust for the systems." explained Haacker.

"The seal is a good reference for successful projects – for both clients and contractors"

Among the 26 contractors honoured with the seal, some hail from countries outside of Germany such as Austria and the Netherlands. "We are seeing growing interest in the seal from companies both domestic and foreign." As such, English-language application documents and information are available for download on the Siebert + Knipschild website.

Quality Data on Demand

According to Haacker, the seal is a good reference for successful projects – for both clients and contractors. To be eligible, a minimum of twenty samples per system must be provided in the previous calendar year. The testing institute inspects the wall thickness, e-module, bending strength and watertightness. Some 95 % of samples must pass the requirements to be eligible for a seal. The testing will examine components sent from the >

The listed companies receiving the Seal of Quality in 2021

contractors as well as the clients of the individual projects. They must be from four or more different construction measures.

All in all, the seal is a good opportunity for clients to get an overview over which companies deliver good quality. Contractors benefit from a recognition of their consistently high-quality work as well. Another perk seeing increased recognition from the companies. Those ordering the seal will receive a certified statistic over a year. “Companies will use the yearly data for their internal quality assurance. We can provide this data on demand.” noted Haacker.

Preparations for the seal award 2022 are already underway. German- and English-language application materials and a detailed checklist of the criteria can be found on the Siebert + Knipschild website at siebert-testing.de/en/seal-of-quality/. For projects where the public sewer network operator has initiated the inspection, a declaration of consent is required and available for download as a template as well.

www.siebert-testing.com/en/

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RENOVATING VITAL DUCTING AT A CANCER TREATMENT CENTRE

As part of an upgrade of cancer treatment equipment at a UK Hospital for The NHS (National Health Service), comprising the installation of a new linear accelerator used for radiotherapy treatment, buried ducting which is used to carry vital cabling for the new unit was inspected and found to be subject to ground water infiltration and condensation.

Duct access was limited with no manhole available

Given that the cabling that the ducting is used to carry costs something around £70,000 for 25 m (£2,800/m), it was decided that the ducts needed to either be replaced or rehabilitated to ensure that they remained water- and air-tight over the life expectancy of the Radiotherapy unit. The former option was discounted due to the location of the ducts within and beneath the hospital building as this would have caused significant disruption and inconvenience to both the operation of the hospital and its patients. So, a renovation solution was investigated to rehabilitate the four 20 m long, 100 mm diameter ducts. >

The brand-new equipment provided by C J Kelly International Ltd and Picote Solutions

Metro Rod HLP (Hull, Lincolnshire & Peterborough) was contracted to complete the works, which would turn out not to be a simple, straightforward renovation operation.

Given the nature of the equipment involved and the location of the ducts within the building and the ongoing Covid emergency, the renovation operation had to be carried out using strict hygiene control methods.

Initial works involved the CCTV inspection of the four ducts to establish the current state of repair so that a long-term solution could be planned for the renovation. The CCTV survey showed that whist two of the ducts were clear of obstruction, the other two had concrete deposits located within the duct run which would need to be removed before lining could take place.

"Given the nature of the equipment involved and the location of the ducts within the building and the ongoing Covid emergency, the renovation operation had to carried out using strict hygiene control methods."

To achieve this end, Metro Rod discussed options with and ultimately brought into the operation C J Kelly International Ltd (CJK) and Picote Solutions in a joint venture to provide the necessary equipment to complete the works on what was to become a high-profile job.

Again, given the location in the middle of the hospital building and the need for highest hygiene standards given the delicate nature of the incoming cancer treatment equipment, CJK and Picote loaned brand-new, previously unused equipment to Metro Rod so that no cross-contamination from previous sites could be possible. This included a brush cleaning system and a concrete removal tool from Picote which was designed to work with one of the company's Maxi Miller units, with lining materials being provided in addition by CJK. The project was scheduled to run for just four days, again to minimise the impact of the works on the hospital site. >

The brush cleaning head arrangement

Concrete deposits in one of the ducts

Renovation Schedule

On the first day of the works, the Maxi Miller with the concrete removal tool was used to first clear the concrete from the ducts in question over the course of a single 16-hour shift. This left just three days to clean the now concrete-free ducts and the remining two ducts and line them with 100 mm diameter Brawoliners, provided by CJK.

The project was so high profile for the client that both Spencer Horsfield (Company Director) and Robert Forsyth (Technical Manager) the two most experienced lining personnel in this division of Metro Rod, undertook the works personally. Cleaning works did not have access to a manhole so cleaning spoils had to removed just from the pipe access end. The duct runs themselves had a round configuration with each starting with a vertical drop leading to a 20 m long horizontal run and then a vertical rise at the reception end. The lining could not use water or ambient cure options due to project timings. Therefore CJK/ Picote provided one of the new Picote Smart Heat systems to accelerate the curing times for the liners.

Picote's Maxi Smart Heat is built on a light and rugged aluminium frame similar to that of the Maxi Miller with 30 m of heating cable. The system is designed to speed up the ambient cure of CIPP liners by approximately 35%. Maxi Smart Heat is also a significant alternative to traditional heat curing methods, significantly reducing the amount of equipment required on-site and simplifying the CIPP liner curing process. Once the liner is inserted and inflated in the pipe or duct being renovated, the heating cable is inserted and the power turned on. The Rod heats up raising the temperature inside the lining thereby accelerating the curing process. >

Left: Monitoring temperatures during the Smart Heat curing process

Right: Liners installed in two of the ducts (note the sheeting arrangement to keep the liner process separate from everyday operations at the site)

Special Care

Covid regimes meant that every day the contractor's crew was screened for symptoms prior to starting work and all equipment was spray disinfected/sterilised before and after use. The Metro Rod crew also had to work within a strict hygiene protocol during the course of the works.

Commenting for Metro Rod Spencer Horsfield said: "Under normal circumstances this would not have been the easiest of jobs anyway given the location within the hospital building and the sensitive nature of the treatment equipment being installed. But, added to this was the need to be particularly careful given the current and for now ongoing Covid situation. We have a long-term relationship with John and Martyn at C J Kelly and their ability and willingness, along with Picote Solutions, to provide brand new, unused equipment for this project and accessories was absolutely key to maintaining the hygiene standards required. Our thanks must go to them for this assistance."

For C J Kelly International John Kelly, Senior Partner said: "As Picote Solutions' first distributor in the UK we have always had good relationships with our clients. To be able to work with Metro Rod on this hospital project with Picote to ensure the best equipment was available to complete the works to the highest hygiene standards is something we would always try to do for any of our clientele if and when we can."

For Picote Solutions Dawn Greig said: "This was a case of 'what is best for the client given the location and equipment involved'. We were able, with C J Kelly to, provide the perfect solution necessary. It was a pleasure to work with both C J Kelly and Metro Rod throughout this project."

www.C.J.kelly.com
www.picotesolutions.com/resellers
www.metrorod.co.uk

"Covid regimes meant that every day the contractor's crew was screened for symptoms prior to starting work and all equipment was spray disinfected/sterilised before and after use."

MEGA-SIZED CROSSOVER MACHINE IN TURKEY

A Robbins Crossover machine is boring Turkey's 3.05 km (1.90 mile) Eşme-Salihli Railway Tunnel through mixed conditions including sandstone, gravelstone, claystone, and siltstone for contractor Kolin Construction

A Robbins 13.77 m (45.18 ft) diameter Crossover XRE TBM launched recently in Eşme, Turkey. The large machine is boring the 3.05 km (1.90 mile) Eşme-Salihli Railway Tunnel through mixed conditions including sandstone, gravelstone, claystone, and siltstone. Contractor Kolin Construction expects some occasional groundwater and weak rock between 5 to 9 MPa (720 to 1,300 psi) UCS, with the potential for a gassy environment.

The titanic TBM was launched after more than seven years in storage, and following a few upgrades to systems to ensure they meet the newest safety and efficiency standards. "I am very happy that the TBM has been launched. At the time of writing, the machine has bored nearly 500 m (1,600 ft) in gneiss and mudstone. This is an opportunity for Robbins to prove that large diameter TBMs can bore in such tunnels, even in very complex geology and difficult ground conditions." said Yunus Alpagut of ATES, Robbins' Turkish subsidiary. Alpagut went on to explain why the project is so important saying: "Recently, there have >

Robbins Field Service personnel stand proudly in front of the 13.77 m (45.18 ft) diameter Crossover XRE TBM for the Eşme-Salihli Railway Tunnel

been large diameter, non-Robbins machines that have failed at projects such as the high-speed railway in Bilecik, so this is very important to show the Turkish tunneling industry that large machines are up to the challenge."

To get through the challenging conditions, the large diameter XRE has a number of unique features. The large diameter design enables both a screw conveyor and belt conveyor to remain in place, enabling swift conversion between modes, and operation in 100% EPB and hard rock modes.

In EPB mode, the screw conveyor operates as in any typical EPB machine. The screw features a replaceable inner liner and replaceable carbide wear bits for abrasion protection. A mixed ground cutterhead is fitted with knife bits that can be switched out with disc cutters in harder conditions. The machine design includes a 'man-lock' for cutterhead inspection and changes, and mixing bars inside the mixing chamber.

To convert to hard rock mode, the mixing bars and initial portion of the screw conveyor can be optionally retracted. EPB knife bits are then replaced with disc cutters on the cutterhead, and the EPB scrapers on the cutterhead are replaced with bucket lips. Muck paddles are installed in the cutterhead to allow the muck to fall into the muck chute. A hydraulic muck ring allows a chute attached to the bulkhead to move forward and down at a diagonal angle, allowing rock chips to be deposited in the >

chute and through the screw conveyor onto the TBM belt conveyor. To keep up production rates in both modes, the Robbins Torque-Shift System is used, which is a two-speed gearbox that enables efficient tunneling in hard, mixed, or soft ground.

The Eşme-Salihli Railway Tunnel is part of the Ankara-İzmir High Speed Railway Project for the Turkish State Railways (TCDD). The 508 km (316 mile) line will eventually connect Polatlı in Ankara Province to Izmir, the third most populous city in Turkey, surpassing the Istanbul-Ankara High-Speed Railway as the longest rail line in the country once complete. The double-track railway system will convey passengers at top speeds of 250 km/h (160 mph), completing the journey between the two cities in 3½ hours, a journey that would normally take 6½ hours by car.

www.robbinstbm.com

A Robbins 13.77 m (45.18 ft) diameter Crossover XRE TBM launched recently in Spring 2021 in Eşme, Turkey

The large diameter Robbins Crossover TBM had bored nearly 500 m (1,600 ft) in gneiss and mudstone as of May 2021

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WATER PIPE INSPECTION AND LEAK DETECTION SUCCESSES

Leaking joint identified

PIPA was recently contacted by a water utility client in the UK which had identified leaks on a newly installed water pipeline. Due to the pipeline depth and PVC pipe material, using traditional techniques the client could not pinpoint the exact location of the leaks.

Challenges

The pipeline is a district heating pipe deeply buried and supported with insulation and concrete. The pipeline comprises Aquatherm double insulated pipe and requires 3 pressure tests at 20 bar. Further to this the pipe configuration included sixteen 90° bends around several streets requiring traffic management and road closures.

The client utilised external specialist leakage teams and searched for leaks over several weeks using methods including:

- Noise correlators – no leaks identified (not accurate on non-metallic pipes) >

- Listening sticks – the pipeline was deeply buried below ground so this technique was not feasible
- Specialist camera contractor for water mains – however too many bends were identified
- Hydrostatic testing- this identified a leak, however it does not pinpoint its location

This had a major knock-on effect, as the client cannot proceed with a localised repair solution, and also may require weeks of road closures and additional excavations.

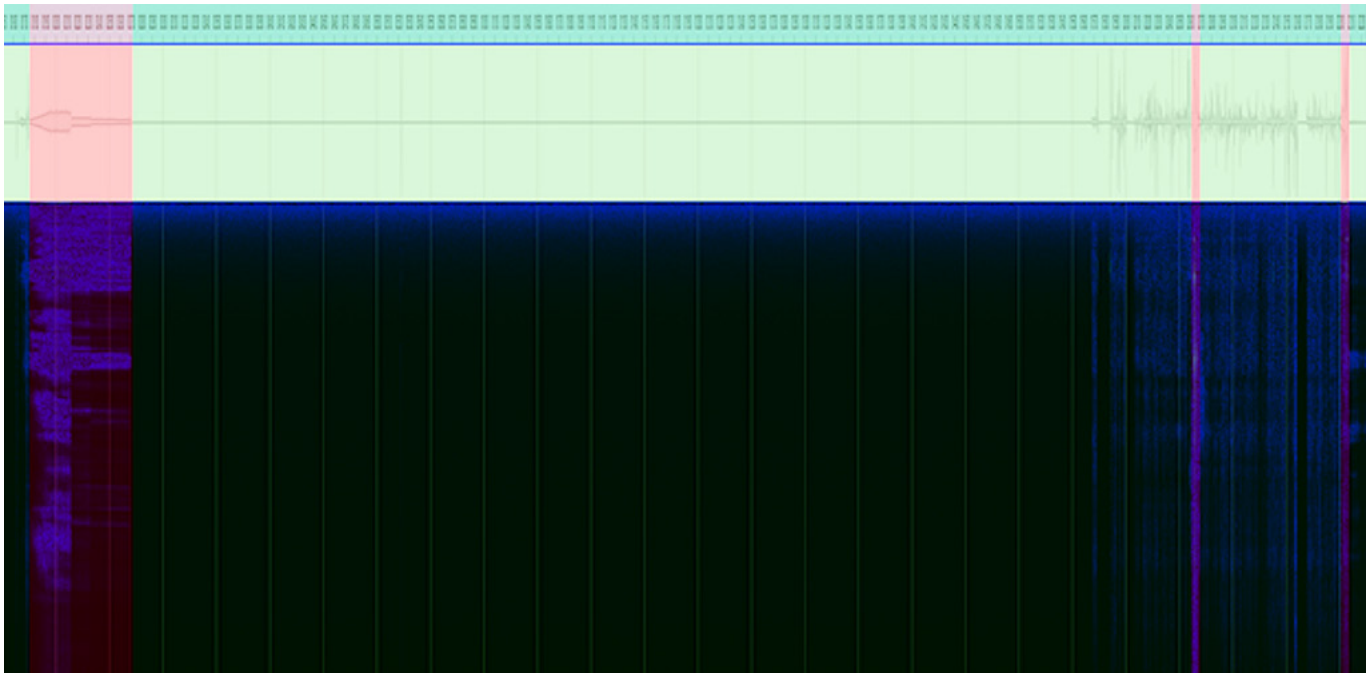
PIPA uses technology that includes a pressure-rated hydrophone capsule (Pipepod™) tethered to a 2,000 m long cable to give the operator recorded audio data during an inspection. The system enters a pipeline via an 80 mm diameter riser, and is fully chlorinated during its Insertion; the system works on a live basis, with no Interruptions to the clients services, and can cover a distance of up to 2 km/day.

"The unique water safe cable can be installed as part of the pipe build process, or be attached to a swab when cleaning the pipeline."

The unique water safe cable can be installed as part of the pipe build process, or be attached to a swab when cleaning the pipeline. The system offers contractors a failsafe on new pipe installations.

The technology is the latest live main inspection system on the market being fully battery powered and only requires a 2-person team for its Implementation. >

3 leaks identified on failed joint sections over a length of pipe totalling 690 metres



L1-46m L2-620m L3-675m

"The project was a great success and ideal due to pipe location and material and also a great case study for our company. The contractor had exhausted all other pipeline inspection avenues, and was more than relieved when we offered a solution."

Results of survey findings

Survey results

- PIPA successfully identified 3 leaks at 46 m, 620 m and 675 m
- Tethered insertion technology system allowed for precise location of the leaks to be identified
- The system offers pipe contractors a fail-safe on all new pipe installations
- Pipepod Hydrostatic sensors rated to 20 bar pressure
- The system was successful even with difficult pipe configuration and many 90° bends
- Acoustic system is very sensitive and able to pick up small and large leaks in all materials
- Operator was able to identify no other leaks with joints identified in close proximately to each other

Success

It would have been very difficult and expensive for contractor to find the remaining issues within the water main. The acoustic capability proved indispensable for locating issues and trouble shooting.

PIPA completed the inspection in 1 working day, and in total successfully identified and located 3 leaks, which have since been verified.

The contractor resolved the ongoing issue by removing the guess work at a fraction of the cost and time the client had invested in other methods over previous weeks.

A PIPA representative said: "The project was a great success and ideal due to pipe location and material and also a great case study for our company. The contractor had exhausted all other pipeline inspection avenues, and was more than relieved when we offered a solution."

Chelsea Project

On another project, API was recently contacted by a private customer regarding the loss of water supply to a property in Chelsea, London, UK.

Thames Water investigated the loss outside the property. However, the issue was an internal one. The property had lost all its water supply after a plumber had serviced the boiler.

API offered a solution by using the PIPA Hydrocam S system. The camera entered the small 50 mm diameter water pipe via a removed stop tap, and quickly identified the issue being a faulty ball type check valve.

A keyhole excavation quickly exposed the valve and minimal property damage was caused to the 6-storey central London property. >

Camera insertion point on the 50 mm diameter pipe

Key hole pipe exposure

The survey was undertaken in just 30 minutes and pipe issues were identified. The camera was then used as a pipe trace system to identify the sensor's exact location.

API uses PIPA technology that includes a pressure rated camera, the Hydrocam S, tethered to a 105 m long semi-rigid rodding to give the operator live video and recorded data during an inspection. The system enters a pipeline via a standard fire hydrant or 1 in (25 mm) tapping and is fully chlorinated during its insertion. The system works on a live basis, with no Interruptions to the client's services and with several surveys undertaken this unique product can cover up to 8 surveys per day.

The technology is the latest live main inspection system on the market being fully battery powered and only requires a 1-person team for its implementation.

PIPA has also developed reporting software to quickly present the results in a detailed report document.

In this instance, API successfully inspected the 50 mm diameter pipe using camera system the Hydrocam S and located the faulty valve below a kitchen cupboard area. Subsequently, the contractor was able to resolve the issue with minimum property damage. This true No-Dig solution saved large excavation work and saved time with guesswork.

It would have been very difficult and expensive for the contractor to excavate and remove floors and were also discussing opening wall space areas on further pipe investigations.

An API representative commented: "The project was a great success. The contractor had exhausted all other pipeline inspection avenues and was more than relieved when we offered a solution."

The client said of the project: "I am very happy with API for solving my problem so quickly. I searched on the internet for other companies in the London area, but nobody could offer a camera survey on such a small pipe! Luckily the camera found my issue was under a kitchen cupboard, we were previously discussing digging up the entire ground floor of my property! Many thanks API you found it!" >

API-PIPA LIVE WATER PIPE INSPECTION AND CLEANING VALIDATION

The faulty valve exposed by the contractor

API was recently contacted by a building contractor client in the UK. The contractor had recently built a new school building, within the grounds of an old school building, however once the new pipeline had been commissioned issues arose and the new school loss the use of water. The client using traditional techniques could not fully understand the issue or pinpoint the pipes exact location being a non-ferrous material.

Project Challenges

The pipeline is a newly installed 1.5 in (38 mm) diameter HPPE pipe with 3 bar pressure and was installed with unmapped location and configuration.

The failed pipeline had a major knock on effect, as the client cannot proceed with the new school handover, and also the issues had to be explained in front of Parliament.

Project Delivery

The client installed a T fitting for API to undertake an internal pipe assessment.

API uses PIPA technology that includes a pressure rated camera (Hydrocam S) tethered to a 100 metre long semi rigid rodding to give the operator live video and recorded distance data during an inspection. The unique product also has a genny port for mains tracing.

The system enters a pipeline via a pressurised seal fitting, and is fully chlorinated during its Insertion; the system works on a live basis, with no Interruptions to the client's services and with several surveys undertaken this unique product can cover a distance of up to 1 km per day.

The technology is the latest live main inspection system on the market being fully battery powered and only requires a 2-man team for its Implementation.

During the survey high levels of pipe debris was identified which in turn may have blocked pump filters creating the lack of water issues. >

The faulty ball valve identified using the Hydrocam S system

Survey results

- API successfully delivered a full CCTV assessment of the asset
- API also identified an unknown debris within the pipeline
- Tethered insertion technology system allowed for precise identification and location of the pipe ingress debris
- The flexi cable small diameter system is very responsive, with 170 metre survey successfully completed via both ends of service pipe section

Solution

API identified the internal pipe issues were created due to poor pipe installation services by the contractor. The pipeline should have been cleaned as part of the commissioning procedure.

API offered to clean the pipeline using a double swab cleaning technique and also validated the results prior to pipe chlorination and recommissioning.

Results and Validation

Conclusion

It would have been very difficult and expensive for contractor to find the remaining issues within the water main. The CCTV and tracing capability proved indispensable for locating issues and trouble shooting.

API completed the inspection in 1 working day, and offered a full solution identifying true pipe configuration and also by ruling out leakage issues.

The contractor resolved the ongoing issue by removing the guess work at a fraction of the cost and time invested in the alternative of a new trench excavation and new service pipe installation.

An API-PIPA Representative said: “The project was a great success, ideal due to pipe location and material and also a great case study for our company. The contractor had exhausted all other pipeline inspection avenues, and was more than relieved when we offered a solution.”

API has also delivered successful projects with the majority of the UK water utility companies.

www.pipa-uk.com

The valve is replaced and issue rectified with minimal damage

EDF BOOSTS ITS SMART METER SAFETY AND TECHNOLOGY WITH SMARTESTER

Using the SMARTester on site

EDF, one of the largest suppliers of electricity and gas to domestic users and small businesses in the UK, is leading the way in smart meter safety with the adoption of SMARTester, a wireless pressure testing system that gives reassurance of precise readings, a searchable database and traceability.

By using SMARTester, EDF's smart meter installers are guided through industry specific tests so that they can be assured of a gas tight operation, compliance, and peace of mind for themselves and their customers. >

A SMARTester set up on site

Following the government's pledge in 2017 and subsequent extension, Energy suppliers are required, by their licence, to take all reasonable steps to roll out smart meters to all their domestic and small business customers by the end of 2024. EDF has already installed over 1 million smart meters and each week are upgrading thousands more meters to smart. With 3 million residential and SME customers, EDF is on track to upgrade all of its customers to smart.

Improving Safety

With each smart meter installation, EDF's number one priority is safety for the customer, the installing engineer and the wider general public, particularly prescient whilst the country emerges from lockdown. The work carried out must be to industry standards and comply with IGEM technical standards. In accordance with IGEM/UP/1B, a series of pressure tests are required to be carried out at critical stages of the smart meter installation. One of the main benefits of SMARTester is the ability of the device, combined with the app, to lead the engineer through these various tests, recording and saving each one and determining the installation as a pass or fail result. This instant evidence gives EDF and the installing engineer reassurance that the new meter has been fitted compliantly and safely.

"One of the main benefits of SMARTester is the ability of the device, combined with the app, to lead the engineer through these various tests, recording and saving each one and determining the installation as a pass or fail result."

This reassurance of accuracy and traceability is what first interested EDF in the SMARTester system. Traditionally more conventional stand-alone gauges have been used and paper evidence recorded but these can be subject to human error and do not offer the same guarantee of 100% accuracy and account traceability that the SMARTester does.

Geoff Mills, Smart Meter & EV Installations Director commented: "Safety is a key priority at EDF. By adopting SMARTester, we are equipping our workforce with the latest technology to help ensure a safe gas smart meter installation. This is important to >

Screen representation of the SMARTester data

"Displayed in an easy-to-read dashboard, the data is packaged and sent to the cloud database in seconds."

EDF because it protects our engineers and gives assurance to our customers that each one of our installations are carried out correctly, compliantly and safely."

Driving competence

EDF have, so far, equipped 350 of their smart meter engineers with a SMARTester for use with their company issued Android phones. The engineers have been using the highly accurate, evidence gathering system that SMARTester offers, for over 12 months, as part of their essential pressure testing operations performed whilst installing new smart meters.

Cost Saving

EDF is always looking for ways to reduce costs for the bill payer alongside safe working practices. By introducing a highly accurate pressure tester, this results in fewer incidents and therefore less investigations. In many cases, the engineer in question is not able to continue to work until the investigation is resolved. Evidence gathered using the SMARTester can provide proof of a competent installation instantly, resolving incidents in a matter of minutes, not weeks.

How does the SMARTester System Work?

It all starts with the SMARTester unit, which houses the stainless-steel pressure sensor. The robust and waterproof case has been designed to meet the challenges of life in the field and comes with a 12-month calibration certificate, giving the reassurance of automatic compliance. The device uses two standard AA batteries and offers a battery life in excess of a year.

The SMARTester app is pre-programmed with specific industry tests and guides the gas engineer through the process step by step. Using Bluetooth, the gauge wirelessly transmits, at the touch of a button, live pressure data to the app where it is recorded and added to the test certificate. The on-board calibration certificate is unique to each device and ensures test authenticity.

Displayed in an easy-to-read dashboard, the data is packaged and sent to the cloud database in seconds. Here, monthly statistics and real-time workforce analytics can be monitored. GPS position, pressure readings, photographs, date and time along with calibration information are all stored within the printable test record.

The dashboard can be connected to existing enterprise resource programmes enabling scheduling and task management to be fully integrated. Test regimes are easy to edit so that the latest industry standards are rolled out seamlessly ensuring up to the minute conformance.

www.stevevick.com

TRENCHLESS MIDDLE EAST 2021

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Festival Arena by InterContinental, Festival City, Dubai, UAE
13-14 December

Trenchless Middle East 2021 returns to Dubai for its twelfth popular event, focusing entirely on trenchless technology (NDRC) in the Middle East, and North Africa (MENA) regions.

With megaprojects continuously being planned from Municipalities, authorities and developers, Dubai continues to host some of the most ambitious projects in the world.

Although the latest global crises are adding challenges to their implementation across the construction sector, the use of Trenchless Technology in infrastructure projects continues at a pace across the Middle East. These projects, across the GCC, are vital to progress economic diversification plans.

2021 will also see Dubai host the first World Expo to take place in MENA & SA region.

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A MESSAGE FROM THE CHAIR

Jari Kaukonen, Chair, International Society for Trenchless Technology

Hi ISTT members!

Many of you will be aware that the 38th International No-Dig will take place 3-5 October 2022 in Helsinki at the Messukeskus Helsinki Expo and Convention Centre. I am delighted to announce just before we went to press Picote joined the show as our Diamond sponsor.

We are all excited to be working with Picote who have a facility in Finland and will no doubt bring a passion and energy to what will be a fabulous international No-Dig event. There will be more on this soon.

This issues affiliated society feature is our China society, CSTT. I remember very well our international show in Beijing in 2016. FiSTT secretary Mika Nevala and myself missed the deadline to gain a visa to travel to China. Fortunately I had a meeting with an MP just before we were due to travel who had good connections to our Embassy in Beijing. I asked him for help and we got our visas in one day! I will never forget that.

I will have another vaccine at the beginning of July, once I have had this I hope to be able meet with you personally. Please do let me know if you would like me to attend any of your events... but first lets enjoy the summer period. I wish to you all a nice and relaxing summertime or somewhere a winter period, too.

Jari

istt.com

SOCIETY NEWS

ISTT News brought to members by Trenchless Works

Vale Menno Henneveld

Vale Menno Henneveld

It is with saddness that Trenchless Works has to bring you an announcement from the Australasian Society for Trenchless Technology (ASTT) announcing that Menno Henneveld passed away on 6 June, 2021.

Menno was the inaugural Chairman of the ASTT who dedicated a significant proportion of his working life to both Trenchless Technology and the ASTT.

Menno arrived in Australia in 1952 as the son of a Dutch emigrant and grew up in country Western Australia. He graduated from the University of Western Australia with a bachelor's degree in civil engineering in 1968 and started his career with the Public Works Department of Western Australia.

After a career path that had a strong focus on the operations and maintenance of water supplies, wastewater schemes and irrigation and drainage schemes, as well as programme and project delivery in water infrastructure, he became heavily involved in Trenchless Technology in 1987. As a senior manager for the Water Authority of Western Australia, he was responsible for the purchase and deployment of microtunnelling equipment, a responsibility that later increased to cover the application of Trenchless Technology on all of the State's water and wastewater programmes.

"Menno was the inaugural Chairman of the ASTT who dedicated a significant proportion of his working life to both Trenchless Technology and the ASTT."

Menno's leadership qualities were further recognised when he was appointed the Commissioner for Main Roads for Western Australia, a task he thoroughly enjoyed from 2002 till 2012.

This interest in Trenchless Technology led to the formation of the ASTT, that saw Menno become the inaugural chairman of the Australian (later Australasian) Society for Trenchless Technology (ASTT), which spanned a period from 1991 to 2012. Over this period some of his achievements included:

- On 11 March 1991, the Australian Society for Trenchless Technology was incorporated under his direction. Membership at that time consisted of 13 Corporate and 20 Individuals.>

istt.com

SOCIETY NEWS

ISTT News brought to members by Trenchless Works

Vale Menno Henneveld

- Signed the Affiliation Agreement in 1991 with the ISTT to become the 7th Affiliated Society
- In October 1991, ASTT conducted its first council meeting that was held in Brisbane with 20 attendees. This meeting was also attended by a delegation of members of the JSTT, led by Dr Toyama. This provided encouragement for the ASTT, and the first business planning session was conducted at this workshop.
- Initiated the ASTT's first National Conference and Exhibition that was held in Melbourne in 1992 which now continues to be held every 2 years.
- Initiated two International No-Dig events with the first in Perth in 2000 followed by another in Brisbane in 2006
- In 2004 formalised the Trenchless Australasia Magazine agreement with GSP now Prime Creative Media for ASTT members
- Served as an active member of the ISTT's ESC for several years and during this period
- Chaired a working group to produce ISTT's first Strategic Plan in 1994.
- In 1998 he was appointed one of two Vice Presidents of ISTT
- In 2005 appointed Chairman of the International Society for Trenchless Technology
- Developed the Trenchless 2K5 Strategic Plan for the ASTT
- In 2013 appointed a Life Member of the ASTT

On a personal note, Jeff Pace ASTT Secretary commented that Menno has previously said to him that 'None of this interest or involvement in both my career and Trenchless Technology would have been possible without the loving support of my wife, Monika.' Menno, will be missed but his legacy continues on.

CSTT

SOCIETY FOCUS

Monthly news from a regional ISTT Society

www.cstt.org

CSTT – THE CHINESE SOCIETY FOR TRENCHLESS TECHNOLOGY

The 17th Pipe Jacking Construction Technology Training Course

The China Society for Trenchless Technology (CSTT) was founded in 1998 and is one of the 27 Affiliated Societies of the International Society for Trenchless Technology (ISTT).

CSTT is the only nationwide, not-for-profit organisation related to trenchless technology in China and previously supported the establishment of provincial Societies for Trenchless Technology in Beijing, Shanghai and Guangdong province. CSTT has continually focused on promoting the science and practice of trenchless technology; industry specifications and standards formulation and revision; and finally, enhancing international cooperation to promote industry continuous development.

By the end of 2016, CSTT could boast 115 members (including 5 individual members), made up of contactors, constructors, equipment manufacturers, consulting companies and research institutions. >

www.cstt.org

SOCIETY FOCUS

The 3rd Pipeline Rehabilitation Technical Training Course

CSTT's annual activities includes its annual conference and awards, construction ability certification, technology promotion and international cooperation. Other key projects are detailed below.

Trenchless Technical Training

There are a number of training courses organised by China Society for Trenchless Technology and supported by some of the leading companies amongst CSTT members. The courses aim to help contractors in the trenchless industry, especially newcomers, to develop their professional and practical skills in three different aspects including horizontal directional drilling technology, pipe jacking construction technology and pipeline rehabilitation technology. All three of these courses have been up and running since 2013.

"The courses aim to help contractors in the trenchless industry, especially newcomers, to develop their professional and practical skills."

To ensure the professionalism of these courses, CSTT invites leaders from the society, experts from municipal units, scholars from universities and institutions and on-site construction technicians to teach. The organisation also invites senior technical supervisors from equipment manufactures to conduct lessons. The organiser will also set up visits to construction sites and practical lessons to make sure the participants can put into practice the theories learned on the course.

The training courses are only available to employees of CSTT members and overseas trenchless societies. All courses are free of charge to attend and the qualification test, accommodation and catering during the course are set at a reasonable rate and depend on the city hosting the training. >

The 48th Horizontal Directional Drilling Technology Training Course

In the future, in order to adapt to the development and needs of pipeline rehabilitation technology, CSTT will be strengthening the training of this particular course.

Events and Recognition

The International Trenchless Technology Conference (ITCC) was held at China Red Island International Convention and Exhibition Center in Qingdao between 10 and 12 April 2020.

It was hosted by China Society for Trenchless Technology (CSTT) and supported by the International Society for Trenchless Technology (ISTT), the American Society of Civil Engineers (ASCE) - Pipeline Division, the Center for Underground Infrastructure Research and Education (CUIRE), the China Association for Engineering Construction Standardisation, the China Municipal Engineering Association - Pipeline Inspection and Rehabilitation Committee, Zhengzhou University, the China University of Geosciences (Wuhan), the China University of Geosciences (Beijing), Chengdu University of Technology, Tongji University, the College of Civil Engineer, Jilin University, the College of Construction Engineering and related organisations.

"ITTC 2021 also incorporated the ITTC 25th Anniversary Celebration and CSTT Annual Awards Ceremony."

ITTC 2021 also incorporated the ITTC 25th Anniversary Celebration and CSTT Annual Awards Ceremony which was covered in detail in the May edition of Trenchless Works.

ITTC 2022 will be held at Suzhou International Expo Center, in Jiangsu Province between 15 and 17 April. >

CSTT

www.cstt.org

SOCIETY FOCUS

Training class and demonstration site

"CSTT will select some emerging city clusters in the central and western regions to hold new technology meetings to accelerate the promotion and application of trenchless technology."

Certification & Competency

Since 2015 and with the aim of standardising market activities and ensuring the quality of project construction, CSTT has carried out certification of the construction capabilities of trenchless engineering contractors according to the scale of the enterprise, equipment investment, engineering and technical personnel etc. So far, a total of 74 companies have passed the certification, of which 39 are Grade A, 23 are Grade B, and 12 are Grade C.

Promoting Technology

In recent years, the China has increased infrastructure construction and promoted water environment governance. Therefore, in order to promote trenchless technology to play a greater role in the various fields of economic and social development, CSTT will select some emerging city clusters in the central and western regions to hold new technology meetings to accelerate the promotion and application of trenchless technology in the central and western regions.

International Cooperation

Depending on the pandemic situation, CSTT will be organising members to attend the International No-Dig Helsinki in Finland in 2022 as well as trenchless exhibitions taking place in several other countries.

TRENCHLESS CASE STUDIES FROM CHINA

Felt liner-hot water curing

In 2021, according to Chinese government statistics, the national pipeline network is made up of approximately 920,000 km of urban water supply pipe, 744,000 km of sewer pipe, 778,800 km of gas pipe, 400,000 km of heating pipe, and 169,000 km of long-distance oil and natural gas pipelines. In total, this exceeds 3.1 million km, which is 4.5 times the length of pipeline in 2000, representing an annual growth of approximately 13.17% over the past 20 years.

However, despite these impressive numbers, pipeline construction is behind schedule and more pipelines need to be updated and rehabilitated due to the low quality of construction materials and poor site management. There is an urgent need to promote new technologies to achieve high-quality construction of the national pipeline network.

The most common rehabilitation methods used in China are UV CIPP, felt liner-hot water, spiral wound, SIPP, and thermo form (FIPP) in sewer pipeline.

UV CIPP

The Chinese UV CIPP market is unique in the world as nearly all UV technologies from Germany are being used in China, for example I.S.T, ProKasro...etc and 6 more Chinese UV manufacturers, including UV Led technologies. Normally the curing pipe starts from DN300, there are no laterals, only main sewer pipes and 20-plus liner suppliers that have facilities all over the country including iMPREG and Saertex facilities.

Case study from iMPREG (Suzhou) Co, Ltd. – January 2021

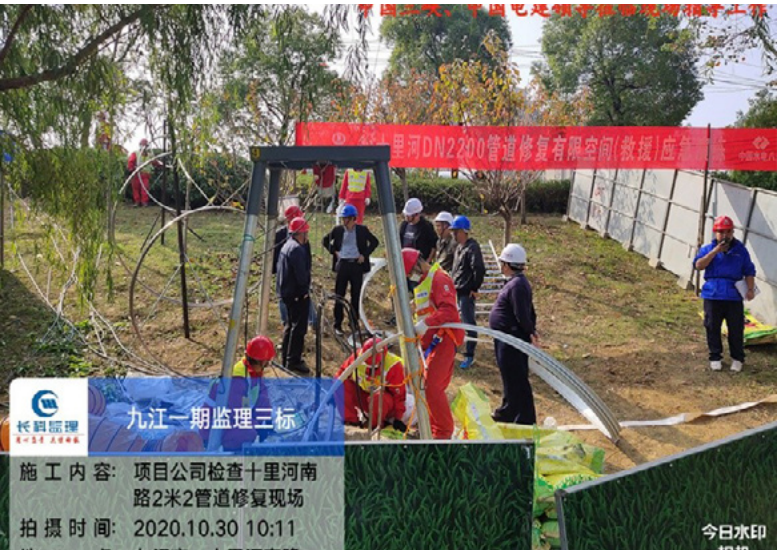
A relining company from Shanghai successfully completed a DN1400 storm pipe rehabilitation over 187.2 m in 5 sections in Jingan district, Shanghai. The company used a German-made UV rig to cure the iMPREG liner GL16, with 11 mm wall thickness delivered from the Suzhou facility. The job required one shot curing for each section and the challenge was the low ambient temperature of -8^{0}C during the night in January and the 600 mm diameter of the manhole entry. It took 5 nights to cure all 5 sections and with permission from the local authorities, iMPREG was allowed to expand the manhole. >

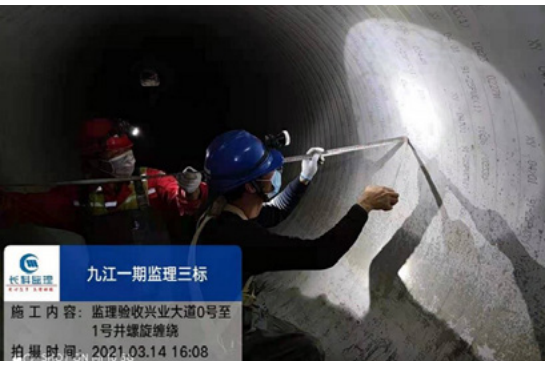
SOCIETY FOCUS

Case study from Shanghai Yufan Co. Ltd. - 2019

This was the second time Yufan had been required to cure a DN1800 pipe since 2014. Over the past few years, Yufan has been committed to the improvement and innovation of the construction process for felt liner hot water curing and has carried out standardised operations and improvement on vacuum extraction of lining hoses, resin mixing, grouting, impregnation platform and on-site construction. Now it takes 30 minutes to mix the resin compared to 2-3 hours previously, plus 5 workers to impregnate the liners compared to 10 in the past. Additionally, with the new impregnation platform, the thickness of the liner can be accurately adjusted and controlled which means the surface of the liner is smooth and uniform without any white spots or wrinkles.

The DN1800, 7m deep pipe was successfully cured using felt liner-hot water in Guangzhou, following a complete pre-treatment and efficient impregnation. >





Spiral wound

Case study from Tianjin Yitong Co. Ltd. – March 2021

Tianjin Yitong carried out the successful installation of a DN2200, 203 m long pipe with its own technologies developed in-house – a spiral wound lining in the Jiujiang section of the Yangtze River Protection project. This was a new record for Tianjin Yitong to complete such a big pipe rehabilitation with a spiral wound method.

Cracks and water leakage appeared in a DN2200 concrete reinforcement pipe and the structure of the entire pipe was repaired using a spiral wound lining - a steel-plastic reinforced construction method. Using 91-25 profiles and stainless-steel strips, a new lined pipe was formed by using a spiral wound liner in the original pipe. After installation, grout was injected into the gap between the new and old pipes. The new pipe was formed with a reinforced high-stength, steel-plastic which would ensure good water tightness.

Thermo form (FIPP)

In China, thermo form pipe is known as FIPP (Formed In Place Pipe). FIPP is widely used in sewer and potable pipe rehabilitation due to lower costs, easy operation, more flexibility, less curing time, high efficiency and less pollution-emission. >

Case story of from Chongqing Kenawei Co., Ltd. – March 2021

FIPP units and liners are manufactured by Taiyuan Changdahuamei Co. Ltd.

Kenawei, an inspection and relining company from Chongqing, South West of China, successfully rehabilitated a DN600 sewer pipe by FIPP on March of 2021 in Yongchuan, Chongqing. It took only 4 hours to complete the whole job and just 10 minutes to insert 50 m of liner into the pipe which was then cured at ambient temperature.

SIPP

Case study from Shanghai Yutong Co., Ltd. - 2019

In one district of Anhui, the upstream sewage discharge is less than 5,000m³ yet the actual incoming sewage to the wastewater treatment plant is nearly 40,000m³ and the incoming sewage Chemical Oxygen Demand is less than 20. The main pipe connected to the wastewater treatment plant is 10 km long and includes 800 manholes. The conclusion was that there was too much infiltration from the pipe and manholes. Therefore, Shanghai Yutong rehabilitated all 800 manholes with a polyurea coating, developed by its own in-house technology team. In total, there was 12,000 m³ of coating including 11 m³ for 700 manholes and 40 m³ for 100 manholes. The works, resulted in a 90% reduction in infiltration.

Thanks go to the Underground Pipeline Committee of CACP for the co-ordination of these works.

By Daniel Wu, I.S.T. Innovative Sewer Technologies China

I.S.T. Innovative Sewer Technologies GmbH is one of the world's most successful and innovative full-service providers in the field of pipe and sewer renovation. The rapidly growing company was founded in the spring of 1998.

I.S.T. China, located in the country's heart, Beijing, was founded in August of 2019 and was the 6th subsidiary of I.S.T. Germany in the global market. The company aimed to offer the best possible support and immediate expert service on site. In addition to the complete range of I.S.T. products, I.S.T. China also offers cleaning, coating and lining machines from Picote, global pipe inspection software from CD Lab, and manhole inspection camera from KEPSO. With an area sales network and service partners all over ChinaI.S.T. china offers customers only the very best solutions.

Visit us at www.ist-web.com for further information on our solutions.

istt.com

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EUROPEAN NO-DIG 2021

UNITED KINGDOM

Wednesday 15th September 2021
Peterborough, UK

1st European No-Dig Conference

Rehabilitation Design for Pressure and Gravity Pipes

A high-level technical conference with internationally respected and acknowledged expert speakers from 5 European countries covering the design methods and codes of practice for rehabilitation design across the Continent along with examples of their application.

The Conference Chair will be Dr. Dec Downey, former Chairman of ISTT and UKSTT.

Keynote speakers will be Dr. Olivier Thépot of Eau de Paris in the gravity liner design session and Dr. John Gumbel of JG Pipeline Consultancy in the pressure pipe rehabilitation session.

€250 Standard Rate

Students FOC

UKSTT & ISTT Affiliated Societies all receive a 50% discount

PROGRAMME

SESSION 1
GRAVITY SEWER REHABILITATION

KEYNOTE LECTURE: GRAVITY SEWER LINER DESIGN, Olivier Thépot, Eau de Paris, France

Design of Liners in Germany according to A143-2, Mark Klameth, IKT, Germany

WRc Sewer Rehabilitation Manual - Key Changes in Design Methodology, Nick Orman, WRc, UK

External Pressure Tests on Large Diameter Jacking Pipe Systems, Högni Jónsson Amiblu Technology, Norway

"Real-time Monitoring of UV Lamps as Requirement for Controlled and Protocolled Curing of Large Diameter Liner with Big Wall Thickness", Firmino Barbosa, Reline Europe, Germany

Questions & Discussion Dec Downey

SESSION 2
PRESSURE PIPE REHABILITATION

KEYNOTE LECTURE: PRESSURE PIPE REHABILITATION, John Gumbel, JG Pipeline, UK

Status Quo of the CIPP Product Standards for Water & Gas Networks, Ricky Selle, Selle Consult, Germany

Key Design Considerations for PE80 and PE100 Pressure Pipe Liners, Steve Brogden, Die Draw Ltd, UK

"Response of a Cured In Place Liner in Cast Iron Water Pipe due to Joint Expansion due to Permanent Ground Deformation or Seismic Wave" Olivier Thépot, Eau de Paris, France

"A Unique Example of Close Fit Lining Technology for the Renewal of Water Pipes aling the Bridge ""Ponte Punta Penna"" in Taranto", Federica Fuselli, Rotech SrL, Italy

Questions & Discussion, Dec Downey

Closing Remarks by Conference Chairman, Dec Downey

Register today: www.1steuropeanconf2021.nodiglive.co.uk

Technical Programme by: UKSTT, ISTT, GSTT TRENCHLESS MADE IN GERMANY, ITALIAN ASSOCIATION FOR TRENCHLESS TECHNOLOGY

In conjunction with: 2021 NO-DIG LIVE

Organised by: WESTRADE GROUP LTD

Official Media Partner: TRENCHLESSWORKS

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SOCIETY NEWS

UKSTT

ukstt.org.uk

Society News brought to members by Trenchless Works

HELLO FROM THE CHAIR

Dawn Greig, Chair, UKSTT

"Congratulations to all of those shortlisted for a UKSTT Award... the winners are announced at the Annual Awards and Gala Dinner at No-Dig Live on 15 September – remember to book your tickets ASAP for what promises to be an amazing night."

Hi everyone,

Well, things are really hotting up around here and I am not just talking about the weather! Congratulations to all of those shortlisted for a UKSTT Award.

Not long now until the winners are announced at the Annual Awards and Gala Dinner at No-Dig Live on 15 September – remember to book your tickets ASAP for what promises to be an amazing night. I would also like to take the opportunity to thank everyone who submitted an entry, even if you have not been shortlisted this time, you should all be very proud, not only of your wonderful achievement but also your contribution to Trenchless Technology, you are making a difference!

Talking of making a difference, why not join us at our next Council meeting? It is a great opportunity to learn more about what we do behind the scenes, and also put forward any suggestions you may have, or questions – for example how you can get involved more? We always welcome your input and your company, so let us know if you want to participate and we can send you a link to the Zoom call. The next meeting will be Thursday 8 July at 10am.

It is the run up to Summer but we still have lots going on, with a third Green Alliance webinar scheduled next month. Do not forget that as a UKSTT Member you are entitled to take part in ISTT webinars too. The next ISTT educational webinar will be on the 6 August on Cured in Place materials and system quality assurance based around a performance specification and site evaluation, presented by Ian Ramsay, Vice Chair of UKSTT.

Finally, just a reminder to follow us on social media for all of our most up to date news. Tag us and we will be happy to share your successes too #ukstt

Stay safe x

SHORTLIST ANNOUNCED FOR 2021 UKSTT AWARDS

This year's nominations for the UKSTT Awards recognise exceptional innovative projects and products across 7 categories. These highly prestigious Awards have been at the heart of the industry since 1995, representing the best of a highly competitive field. The shortlist for 2021 has been selected by an independent panel of industry experts.

This year's winners will be announced at the Gala Dinner & Awards Ceremony on the evening of Wednesday 15 September during the biennial No-Dig Live event.

The Shortlist

Innovative Product

Image courtesy of Qinov8

Qinov8 UK Ltd – The Aquapea

Recent advances in polymer technology have enabled the development of a ground-breaking alternative to traditional pipeline leakage reductions and repairs called the Aquapea.

This is a pea-sized product made from a specially formulated two-part polymer with a buoyant polypropylene core, which allows it to free-swim inside customers service pipelines and in most cases, repair the leaks without unnecessary costs of excavations and with little impact on the customers and environment.

The Aquapea is WRAS Approved and is water quality tested to BS6920 'for use in contact with water intended for human consumption'.

This is in every sense a trenchless technology.

Wessex Water Ltd, Headlight AI Ltd, Bright Innovations Group Ltd – 'Telesto' 3D LiDAR Modelling of Tunnels in Semi-Turbulent Flow - Telesto is a multi-sensor system with intelligent software that attaches to a floating platform that traverses underground assets for 3D modelling in semi-turbulent flow. It enhances the health and safety for workers involved in the surveying of >

subterranean assets by preventing confined spaces entry, thereby removing the associated hazards. It goes beyond CCTV and laser profiling solutions on the market and provides a more cost-effective route towards asset digitalisation compared with traditional surveying techniques. The customer obtains the 3D information and the position of defects and anomalies, which are automatically extracted and reported using traditional and machine learning approaches.

SGN, ULS Technologies and RPS – Robotic Roadworks and Excavation System

SGN and ULC Technologies have collaborated to develop an advanced robotic system to pave the way for change in the way utility roadworks are performed. The Robotic Roadworks and Excavation System (RRES) will replace conventional methods of excavation, utility interaction and reinstatement.

Using a precision robotic arm with hot swappable tooling including a below-ground locating sensor package, RRES will use AI, machine vision, and 'soft-touch' excavation tools on an electrically powered mobile platform to provide an end to end solution.

By eliminating the need for traditional equipment and processes, the system promises a range of benefits including minimising disruption, emissions and safer working conditions for operatives in the field setting a new standard for the future of roadworks.

Renovation Water and Wastewater

TPMD, Southern Water – Heading Underground – Upgrading Thanet's Sewers

The sewers beneath the streets of Ramsgate and Broadstairs are unique; constructed more than 100-years' ago, and some more than 28-metres below the surface, pipes rest at the bottom of hand dug chalk tunnels. Southern Water is investing more than £30 million upgrading this ageing network, ensuring it is fit for future generations. Delivered by confined space and trenchless technology experts, TPMD, this complex engineering challenge comprises of tunnel repairs and strengthening, patching, CIPP lining, manhole upgrades and new storage tanks. Working in more than 170 streets, over two summer seasons, specialist construction skills reduced the impact on these bustling seaside towns.

Wessex Water and Onsite Ltd – Weymouth Saline Intrusion Sealing

As an 18-year high astronomical tidal surge approached the sound coast in July 2020, Wessex Water identified chloride spikes via saline ingress into the sewers, around the historic harbour in >

Weymouth Dorset. As the sea water took advantage of defects in the 600 mm diameter trunk sewers, the process at the Radipole sewerage treatment centre would be affected. Within a few weeks of appraisal, a £450,000 scheme by Onsite Ltd, sealed 700 m of sewers and adjoining manholes, on cost and ahead of programme. A sustainable matrix of solutions meeting high standards of H&S compliance, over a continuous framework partnership of 20 years.

Wessex Water, Onsite Ltd and Bateman Consulting Pty –The River Parrett Twin CIPP Pressure Lining Renovation

When considering the British Water Industry, the use of Cured In Place pressure liners is still relatively new, considering they were first used in the UK by Insituform Permaline Ltd; and abroad by Ashimori and Osaka Bosui and the development of Paltem and Phoenix in the 1980's.

But with the new ISO 11297, we have the opportunity to encourage their use to a greater degree, as Wessex Water have at the River Parrett, Somerset. Twin 450 mm diameter Class A, 'Independent' pressure linings, saving almost £1 million over alternative methods, using submarine eversion techniques to overcome highly fluctuating tidal threats.

Terra Solutions / Irish Water – Dublin's Phoenix Park & River Liffey

The Liffey Siphons are twin 900 mm diameter foul sewers approximately 3.4 km in length, under Dublin's Phoenix Park & River Liffey. It is a key section of sewerage infrastructure for Dublin's needs. The siphons were constructed in the mid-1980s to connect the Blanchardstown to the Grand Canal Sewer System and onward to Ringsend for treatment. After cleaning and CCTV surveying the lines a suite of challenging trenchless installation/ remedial works were deployed to rehabilitate the siphon inlet/ outlet chambers, the two tunnels through which the siphons pass, tunnel access shafts, as well as upgrade works to the hatchboxes and flow-meters on the siphon line.

New Installation Water & Wastewater

Barhale – Mill Harbour Sewer Diversion

Civil engineering and infrastructure specialist Barhale was engaged by Ballymore to design and build an adoptable solution facilitating the construction of 766 new homes in Canary Wharf. The initial client solution encroached within the DLR footprint. Barhale's innovative solution reduced risk, time and cost. The location entailed working outside of the footprint of the future apartment blocks' site to allow the diversion of an existing 1,600 mm diameter sewer connecting to the existing Thames Water sewer. Additional challenges were presented by the need to negotiate the other utilities, telecoms and heavily-used roads supporting one of the world's major financial centres. >

McAllister Group/Tideway Tunnel (Ferrovial) – Chelsea FLUME, Thames Tideway Tunnel

The project scope was to introduce a temporary flume structural liner for Thames Tideway Tunnel into the Low Level No.1 (LL1) Thames Water sewer on Chelsea embankment to safeguard the asset during the construction of a new weir chamber connecting on to the main Tideway tunnel beneath the flume.

The LL1 sewer was exposed to the springer level where the temporary support cage/leakage liner was removed. After which the mild steel flume was installed and supported by 16no. rods to a top beam at ground level.

The LL1 sewer is a 2,084 mm diameter circular brick sewer originally constructed by cut-and-cover methods in the late 19th century. Cover to the sewer is approximately 8.5 m below road level.

The mild steel flume installed had an internal diameter of 1.9 m and spanned approximately 14 m of the weir chamber shaft.

O'Connor Utilities Ltd / Irish Water / Ervia – Cork Harbour Main Drainage System

The Cork Harbour Main Drainage System project was developed to end the discharge of raw sewage into Cork Harbour and to achieve compliance with the Urban Wastewater Treatment Directive. Fourteen Pumping Stations and 27 km of sewers have been installed to collect 40,000 wheelie bins per day of sewage for treatment at the new Shanbally Wastewater Treatment Plant.

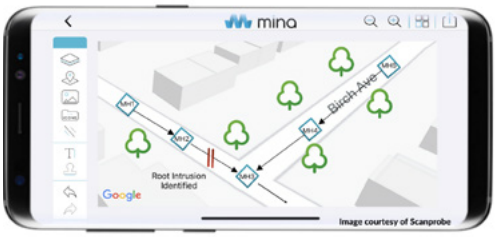
O'Connor Utilities was contracted to design and install two parallel kilometre long x 500 mm diameter pipelines beneath the Rive Lee estuary by HDD to connect 20,000 properties on the east side of the harbour to the treatment works on the west.

New Installation Energy & Communications

Eco Drill Ltd / Volker Infrastructure / A F Howlands Associates / Alresford Associates – Hornsea 2 Wind Farm Onshore >

Eco-Drill Ltd undertook horizontal directional drilling at 62 locations along a 40 km route from Horseshoe Point, south of Grimsby, to the National Grid onshore substation in North Killingholme, installing 3 individual directional drills at each location for the Hornsea 2 Wind farm (an addition to the world's largest off shore windfarm). Each of the individual 186 drills involved installing 3-way 250 mm diameter SDR 11 electric cable duct in tre-foil configuration from 40 m to 400 m in length. The use of Radius Pipe systems 'ClearDuct' pipe resulted in no internal de-beading required which meant the elimination of CCTV survey.

Application of Digital Technology



Scanprobe Techniques Ltd – Mina Survey

Mina Survey is a free mobile app available on iOS and Android, which enhances the trenchless survey capabilities for the drainage and utilities industries. Connecting wirelessly to your Scanprobe push-rod camera system, it enables the user to create and deliver fully formatted reports with in-pipe photos and digital drawings to the customer on site, in minutes, at no extra cost. Saving the engineer time and effort, and providing the customers with a visual and trustworthy report.

Plowman Craven Ltd / IWJS – Macclesfield Gyro

Plowman Craven's utilities team was asked to find the line and level of 2 x 90 m long culverts that ran under a road so that connections could be made from a new housing development in Macclesfield.

Using a state-of-the-art gyroscopic mapping system our surveyors were able to successfully locate both the 600 mm and 800 mm diameter culverts at a depth of 15 m – despite the many challenges of dense vegetation, dangerous access and utility congestion.

Wessex Water Ltd / Headlight AI Ltd / Bright Innovations Ltd – 'Telesto' 3D LiDAR Modelling of Tunnels in Semi-Turbulent Flow

Telesto is a multi-sensor system with intelligent software that attaches to a floating platform that traverses underground assets for 3D modelling in semi-turbulent flow. It enhances the health and safety for workers involved in the surveying of subterranean assets by preventing confined spaces entry, thereby removing the associated hazards. It goes beyond CCTV and laser profiling solutions on the market and provides a more cost-effective route towards asset digitalisation compared with traditional surveying techniques. The customer obtains the 3D information and the position of defects and anomalies, which are automatically extracted and reported using traditional and machine learning approaches. >

Environmental

Public Sewer Services / Anglian Water Services Ltd / Sykes Pumps / Highway Safety Management Ltd – Woodfield Road, Benfleet, Essex

Condor Pipe glides to the rescue

A 300 mm diameter foul water pipe was 75% deformed along with significant root infiltration with further structural defects upstream causing a risk of bank erosion, landslides and damage to badger setts along with residential properties. PSS devised a way to mix, match and adapt a methodical system to repair the pipe with little impact to the environment.

The works were completed in a fraction of the time, significantly reducing the budget cost to the satisfaction of the client, stakeholders and residents.

Watertight Management Ltd / Severn Trent Water – Camers Green Mains Renewal

The Camers Green project started in November 2019 with the purpose of installing 8,825 m of new water mains replacing the existing, ageing 3 in, 4 in and 6 in AC & CI water mains.

Watertight Management Ltd carried out the work on behalf of Severn Trent Water Limited as part of their mains replacement programme with a target completion date of April 2020 in order to meet their leakage and burst criteria.

The detail design and environmental support was provided by Severn Trent Water Limited's framework suppliers.

There were numerous highways, private land, customer and environmental challenges.

Wessex Water / Onsite Ltd – Weymouth Saline Intrusion Sealing

As an 18-year high astronomical tidal surge approached the sound coast in July 2020, Wessex Water identified chloride spikes via saline ingress into the sewers, around the historic harbour in Weymouth Dorset. As the sea water took advantage of defects in the 600 mm diameter trunk sewers, the process at the Radipole sewerage treatment centre would be affected.

Within a few weeks of appraisal, a £450,000 scheme by Onsite Ltd, sealed 700 m of sewers and adjoining manholes, on cost and ahead of programme. A sustainable matrix of solutions meeting high standards of H&S compliance, over a continuous framework partnership of 20 years. >

Young Professional

Gordon McMillan – Innovation Project Officer, SGN

Innovation is key in unleashing the potential of trenchless technology within the utility industry. The Robotic Roadworks and Excavation System (RRES) has the potential to revolutionise roadwork operations and set a new standard.

Throughout 2020 Gordon has been working on developing the world's first all-electric autonomous robot which fuses artificial intelligence, cutting edge robotics and advanced custom tooling.

As RRES will take up less space than conventional methods and remove the operator from the hazardous excavation zone, the system will have significant financial, safety and environmental benefits.

Josh Bentley – Critical Sewers Engineer, Wessex Water

Josh took his first steps into the world of trenchless technologies when he started a new role in the Wessex Water Sewer Rehab Team in 2019. Before joining this team, Josh had completed his first 2 years of a 3-year civil apprenticeship, spending time in other departments linked with Wessex Waters Engineering and Construction sector. One of these departments being sewer rehabilitation. Within this 'rotation' Josh was able to see the new innovative ways in which Wessex Water repaired sewers and tunnels. Seeing the possibilities and ideas people created which had huge beneficial outcomes sparked his interest in the industry ever since.

MEET THE TEAM BEHIND THE UKSTT

The UKSTT is an active, thriving Society, and the driving force behind this is the 20 dedicated volunteers who make up the Council. Since January, we have been be taking a look at the faces behind the Society and how they got involved in Trenchless Technology and the UKSTT. This month we catch up with Ian Vickridge, UKSTT Past Chair and Scott Stone – Vice Chair of Technical & Education subcommittee.

Ian Vickridge, UKSTT Past Chair

Ian Vickridge, UKSTT Past Chair

Q: What is your background and what brought you into the trenchless industry?

I graduated with a degree in Civil Engineering from University College London in 1968. Following that, my first post as a civil engineer was with Sir William Halcrow in Vancouver. I returned to the UK in 1970 and worked on the design and site supervision of sewers and sewage treatment works before taking a MSc degree in Public Health Engineering. Then I worked abroad in Hong Kong, Saudi Arabia, and Singapore for several years before returning to the UK in 1984 when I took up a post as a Senior Lecturer at Manchester University, where I taught Water and Environmental Engineering and undertook research and consultancy in a variety of projects related to Trenchless Technology, including acting as an expert witness in several cases. It was during my period there that I first became interested in Trenchless Technology, partly as a consequence of attending the first No Dig Conference and Exhibition in 1985.

I remained in that post until 1999 when I started my own consultancy specialising in Trenchless Technology. Much of the work I was doing at the time was in Hong Kong and so it was that in 2004 I joined Black & Veatch in Hong Kong as a Technical Director leading a team mainly involved with the trenchless rehabilitation of water mains and sewers until I retired from there in 2011 to return to UK. >

"I would like to see a greater involvement of UKSTT with colleges, universities and other training institutions so that future generations of engineers and technicians are made aware of, and become interested, in our industry."

Q: How/why did you get involved in UKSTT?

I joined ISTT after the first No Dig conference 1985 and, when it was decided to set up the UKSTT in 1993, I became a member of the first management team of the society and negotiated for the UKSTT office to be based within the university. I later became the Technical Secretary for a period, and I have also been Chair and Vice Chair of the Society. Apart from the time I spent in Hong Kong I have been a member of UKSTT since its inception in 1993. Whilst in Hong Kong I was a member of the China Hong Kong Society (CHKSTT) and also Chair of that society for several years.

Q: What goals do you want to achieve as a UKSTT Council Member?

I would like to see a greater involvement of UKSTT with colleges, universities and other training institutions so that future generations of engineers and technicians are made aware of, and become interested, in our industry. We are currently trying to promote collaborative links between our members and universities through research and development projects that could benefit both students and our members.

Q: What do you see as being your own greatest personal achievement in the trenchless industry?

Being present at the start of the trenchless movement in the UK back in the 1980s has been significant for me. At that time, I carried out research into social costs associated with open trenches and compared that with the social costs of trenchless methods. Back then the direct costs of trenchless methods were often greater than digging trenches. Bringing the social costs associated with increased traffic disruption to the attention of the community was one way by which trenchless methods were more readily accepted and paid for. More recently, giving technical leadership and direction to Black & Veatch's involvement in Hong Kong Water Supplies Department's major programme of water mains replacement and rehabilitation, and being able to pass on information on new trenchless methods to the project team to enable the problems of pipeline deterioration and leakage to be solved, was very satisfying. >

Scott Stone, Vice Chair of Technical & Education sub committee

Scott Stone, Vice Chair of Technical & Education sub committee

Q: What is your background and what brought you into the trenchless industry?

I got involved in the Trenchless Industry through my Father who was one of the first HDD drillers in the UK back in 1988 and have continued to work in the industry to this day.

Q: How/why did you get involved in UKSTT?

When the UKSTT were looking for additional Council members I wanted to get involved to be able to assist and support the UKSTT around large scale HDD operations.

Q: What goals do you want to achieve as a UKSTT Council Member?

To pass on relevant knowledge of the HDD technique which I have acquired over the years and support and promote the UKSTT wherever I can.

Q: What do you see as being your own greatest personal achievement in the trenchless industry?

I think my greatest achievement was that after being in the industry for three years to be asked to project manage a large-scale drilling project in the Netherlands at the age of 24.

Q: What do you currently see as the industry's most urgent challenges?

In the HDD industry, although I don't see a real urgent challenge which needs addressing, I believe that a continual focus on Safety and implementing best practices techniques should be of upmost importance and continues to be challenging.

"I believe that a continual focus on Safety and implementing best practices techniques should be of upmost importance and continues to be challenging."

Q: Where would you like to see UKSTT in 5 years?

In 5 years, I would like to see the UKSTT to be the 'go to' organisation for anything trenchless and integrated more within the ISTT.

TECHNICAL ENQUIRY SERVICE

The Technical Enquiry service is free and available to everybody through the UKSTT website. Anybody thinking of trenchless technology for a project, or with a problem for which they think there may be a trenchless solution, for example, can submit an enquiry and we will respond to the best of our ability and knowledge.

"The Technical Enquiry service is free and available to everybody through the UKSTT website."

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We have a filtering system to decide how to respond to the enquiries we receive. If there are no concerns with confidentiality or commercial sensitivity, they are circulated to the Society's corporate members who can then respond if they wish to do so. A couple of examples that we have recently received and passed to our corporate members are;

Recent Enquiry: Contractor required to line corroded sections of a steel cooling water line.

Recent Enquiry: Possibility to line a leaking domestic water service pipe.

Recent Enquiry: Installation of a surface water outfall pipe 225 mm diameter.

Last year we received a number of enquiries from a very wide range of people and organisations. Most are from contractors or consulting engineers who find themselves involved in projects where they think trenchless may be a viable option but need to know more about feasibility. Some are looking for specific product information, and some for market information. >

"We can often take knowledge of trenchless technology for granted but it remains relatively unknown across a broad swathe of the civil engineering and utilities sector."

Image Courtesy of Rock Solid

They cover rehabilitation and new installation as well as inspection and detection. Several relate to health and safety, and quite a few come from abroad.

We can often take knowledge of trenchless technology for granted but it remains relatively unknown across a broad swathe of the civil engineering and utilities sector. The Technical Enquiries are a good way to help people solve problems and also to make the knowledge of trenchless technology and its benefits more widely known.

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China-Euro PTT 2021

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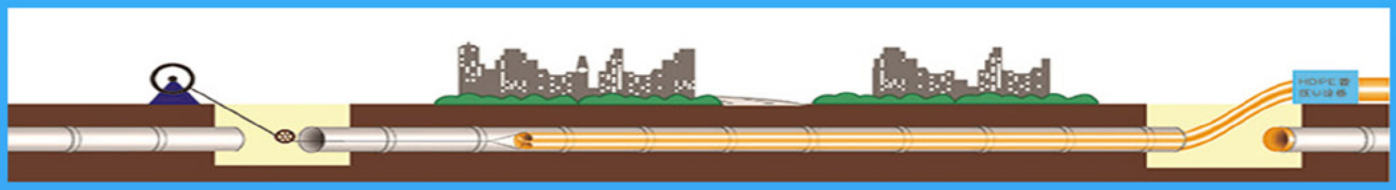
2021 China-Europe International Conference on Pipelines and Trenchless Technology

November 5-7,2021 · Tianjin China

Topics

The main topic of the conference is "Standardization and intelligentization of trenchless technology for urban water and drainage pipelines".

(1)Pipeline engineering and trenchless repair technology laws, regulations and standardization.
(2)Urban pipeline inspection technology and equipment.
(3)Urban pipeline dredging and pretreatment, sewer sludge treatment and disposal.
(4)Trenchless repair of urban pipelines.
(5)Intelligent pipeline network and intelligent water services.
(6)Environmental rehabilitation and town sustainability.



Organizers

· China-Euro Joint Center for Trenchless Technology · Tianjin Marine Environmental Protection and Restoration Technology Engineering Center · College of Chemical Engineering and Materials Science, Tianjin University of Science & Technology · College of Marine and Environmental Science, Tianjin University of Science & Technology ·College of Mechanical Engineering, Tianjin University of Science & Technology · AEIC Academic Exchange Information Center · Best International Expo (Beijing) Co., Ltd.

Co-organizers

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TRENCHLESSWORKS

EVENTS AND MEETINGS

2021

20 July: The Green Alliance Webinar – Interconnectors "What's all the fuss!"
Details from: https://attendee.gotowebinar.com/register/1821714161690045455?source=Westrade

September 8 to 11: bauma CTT RUSSIA
Crocus Expo in Moscow
Details from: https://www.bauma.de/

September 14-16: No-Dig Live 2021
Peterborough, UK.
Details from: www.nodiglive.co.uk
Includes the UKSTT Gala Dinner and Awards Ceremony

September 15: UKSTT Gala Dinner & Awards Ceremony
Peterborough, UK. In conjunction with No-Dig Live 2021 Details from: www.nodiglive.co.uk

September 15: European No-Dig Conference
Peterborough, UK. In conjunction with No-Dig Live 2021 Details from: www.nodiglive.co.uk

September 15-18: Geofluid
Piacenza, Italy. Details from: www.geofluid.it

October 5-8: No-Dig Down Under
Sydney, Australia
Details from: www.nodigdownunder.com

October 7: No-Dig Roadshow 2021
Glasgow, Scotland.
Details from: www.nodigroadshows.co.uk

October 13-14: 8th NSTT No-Dig Event
Nijkerk, The Netherlands.
Details from: www.no-dig-event.com

November 2: Masterclass –Large Diameter Circular & Non-circular Rehabilitation

December 13-14: Trenchless Middle East 2021
Dubai, UAE.
Details from: www.trenchlessmiddleeast.com

2022

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

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

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

July 27-28: Trenchless Asia 2022
Kuala Lumpur, Malaysia.
Details from: www.trenchlessasia.com

13-15 of September: 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/

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