TRENCHLESSWORKS

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Beyond the Ordinary

Beyond the Ordinary

SPOTLIGHT

Ian Clarke, Editor-In-Chief, Trenchless Works

SHOULD EA BROADEN ITS INVESTIGATION REMIT?

First and foremost, to anyone that I have not yet spoken to, a belated Happy New Year, from everyone at Trenchless Works. Let us hope that 2022 improves over what we have all experienced over 2020 and 2021, and which unfortunately in many areas of the world many of you continue to experience.

Going back to a subject that first raised its head in the last quarter of 2021, it is interesting that lately in the UK news and media, the dumping of raw sewage into waterways and the sea has again been raised with new pictures of outfalls producing effluent plumes.

What perhaps is more interesting, as we have been through much of this before, is that the Environment Agency (EA) in the UK has launched its investigation into whether some 1,000 or more sewage treatment plants across the UK have exceeded their raw sewage dumping permits, many investigations being at the request of the Water Companies. It will be interesting to see which of those Water Companies that have requested this investigation have actually exceeded quotas. It seems odd that companies that may well be looking at significant fines for such excesses should request such an investigation.

In the reporting of these sewage plumes, some 'experts' were interviewed for their comments as is usually the case. What is also interesting recently is the comment from a few of those interviewed that perhaps the investigations should be broadened to include a look at the pipe networks feeding these plants to see if there is any reason that the plant feeds may have something to do with the need to dump raw sewage in this way in the first place. This is interesting in that this is something that was mooted within these pages just a month or two back. It will again be interesting to see if the EA takes up the challenge to look at the broader sewer network as part of the investigations to provide a fuller picture of where the problems relating to raw sewage dumping actually lay.

I think this could definitely be one of those 'watch this space' moments for the UK water industry, but we shall see.

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TRENCHLESS MIDDLE EAST TAKES ITS TURN IN THE SUN

After a year's delay (and an awful lot of work behind the scenes), the wait was finally over for Trenchless Middle East to return, and what a return it was. Home for the two-day event was, for the first time, at The Festival Arena by Intercontinental in Dubai and which proved to be a superb (and very sunny) backdrop for such a busy show. >

Platinum sponsors Apollo got proceedings off to a cracking start unveiling two brand new models to the trenchless market and then following up that launch with the sale of three machines, one of which was a gargantuan 1,220-tonne rig purchased by Hydrotech. The German Pavilion, proved to be the huge success that we have now come to expect, expertly pulled together by the German Society for Trenchless Technology, Federal Ministry for Economic Affairs and Climate Action in conjunction with AUMA (Association of the German Trade Fair Industry). >

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"For any event organiser, the hallmark of a truly outstanding show is not necessarily the quantity but the quality of delegate and this is something that could be universally agreed on by sponsors and exhibitors alike."

The Pavilion featured a total of fourteen exhibitors and represented the very best of cutting-edge German trenchless technology.

The extensive conference programme featured two very eminent keynote speakers: Sam Ariaratnam Professor and Construction Engineering Chair, Arizona State University and Dr Mounir El Asmar, Associate Professor, Senior Sustainability Scientist, Arizona State University. Both shared their thoughtful insights into Rehabilitation which currently constitutes a huge part of the trenchless market and expansion into new installations. David Henderson of exhibitors Applus+Velosi also presented a fascinating paper on Leak Detection and Condition Assessment of Pressurized Pipelines using In-Line Technologies.

Thanks as ever go to the event's close collaborators, the ISTT, which attended the show in force and more generally, for its unwavering support to the show. A shout out as well to all our sponsors and exhibitors, notably stalwarts, Apollo Techno International Fzco, Blue Hat Middle East, Channeline International, Digital Control Incorporated, Herrenknecht, International Drilling Services, Palmieri Group, Picote Solutions, PE100+ Association, RSM Lining Supplies Global and Underground Magnetics. For any event organiser, the hallmark of a truly outstanding show is not necessarily the quantity but the quality of delegate and this is something that could be universally agreed on by sponsors and exhibitors alike. >

2021 TRENCHLESS MIDDLE EAST

CLICK ON THE IMAGES BELOW TO VIEW THE SHOW INTERVIEWS

Apollo

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2021 TRENCHLESS MIDDLE EAST

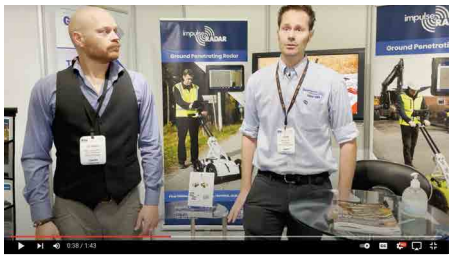
CLICK ON THE IMAGES BELOW TO VIEW THE SHOW INTERVIEWS

The German Pavillion

Powerflow & Vac Con

IBAK

Reduct



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PROMOTION AND LAUNCH AT S1E

Previous MD Glenn Cartledge (left) is handing over the reins to new S1E MD Scott McMurray (right).

S1E Limited recently announced the promotion of Scott McMurray to Managing Director from his previous post of General Manager.

Previous Managing Director Glenn Cartledge moves on to a position of New Product Guru for the Fernco Group, the owning group of S1E. >

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S1E has launched a new website and online shop to offer improved service to customers.

"I would like to thank Glenn for all of the work that he has done for S1E Limited in his role as MD during the past almost 7 years."

"I would like to thank Glenn for all of the work that he has done for S1E Limited in his role as MD during the past almost 7 years." said Scott McMurray. "Glenn has brought vision and focus to S1E, developing the organisation as a specialist in trenchless products and pulling together a portfolio of leading brands, so that the company stands out as a leader in this field. I am looking forward to further developing the extraordinary growth within the company and taking it on to the next level." he said.

Scott has taken up the Managing Director position from the 1 January 2022.

Further to this, S1E recently launched a new website and online shop, to offer an enhanced service to its customers.

"The new site improves the online experience that customers receive from us, with better functionality, more products available this way and easier navigation to get to the right information quickly." commented Scott. "Of course, when customers would prefer to talk to someone, our team is available to help. For those who are happy to find what they need online or who want information or to place an order out of office hours, they will be able to get what they need at their convenience, for example when they have returned from site." >

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The company explained the benefits to the new website:

- Customers using an online account are able to order most quickly, with their billing address details auto-populated at the checkout. They can also save unlimited delivery addresses so that these will not have to be entered each time. Users can apply for an online account from the My Account page of the site.
- Account users of the site, who also have a credit account with the company, can opt to charge their online orders to their credit account. If they have any specially negotiated prices, these will be shown on the site whenever they are logged in.
- More product ranges are available to purchase online than ever before. New available ranges include CIPP lining consumables and the RIDGID camera range. There is also a wider range of Picote tools available than previously.
- The stock status of each product can be seen clearly, as each item is marked in or out of stock. The site takes this information from a live feed from the company's core computer system, so that it is always up to date. In this way, customers can be certain that they are selecting items that will be with them with no delay, if they are required urgently.
- All information about a product is found in one location on the site, so that users can get to what they need fast. This includes any available downloads about a product such as brochures, technical datasheets or MSDS.
- Products can be ordered online for delivery either to the UK or to any location in the Eurozone or Scandinavia as the site can calculate additional shipping charges.
- Card payments for orders are accepted through Opayo (formerly known as SagePay), known to be the most reliable payment provider in the UK. This gives customers security, as they are protected from card fraud by Opayo's security systems.

"Anyone who needs advice, will always be welcome to discuss their requirements with the team to find the perfect combination of products for their job."

"Anyone who needs advice, will always be welcome to discuss their requirements with the team to find the perfect combination of products for their job." stated Scott. "However, for situations where it is clear that standard products are needed, customers can choose to place an order quickly online. We understand how familiar everyone is now with ordering this way, so offering this option gives customers lots of choice about how, when and where they deal with S1E."

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ONGOING DIVERSIFICATION TO FURTHER AID DCR'S GROWTH

Drainage Superstore

"The company has pledged to help their clients by advertising their various roles on the company's website as well as promoting them across a variety of different channels."

DCR has big plans for 2022 – and the wheels are already in motion

DCR is not a company that rests on its laurels. Set to celebrate its 15th birthday in April, this organisation has always asked how it could improve when others would simply be happy to enjoy their success. It is a philosophy that has always served the company – and more importantly its customers – well. Little surprise then that DCR will be further diversifying its offerings in 2022.

Having listened closely to its customer base, DCR noted that many reported that recruiting the right people in 2022 was their chief concern. In response, the company has pledged to help their clients by advertising their various roles on the company's website as well as promoting them across a variety of different channels.

"Our website and social profiles are very popular within the drainage industry. Our customers want to ensure the best candidates are aware of the roles they are offering, so adding these to our website and promoting them through Facebook, etc. just made sense." said DCR's Managing Director Andy Butler. "Helping our customers is what we are all about. I know that finding the right person for a role can be a significant challenge and I am really proud to be able to say that DCR will be helping our clients with this." >

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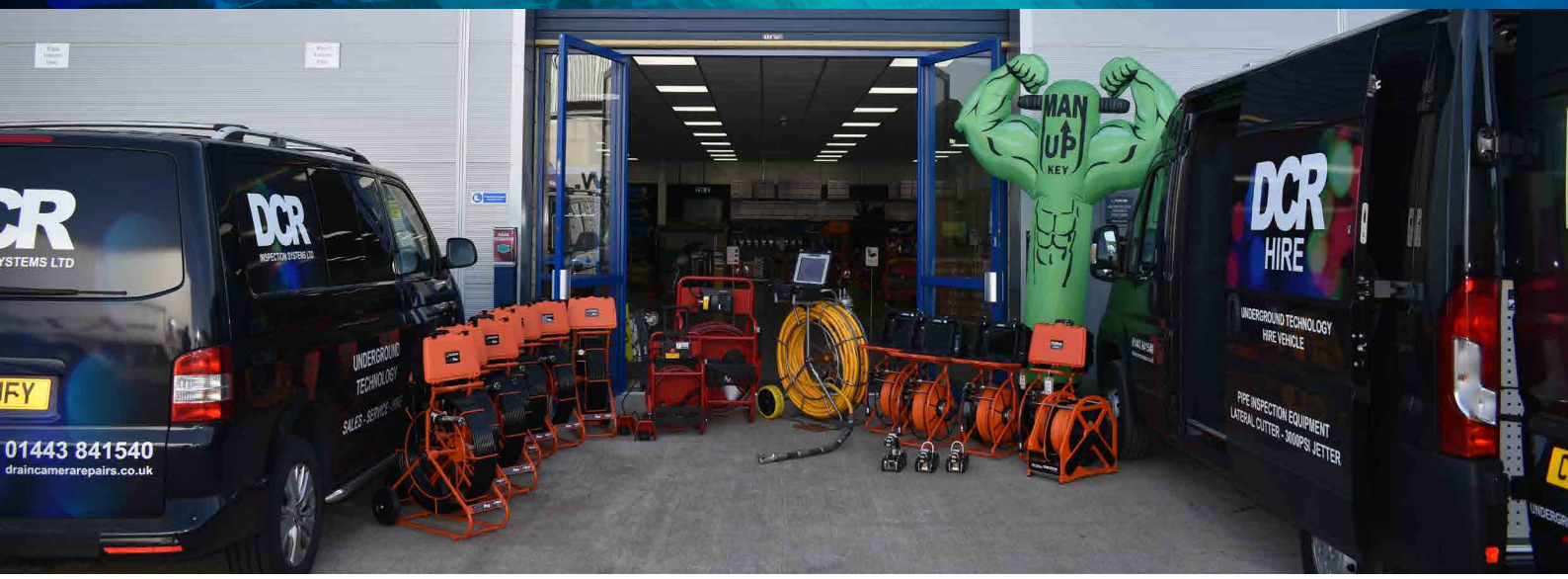

No-Dig 2021.

"Ultimately, every new product or service we decide to offer is one designed to make things better for our clients. Before they are made available, we want to ensure they are fit for purpose and this can involve a lot of planning and consideration."

New offerings are far from novel for a company that has consistently embraced change. Having started out repairing drain inspection cameras from a shed in Andy's garden (DCR is actually an abbreviation of drain camera repairs), DCR is now home to the UK's largest hire fleet of drain cameras and a drainage superstore located just 20 minutes outside of Cardiff. Andy and the company have regularly taken on consultancy work and will officially launch this as a DCR offering in 2022.

DCR's customers have long sought their advice when presented with unique challenges and the company quickly became renowned for its ability to find innovative solutions to problems. Over the years, DCR has helped their clients undertake difficult surveys in hazardous and/or inaccessible environments. They have also developed tools for a number of clients, including Scottish Power, the National Grid and the UK Fire and Rescue Service. Developing tools for organisations led to the creation of DCR's own in-house development team. This led to the creation of the innovative ManUp Key, a seal breaker capable of moving up to 95% of stuck access covers. These are now found in service vehicles around the world and DCR are in the process of developing further equipment they think will have just as much of an impact, too.

"Ultimately, every new product or service we decide to offer is one designed to make things better for our clients. Before they're made available, we want to ensure they're fit for purpose and this can involve a lot of planning and consideration. We've been providing a quasi-consulting service to several customers for years but launching it as a genuine offering still required careful planning. I'm pleased to say we're nearly there and that we'll be officially launching this service soon!"

Even after 15 years of progress and improvement, it's clear that DCR's devotion to their customers remains as strong as ever. This is a company that is acutely aware of the fact that they only succeed when their clients succeed; everything they do benefits the drainage professionals of the UK – and 2022 is set to be no different.

To find out more about DCR Inspection Systems, view their hire fleet, browse their drainage superstore and more visit www.draincamerarepairs.co.uk.

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FUTURE WATER FOCUSING ON INDUSTRY STANDARDS

Future Water has a vision centred on 'Shaping the Future of the Water Sector' – therefore the organisation brings together experts to look at issues facing the sector.

Product and system standards are often seen as boring, too technical, stifling innovation and reducing things down to the lowest common denominator. Conforming to standards can be seen as costly. So Future Water has set up the Future Water Standards and Regulations Group.

On the other hand, standards provide a level playing field within an industry, ensuring a level of quality and compatibility between different suppliers. Compliance with a product standard can offer a powerful marketing message. Standards ensure that the supply chain is supplying products and services that are consistent with requirements. Good standards, in fact, save money and encourage innovation.

However, it is important to ensure that standards that are being developed do not come as a surprise and put industry players at a competitive disadvantage. Across the water sector, there is a plethora of standards, regulations and industry guidance, covering different products and materials. In addition, throw in Brexit and the potential future divergence between Harmonised Standards (CE marking) and UK Designated Standards (UKCA marking). How does industry keep up with it all and how can those in the industry have an input into standards that may affect business?

Commenting on the new group Paul Horton, Future Water CEO, said: "Standards are a vital part of the water Industry, ensuring that we deliver excellence in projects and use the best equipment. They help to drive new ideas and innovations across products and services and the Future Water group is all about understanding and unlocking potential that standards bring to the water sector."

The group will be chaired by Dr David Smoker of ACO Technologies, who has over 15 years participation in British, European, and International standards work.

The Future Water Standards and Regulations Group has been set up to:

- be the focus of Future Water's input to water sector standards and regulations of concern
- be the route for members to participate in standards, representing Future Water
- work with other organisations and external stakeholders to influence standards and regulations for the benefit of the sector
- share updates on standards, regulations and industry guidance that affect members
- develop and mentor members new to standards

The first meeting of the Water Standards and Regulations Group will take place on Thursday 10 February, 2022.

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Picote Solutions has become the worldwide exclusive manufacturer for German company Pro-Kanal's innovative, patented packer technology. Pro-Kanal is widely recognised for its industry-leading 'Master' and 'Bendy Packer' Systems for trenchless point repairs.

Sebastian Meier, CEO of Pro-Kanal, said of the new collaboration: "We are proud to have found our new partner Picote Solutions, a company that is known for its high-quality standards. Thanks to its worldwide network we will be able to lift customer support to the next level. Greater access to Training Sessions, Workshops and Repairs will make our service on packers hard to beat. With Picote Solutions and Pro-Kanal you are in the best hands."

Kalle Kuusisto, Senior Business Development Manager at Picote Solutions, added: "Pro-Kanal's Bendy Packers are trusted for being the best packers within the small diameter trenchless market. To be able to combine that with Picote Solutions' level of production quality and our amazing distributors and partners worldwide, is something truly exciting and unique."

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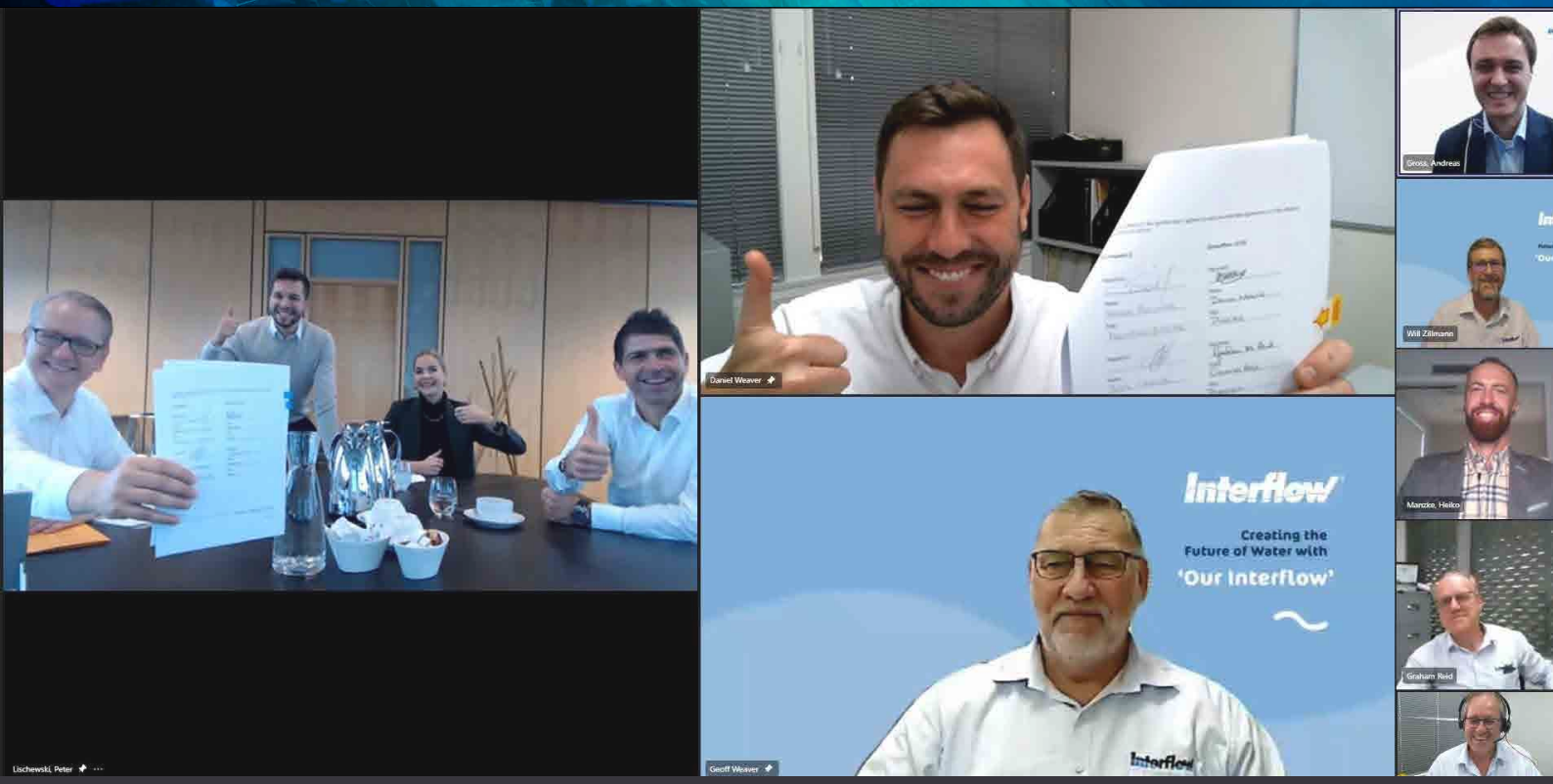

CELEBRATING EXCLUSIVITY AGREEMENT DOWN-UNDER

The exclusivity agreement is signed over the internet.

Leading pipeline infrastructure company, Interflow, recently announced the signing of an exclusivity partnership with Raedlinger Primus Line, for the use of its patented pressure pipeline renewal technology.

Interflow is one of Australia and New Zealand's leading providers of trenchless pipeline solutions. Home to several patented products and technologies aimed at renewing pipeline infrastructure within the 4 Waters – water, wastewater, stormwater, and culverts – the organisation is renowned for its forward-thinking approach to innovation.

The addition of Primus Line®, a world-class solution for relining pressure water and wastewater pipelines, to its growing portfolio of exclusive services, cements Interflow's position as a one-stop-shop for its customers' pipeline infrastructure needs. The Primus Line® system consists of a flexible Kevlar-reinforced liner and specially developed end fittings. >

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World-Class Technology, Stellar Service

Interflow's Managing Director Elect, Daniel Weaver, is confident that this partnership will greatly benefit both organisations' customers and communities.

"Interflow and Raedlinger Primus Line are both family-owned companies that share similar core values." he said. "These synergies, combined with our drive to solve customers' problems by using innovative and cutting-edge technologies, will enable us to continue to deliver reliable outcomes for our customers and the communities we serve."

"These synergies, combined with our drive to solve customers' problems by using innovative and cutting-edge technologies, will enable us to continue to deliver reliable outcomes for our customers and the communities we serve."

Peter Lischewski, Managing Director of Raedlinger Primus Line, elaborated on the significance of this partnership. "This is a fantastic opportunity for both companies to demonstrate their commitment to innovation and producing high-quality outcomes." he said. "By signing this exclusivity with Interflow, we are ensuring that our product will be expertly installed with extreme care, consistency and attention to detail, each and every time. We have a strong relationship with Interflow and look forward to working together to provide our customers with world-class solutions."

Interflow and Primus Line have been working together for a number of years and have delivered headline projects such as the 3-in-1 Triple Primus Line project featured in Trenchless Australasia, Water Source and Trenchless Works Magazine.

Moreover, Interflow will open a Primus Line warehouse to store limited stocks of common materials for immediate supply, which will be particularly useful for smaller emergency projects. Customers can now conveniently access the local warehouse in Australia.

www.interflow.com.au or www.primusline.com

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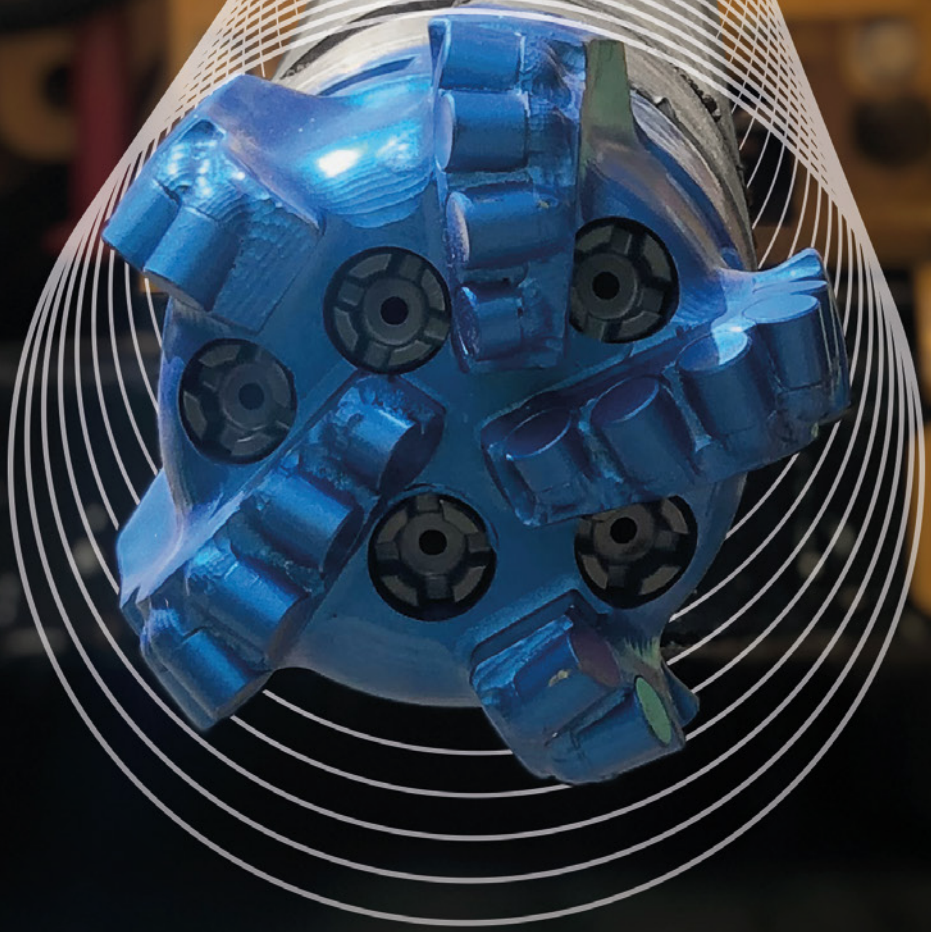

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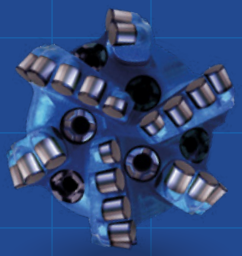

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MCLAUGHLIN ACHIEVES 100 YEARS

The McLaughlin Workhorse 225.

McLaughlin, a Vermeer® brand, was founded in 1921 and has proudly marked a century providing workable solutions for the construction, utility and trenchless industries. Today, the brand continues to innovate and expand the capabilities of auger boring equipment for customers worldwide.

"Through much of the McLaughlin company's 100-year history, Vermeer and its network of dealers have been important partners." said Dave Gasmovic, business development manager for Vermeer MV Solutions. "That mutual commitment solidified when Vermeer acquired McLaughlin. Since then, we are proud to say that many of our original product lines have been incorporated into the Vermeer-branded product line-up".

McLaughlin's own roots go all the way back to the early part of the last century. After returning to the U.S. from service in World War I, ex-coal miner Joseph McLaughlin had an idea for a product that would simplify a coal miner's job and make the coal industry itself more productive. In 1921, in a rented space in Rockdale, Illinois, USA he began production of his innovative improvements to the mining auger, and the company that would become McLaughlin Group, Inc. was born.

By the early 1950s, McLaughlin was a leading supplier of drilling tools to mines across the U.S. and was ready to expand its operations, moving into a new facility in Joliet, Illinois. In the 1960s, the company once again expanded, building a new, state-of-the-art facility in Plainfield, Illinois. >

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"Everything that McLaughlin has accomplished in the last 100 years has to provide innovative solutions to our customers' problems. So, although we are proud of our century of service, we are focused on the future – always working toward the next development that will benefit the industry."

Even though Joseph McLaughlin passed away in 1964, the company continued to follow his innovative spirit and commitment of offering equipment that solves real-world challenges. "Innovation is in McLaughlin's DNA." said Gasmovic. "It has always been a guiding principle for the brand. For example, when, two large companies approached McLaughlin with a request to help solve the challenge of how to control the expense of residential underground utility installations, including the cost of surface restoration, McLaughlin was ready to respond. Company leadership began working on a new type of system that would drill under roads, driveways and sidewalks to allow installation of small diameter services. The resulting product was called the Mighty Mole, and it set the stage for McLaughlin's future success in the development and deployment of trenchless construction technology."

Continuing to grow its brand presence in the utility market, in 1970 McLaughlin bought Western Boring Equipment Company, an auger boring manufacturer. The purchase allowed McLaughlin to expand its business, and it gave them larger-diameter boring machines for an entirely new market. This led to a decade of significant company growth and expansion.

McLaughlin added plants in Greenville, South Carolina and Arlington, Texas. The Texas facility began the redesign of the company's auger boring machines, particularly in regard to increases in thrust and horsepower. When horizontal directional drilling began to take off in the late 1980s, McLaughlin saw the need for tracking and detection systems.

The company brought to market the original Spot D Tek I. Development and improvements continued, and in the mid-1990s, the Verifier® G3 utility locator was introduced.

"That same legacy lives on today in the form of the Vermeer Verifier G3 utility locator." said Gasmovic.

In 1999, Vacuum Source, Inc. was founded as a subsidiary of McLaughlin serving customers with a new line of vacuum excavation and sewer cleaning systems. In 2001, Vacuum Source was made a division of McLaughlin, and the products took on the McLaughlin brand name. A major milestone was reached for these products in 2006 when McLaughlin began manufacturing them for Vermeer.

In 2012, Vermeer bought a minority interest in McLaughlin, selling McLaughlin's vacuum excavators, utility locators, pneumatic piercing tools, core saws and auger boring equipment to contractors through the Vermeer dealer network. In 2017, after the synergies of the two companies were well-understood, Vermeer acquired the rest of McLaughlin. Then in 2018, Vermeer purchased Vac-Tron Equipment, LLC, and integrated the two companies' product lines as Vermeer MV Solutions.

Vermeer MV Solutions continues to produce the McLaughlin auger boring products and has introduced important innovations, like the Workhorse 225 and Workhorse 175 auger boring machines, to the trenchless industry. >

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The Original McLaughlin Mighty Mole.

The company continues to offer additional innovations to underscore the brand's commitment to continued progress. One example is the McLaughlin SRS (Steerable Rock System), the auger boring market's first steerable head designed to navigate through solid and severely fractured rock. Another is the On-Target Steering system (OTS), designed to work with any auger boring system ranging from 16 to 60 in (400 to 1,500 mm) diameter. It is designed to install on-grade/on-line casings in one pass compared to the multiple passes required with pilot tube guided boring.

"We have done all this while increasing our manufacturing capacity, service and support capabilities." said Gasmovic.

He concluded saying: "Everything that McLaughlin has accomplished in the last 100 years has to provide innovative solutions to our customers' problems. So, although we are proud of our century of service, we are focused on the future – always working toward the next development that will benefit the industry."

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HELPING THE ENVIRONMENT AT GEDLING COUNTRY PARK

Endseal – Gedling Country Park

Steve Vick International's Contract Service team recently gifted its time and resources to assist The Friends of Gedling Country Park, (FGCP) in Nottingham, UK on a project to install an overspill tank.

The FGCP had an issue with reeds clogging up one of its ponds and despite numerous attempts to clear the reeds, they rapidly grew back. When considering options, research indicated that reed growth is arrested where the water level is at least 900 mm deep. The organisation therefore experimented by building a weir at the outlet to deepen the water. This proved to be successful, and the reeds did not regrow, but the weir did not retain the water effectively enough and leakage occurred through the stony ground underneath.

The solution was to position an overspill tank in the pond, 4 m from the bank, with a new pipe connected to the existing outlet pipe. It was this connection that the Steve Vick team were able to assist with. Using SVI's Endseal expanding foam sealant technique, more commonly used in the Gas Industry to give a permanent seal on inserted mains, the team was able to make a successful connection between the host pipe from the lagoon to the newly laid inserted pipe from the overspill tank. This prevented water ingress into the annular space and therefore eliminated potential leakage. >

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Gedling Country Park – completed.

As the new tank is directly connected to the lagoon outlet pipe, the water flowing out of the lagoon will now bypass the leaks. Overspill outlets such as these are often used on large reservoirs like the Ladybower Reservoir in the Peak District.

The FGCP considered other solutions, one of which was excavating into the bed of the pond, near the outlet where the leak was occurring, and laying a concrete base. However, this came with risks as it would be an expensive exercise to undertake and there was no guarantee it would effectively achieve a seal. Using the Steve Vick International Endseal Technology, which is proven in the gas industry to prevent gas leaks offered the ideal solution.

Tony Keyworth, Trustee of the Friends of Gedling Country Park commented: “The Steve Vick International Endseal technique enabled us to connect the new pipe to the existing and avoid ongoing leakage issues. Without this technology the project would not have succeeded. We are indebted to Nomenca Ltd which donated the overspill tank and Steve Vick International which connected the tank pipe to the Lagoon outlet at no cost to us.”

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CHANGES AT THE TOP FOR SVI

Caspar Vick, Director of Contract Services.

Steve Vick International is pleased to announce the promotion of Caspar Vick to Director of Contract Services.

Caspar, one of Steve Vick's sons, brings with him a wealth of experience through his many years working in the business. Officially, Caspar started working for Steve Vick International in 2009 although he always showed a keen interest from a young age and was often seen onsite with his father as a child.

During the early days, Caspar worked on the assembly line, in the Production Department, where he helped to pack foam kits and assemble Lyontec gland boxes for the increasingly popular Live Mains Insertion (LMI) technique.

In 2010, Caspar was promoted to Contracting Engineer, as part of the Contract Services team. However, with the continued growth of LMI, a full time Technical Support engineer was required in the South East. So, in 2012, Caspar moved to London to take up this new role, within which he coordinated the roll-out of a company-wide Live Mains Insertion training programme for SGN. In addition to this he offered onsite technical support for local Gas Distribution Networks. Caspar also helped to expand the export side of the business, growing the sales of the Keel Cutter in the Middle East and Sri Lanka. >

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In 2018 Caspar moved back to work at the Head Office in Bradford on Avon and was promoted to Contract Services Operations Manager, a role which he has successfully carried out over the past three years and has seen the department go from strength to strength.

SVI's Contract Service team is a core function of the business. Whilst known primarily for its work in the field of renewing and repairing underground gas pipes for the UK Gas Distribution Networks, the team is becoming increasingly involved in projects being undertaken by water utilities, electricity providers, rail networks, civil engineers, construction companies and local councils. This reflects the range of skills and expertise available to solve on-site problems associated with pipe repair, renovation, and diversion.

Located strategically around the UK, the highly skilled team can provide a fast response, emergency repairs and a rapid call out service which is offered 24 hours a day, 7 days a week.

As Director of Contract Services, Caspar will continue to run the Contracting Department as well as taking on his new responsibilities as a director of the company.

Caspar Vick, Director of Contract Services commented: "I am thrilled to be joining the board of directors at Steve Vick International. Having worked for the company for many years I have grasped a sound knowledge and understanding of the different industries we work in and look forward to having a more strategic role within the company. I look forward to working with the other Directors and continuing to build a successful business centred around strong family values."

Steve Vick, Chairman of Steve Vick International commented: "I am delighted to welcome another member of the family onto the board. Being a family business has always been hugely important to me and I am looking forward to the next generation taking Steve Vick International on to a bright future."

www.stevevick.com

"I am delighted to welcome another member of the family onto the board. Being a family business has always been hugely important to me and I am looking forward to the next generation taking Steve Vick International on to a bright future."

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HOLING THROUGH IN THE ANDES

Robbins Field Service and dedicated crew guided the XRE TBM through challenging conditions including water inflows of 5,500+ l/min.

A Robbins 4.6 m (15.1 ft) diameter Crossover machine holed through in the Andes Mountains of Chile in the last quarter of 2021. The XRE TBM bored a 3.3 km (2.1 mile) long tunnel for Chile's Los Condores Hydroelectric Power Project (HEPP) and project owner Enel. >

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Despite challenging mixed ground and fault zones, the Robbins TBM achieved advance rates of up to 605.8 m (1,988 ft) in one month.

A dedicated team, including three Robbins Field Service personnel, guided the machine to breakthrough in conditions including tuff, sandstone, breccia, and conglomerate with sections of high-pressure water inflows. Ground cover reached up to 450 m (nearly 1,500 ft) above the tunnel with rock strengths up to a maximum of 60 MPa UCS. “Robbins Field Service was an important part of the success of the excavation, evaluating continuous improvements in the machine and correcting faults.” said Ricardo Riveros Puratic, Project Engineer for Enel.

For Riveros Puratic, Crossover machines make sense despite the challenging conditions saying: “Towards the end, the TBM exceeded expectations. Crossover TBMs are suitable for Andean geology of sedimentary and volcanic type, where there is a great range of rock strengths and hydrogeological conditions.” Maximum advance rates reached 605.8 m (1,988 ft) in one month and 212.8 m (698.2 ft) in one week.

The Crossover machine featured a heavy duty, centrally mounted screw conveyor for the duration of the drive. The TBM remained in a hard rock configuration with a muck chute installed, along with paddles, bucket lips, scrapers and disc cutters on the cutterhead. “However, 75% of the excavation was performed using the main drive gearboxes in high torque configuration (EPB or low speed mode). We never physically changed the cutterhead or screw conveyor to EPB mode.” said Omar Alvarez, Robbins field service site manager at Los Condores. >

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The Robbins Crossover (XRE) TBM bored a 3.3 km (2.1 mile) long tunnel through the Chilean Andes.

"Once brought online, the Los Condores HEPP, located in the mountainous southern Maule region, will have an annual generating capacity of 150 MW."

High-pressure ground water inflows were the key challenge of the project. "When we started the excavation, we used dewatering hoses to reduce the water into the cutterhead during the excavation." said Alvarez. Water pressures rose whenever the TBM stopped, however. "During the segment ring installation, we stopped the water from draining through the rear shield drilling ports and we closed the screw conveyor rear gate. We reached 7+ bar in the cutterhead earth sensors."

"We bored in places with 5,500+ liters (1,500 gallons) per min, making back-fill grout injection behind the concrete segments a challenge. We decided not to use the grout injection through the tail shield ports, but instead injected grout directly through the concrete segment with hoses. This approach was more flexible and reduced the need for reinjections." said Alvarez.

With multiple triumphs and lessons learned during tunnelling, Alvarez reflected on the breakthrough saying: "I am proud to be part of a team that finished a tunnel in the Andes Mountains." Once brought online, the Los Condores HEPP, located in the mountainous southern Maule region, will have an annual generating capacity of 150 MW.

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AIDING RISING MAIN RENEWAL USING PIPE RAMMING

One of the pipe ram launch pits on the Porirua project.

In Porirua, New Zealand the Paremata Wastewater Rising Main was a vital part of the wastewater infrastructure serving the northern suburbs of Porirua and satellite towns up to Pukerua Bay. However, after significant rainfall events, the existing pipe burst several times and investigations showed that its condition was poor. This led to the decision that the fragile AC wastewater rising main urgently needed to be replaced. >

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An overview of one of the launch site for pipe ramming at Porirua.

"To complete the pipe ram installations GP Friel utilised a Grundoram Koloss pipe ramming hammer supplied by Tracto."

The client for the project was Wellington Water, with Connect Water (Beca) acting as the project's consulting engineer. The design of the work largely utilised open cut techniques for the rising main replacement, with E Carson & Sons Ltd (ECS) being appointed as the main contractor. However, where the pipeline route passed beneath a main highway, there was a requirement for the installation of two pipe sleeves, so as to eliminate the need to excavate the highway itself.

This trenchless installation was awarded to contractor G P Friel Ltd which was to utilise the pipe ramming method for both the sleeve installations. This option also meant that the works could be undertaken during normal working hours irrespective of the traffic demands on the highway above.

Ground conditions on the project site comprised a combination of fill material over a weathered greywacke.

To complete the pipe ram installations GP Friel utilised a Grundoram Koloss pipe ramming hammer supplied by Tracto which was powered by two 367 cfm (10.4 m^3/min) compressors.

The sleeves being installed comprised 867 mm o.d. steel pipe with a wall thickness of 20 mm. The first sleeve was installed under the Whitford Brown on/off ramps from the highway over a length of approximately 36 m. The second installation will be under the northbound lanes of the highway over a length of approximately 42 mm. >

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Keeping the rammed sleeves clean of spoil using flusher/ recycler trucks was an important part of maintaining progress.

Prior to the ramming operations a series of boreholes and trial pits were excavated along the routes, including at the launch and receive locations of the rams.

INSTALLATION

The first pipe ram took approximately 4 weeks to complete including excavation and preparation of launch and receive pits, pipe ramming, welding and flushing to clean out the casing. At the time of writing the second pipe ram was due to commence and is expected to take a similar amount of time.

The first pipe ram was not however, as straight forward as expected. Ground conditions were significantly harder than the boreholes and trial pits had suggested. The pipe ram slowed down in the second half of the installation. David Philipson, General Manager of GP Friel Ltd said: "We focussed our efforts on cleaning out the inside of the casing to keep the skin friction to a minimum. The ram however never stopped so we persevered and completed successfully. The flushing operation was difficult as the casing was filled with shattered rock rather than granular material as expected. This slowed the operation down but did not affect the final outcome."

Given the change in expected ground conditions and the change in spoil this created the contractor utilised flusher/recycler trucks provided by JB Environmental to clean out the casings. This was an efficient operation as the trucks do not have to fill up or tip off as frequently as a normal flusher and sucker trucks. It also minimised >

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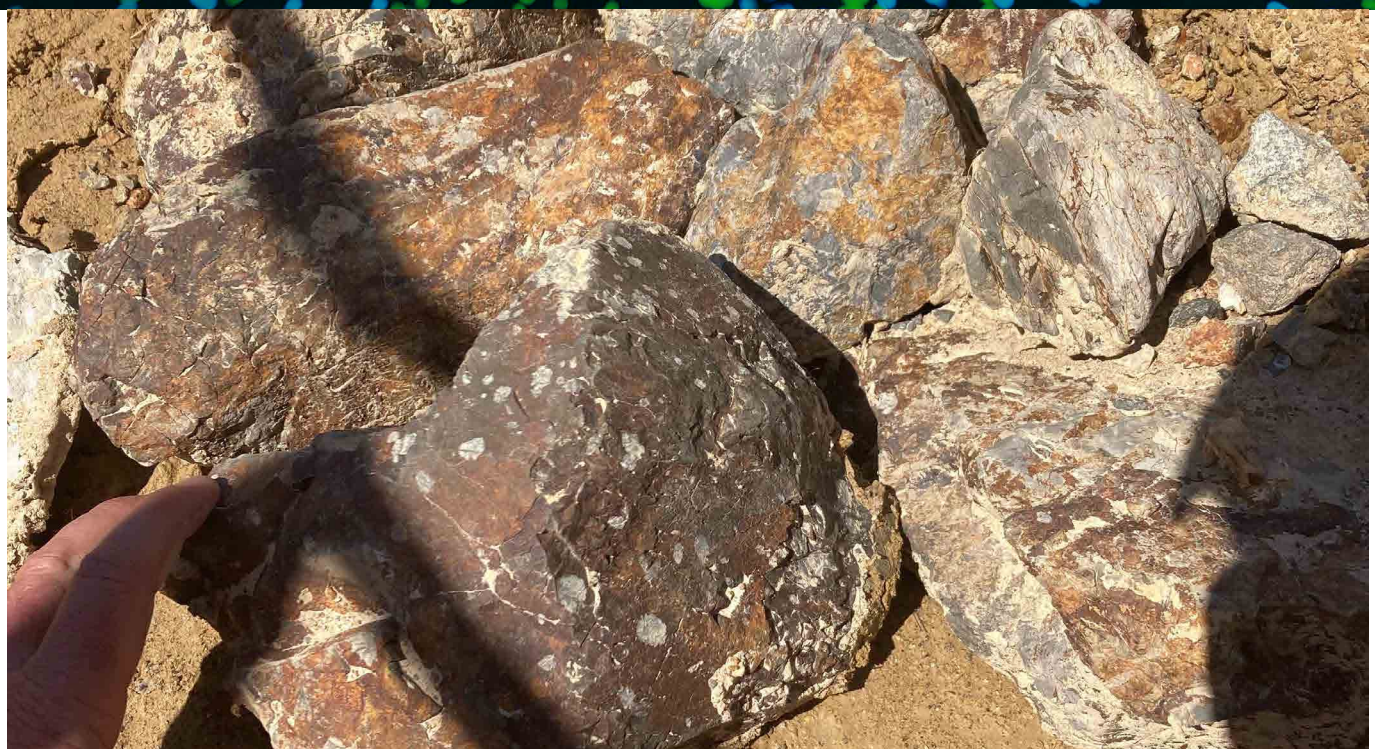

Rock fragments extracted from the pipe rammed sleeve was not what was expected.

run off that had to be controlled to protect the environment. Settlement tanks had to be used to control the runoff generated by the flushing operation prior to it being released to the environment.

The ramming operation noise was another unexpected occurrence. The contractor believed that the location, in the state highway corridor rather than a residential or commercial district, would mitigate any noise nuisance caused. However, the topography and soft landscaping in the area seemed to exaggerate the noise from the operation. GP Friel undertook noise monitoring at the workface and at the nearest property boundaries. This showed that noise was within allowable limits, however, a decision was made to limit the ramming operation to strictly within normal working hours to reduce any nuisance caused.

David went on to say: “Every day is a good day when we are ramming pipes. Pipe ramming is a fast and effective way to carry out crossings of linear obstructions without causing disruption. On this project we were able to ram casings under State Highway One without affecting the normal operation of the road. This reduced indirect costs due to congestion and direct costs associated with planning and executing complex traffic management and roadwork solutions. Pipe ramming is dynamic meaning that little or no temporary work is required to transfer or contain reaction forces generated by the system. This significantly reduces the set-up costs in comparison to some other trenchless methods. The trade off being that pipe ramming is limited in the length that can be achieved and can only be used on a straight grade or alignment. But where that suits the project, it often cannot be beaten.”

Referring to the equipment used he said: “The Grundoram Koloss is powerful enough to cope with almost any ground conditions. On this project we encountered rock and the tool kept going, albeit at a slower rate of advance. In this case the rock was unexpected but where it is expected we can include different cutting shoes or lubrication to help us keep moving. >

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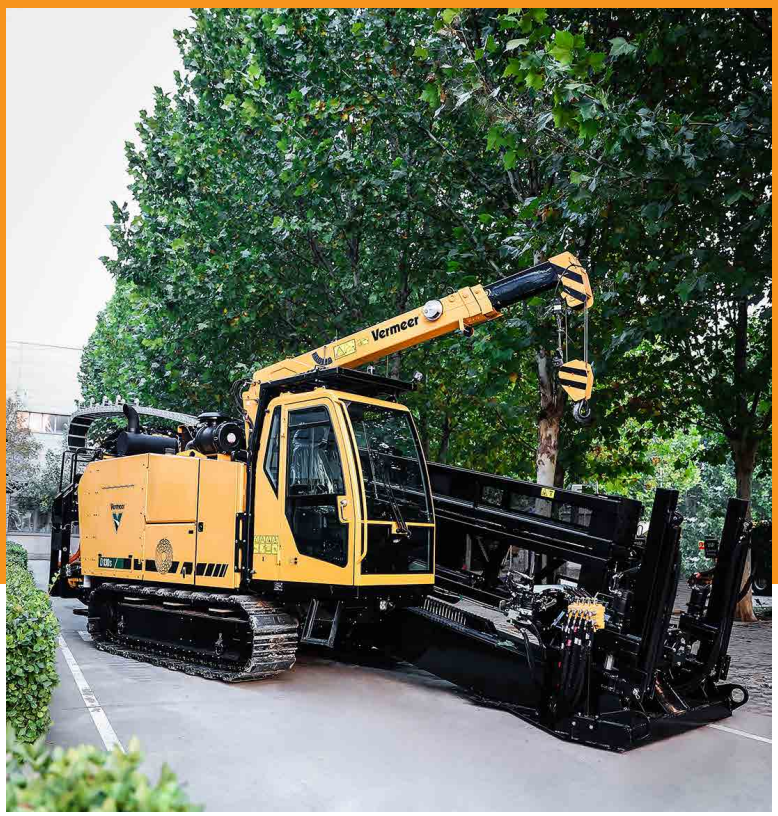
For Connect Water (BECA) Richard Hickman, Principal – Project Management said: "The plan to go trenchless under the existing state highway was a real no-brainer for the project team. A traditional approach would have been far slower and created a great deal more disruption for road users. The trenchless approach allowed for a much easier conversation with Waka Kotahi regarding traffic management and stakeholder communications, particularly once they were assured that we would be compliant with their depth requirements. Despite the ground investigations undertaken by the project, we knew there remained some risk that a large obstruction might require a change in approach mid-thrust. However, the team was able to push through the material we encountered and accurately land the pipe into the receiving pit. In terms of downsides, they were minimal. We had one nearby resident who lodged a complaint regarding the noise, however she was satisfied with some personalised communication. The main difficulty was actually sourcing the pipe in the first place to meet our urgent programme. Logistics delays due to the ongoing pandemic was a challenge GP Friel was fortunately able to overcome. One highlight was arranging a site visit for a group of recent graduates from Wellington Water and their key supplier panel."

Ultimately, the wastewater rising main being installed is to be sliplined through the pipe rammed casings by ECS. The new main will comprise a 630 mm o.d. PE100 SDR17 pipe. Most of the pipe has been butt welded into strings, including the sliplining sections. However, in trench, jointing is being achieved by Electrofusion Welding of the individual strings.

www.gpfl.co.nz

INTRODUCING THE ALL-NEW VERMEER D130S AND D60S HDD MACHINES



The Vermeer D130S.

Vermeer has expanded its line-up of drills for infrastructure development with the new D130S and D60S horizontal directional drills designed exclusively for emerging markets.

These new machines are manufactured at the Vermeer manufacturing facility in Tianjin, China, and built with the same high-quality parts and components that Vermeer is known for around the world. The new naming structure indicates a new generation of the pipeline drills from Vermeer for the emerging markets that comes with several enhanced features that enable high functionality, productivity, and ease of use.

“We understand that operators in Asia, Latin America and other developing nations are looking for a drill that is specifically for their market.” said Colm Rafferty, vice president of developing markets of Vermeer. “That is why we designed the D130S and D60S with the power and productivity they have, so that operators in these areas could have drills that meet their needs.”

The need for the D130S and D60S came from hearing that operators in developing nations needed a way to facilitate greater connectivity and support the development of both rural and urban areas. With new infrastructure needing to be developed, including telecommunications (fibre optics), water, electricity, gas and oil pipeline installations across varying ground conditions and locations, a new machine was necessary to take on challenging, large diameter drilling projects without worrying about space restrictions. Both drills are capable of tackling those infrastructure projects. They are also designed to keep surface disruption to a minimum, which helps in densely populated or residential areas. >

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The Vermeer D60S.

"We wanted to create machines that built upon their predecessors, still delivered the same high manufacturing quality and were specific to operators drilling in developing nations."

"We wanted to create machines that built upon their predecessors, still delivered the same high manufacturing quality and were specific to operators drilling in developing nations." explained Rafferty. "These drills are compact, powerful, and productive enough to appeal to operators large and small and I believe can make a big difference in a company's drilling capabilities and efficiencies."

These units will be available in selected nations throughout Latin America, the Middle East and Africa, Asia Pacific and selected countries in Europe.

The D130S is equipped with 130,000 lb (578,200 kN) of thrust and pullback and 15,000 ftlb (20,337 Nm) of rotational torque, helping it penetrate through different and difficult terrains.

The D60S has 60,000 lb (266.9 kN) of thrust and pullback and 9,000 ftlb (12,202.4 Nm) of rotational torque, also helping it penetrate through different and difficult terrains. This power makes it one of the most powerful drills in its class.

Another enhancement made to both drills is the PLUS+1 control system to maximise precision and reliability. Paired with the drill's AutoSteer system, which automates certain drill head motions, it allows operators to set and adjust rotation duration and direction, while maintaining a pre-set thrust pressure to get through hard ground conditions. To top it off, the console design of the drill was updated to provide a user-friendly bore path adjustment experience for the operator.

Other features on the D130S include an operator-controlled rod loader, climate-controlled cab, optional crane, and optional front-mounted stake-down system.

The additional features on the D60S include a tethered remote control, ease of serviceability, three-speed gearbox, operator-controlled rod loader and climate-controlled cab.

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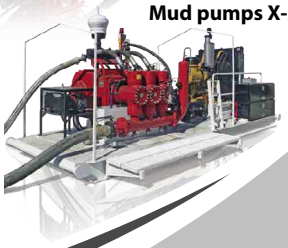

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PIPE RAMMER RESCUES INFRASTRUCTURE PROJECT

HDD Assist techniques with pneumatic pipe rammers have helped directional drilling projects with everything from assisting with difficult pullbacks and recovering drill stems to salvaging bore pipe and pipe extraction.

When something goes wrong at the jobsite, rapid action is needed. Trenchless technology is primarily leveraged for the installation of underground utilities, creating the least amount of surface disruption possible. But what happens when freshly installed pipelines actually need to be removed, due to damage, for instance? In the case of an HDD project, a pipe rammer may be the means of choice and it can become the driller's best friend in the blink of an eye. Especially, if it is immediately available.

Within the scope of an infrastructure expansion project near Houston, Texas, USA, HDD contractor Directional Service South had to face an unexpected challenge caused by an unpleasant incident. A sizable section of recently installed gas transmission main had been damaged during the installation by underground obstacles and had to be removed and replaced. Jake Gautreaux, founder and co-owner of Directional Service South, explained: "For this project, we were tasked with installing several miles of 500 mm diameter steel gas transmission main with installation >

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Directional Service South utilised a GRUNDORAM Taurus pneumatic pipe rammer to assist with the extraction of 360 m of 500 mm diameter pipe.

lengths ranging from 150 to 920 m and ScarGuard®-coated pipe welds. The whole project covered 30 HDD crossings. After one particular 360 m long installation, crews noticed an issue with some damage to the pipe. It was going to need to be replaced."

According to pipe ramming specialist Rick Melvin from TT Technologies, pipe extraction is an evolution of existing ramming techniques developed over time. "The extraction process is really an extension of several HDD Assist methods we have developed over the years using the pneumatic pipe rammer." he said. "The things we have learned from salvaging stuck bores and retrieving drill stems with the help of pipe rammers have enabled full scale pipe extraction to become a reality." The project in Houston would put that knowledge to the test.

Getting The Balance Right

Pipe rammers have been used in various ways on HDD projects for several decades. These specific HDD Assist methods have been developed cooperatively between contractors, engineers and trenchless equipment manufacturers. Pipe extraction has been part of this process. "Contractors have been using pipe rammers on HDD projects to help install pipe under challenging areas like waterways for a long time." Melvin explained. "Through the pullback assist methods, percussive force from a pipe rammer on the back end of a pipe string can help prevent hydro lock and ensure a smooth installation. Now, when things do not go as planned, a drill stem breaks or a segment of pipe needs to be removed, we can do those things as well, again using the percussive power of the pipe rammer to help remove or salvage those products from the ground." >

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Melvin stated that, for a full pipe extraction, it is about using the right balance of force. “In this case you need pulling force, which can be an excavator or directional drill, combined with the percussive force of the pipe rammer. Now, these forces can be combined and applied in different ways depending on the specific jobsite situation. That is where the complexity of the process lies. How to balance and apply the forces in a way to remove the pipe from the ground.”

Getting The Pipe Moving

Back to Houston. Regarding the area in question, the whole installation turned out trickier than expected. “We installed the crossing without trouble but could not tie it in right away.” said Gautreaux. “We had to spin around and install the next crossing, drilling the other way. So, we were basically sitting on top of the one we just put in. Only after we had installed that next pipe section, we were able to access that first pipe.” That is when they noticed the damage. A large scratch ran across the whole visible pipe length and breached the coating. A quick decision regarding the future of that section had to be taken.

> “For this project, we were tasked with installing several miles of 500 mm diameter steel gas transmission main with installation lengths ranging from 150 to 920 m and ScarGuard®–coated pipe welds. The whole project covered 30 HDD crossings.”

The full extent of the damage could not be considered, as a section lay underground. In agreement with the project owner, it was therefore determined that the pipe was to be removed and replaced. Furthermore, the new pipe would be completely wrapped in ScarGuard® to help prevent any possible damage.

When the extraction works began, the pipe had already been in the ground for two months. “The wrapping on the welds is abrasive and creates friction, which made pulling the pipe out extremely difficult.” said Gautreaux. Initial attempts to use static pull force to remove the pipe failed. “In addition, we wanted to pull in the 360 m replacement section of pipe at the same time. That is when we brought in the GRUNDORAM Taurus rammer to complete the extraction configuration.”

The pipe ramming tool was added to the back of the pipe string, completing a rather well-constructed extraction set up. Melvin said: “What we have during extraction is pull force on the front end of the pipe and percussive force on its back end.” The crews used a 150 t, 6 part block system to channel the static pull force from a crawler track unit, doing the pulling, to the lead end of the pipe. The percussive force of the pipe rammer, in this case, was used to re-activate the drilling fluid already surrounding the pipe in the bore hole and get the pipe moving, so that the static force can be used to extract it. “You cannot pump any more bentonite.” he said. “So, you have to use what is already down there.”

After 10 minutes of ramming and pulling, the pipe finally started moving. Overall, it took two 12-hour days to remove the pipe and pull in the replacement simultaneously. The crews were able to extract the 360 m pipe in two 180 m sections. “The hammer worked great in breaking the line free allowing equipment to continue movement.” said Gautreaux. “That is the reason why we bought the hammer, to have it in our fleet and on the jobsite. Time is of the essence when problems arise.”

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NUCURE COLD CURE UV SYSTEM'S GAME-CHANGING TECHNOLOGY

In the world of CIPP lining, light curing technology is proving to be a game changer. Light curing cuts CIPP installation times dramatically, from several hours to just minutes; a benefit that pertains to all light curing system types. In addition to speed of installation, and the improved productivity that comes with it, there are other benefits that accrue to both lining contractors and their clients.

The virtually unlimited pot life and the ability to wet out liners off-site, for example, ensures that technicians are not racing the clock in the way they are when working with a two-part epoxy, since curing does not start until the lights are illuminated.

Light curing also provides more consistent quality in the end product. With non-light cured CIPP there can be differences in the quality of the final product produced due to variation in curing elements. Differences in temperature, circulation, and time period applied to the curing medium can vary during every installation. This means that the end product can vary, which could mean that it does not meet the required standard and may cause issues later on. >

NuCure CCUV Installation.

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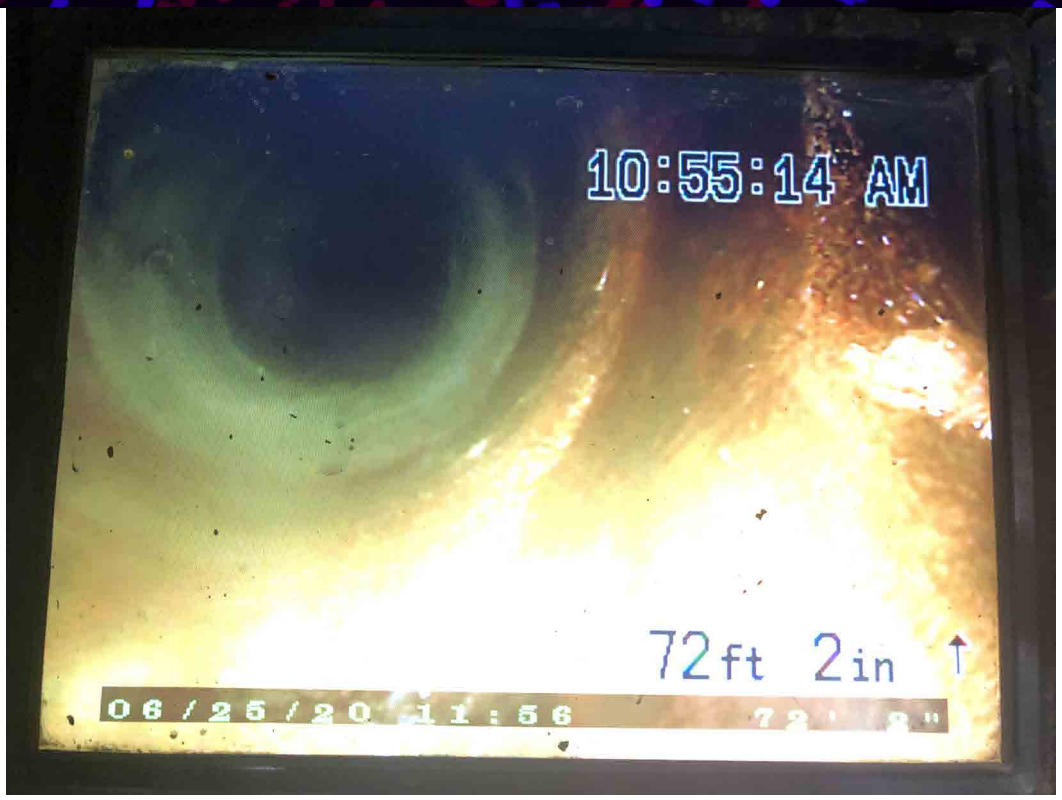

CCUV transition liner to host pipe

When exposure to light controls the cure, the variable site conditions have far less influence and crews must make fewer site-specific method adjustments, so light curing results in a much more consistent cure across installations. The result is a high-quality end product that meets specifications and gives the long-term performance planned.

TECHNOLOGY DIFFERENCES

But there are some important differences between light curing systems that should be considered. For instance, to cure properly all systems require a wavelength of light that is appropriately matched to the properties of the resin used. Some wavelengths utilised are in the UV region of the spectrum, while others are technically not, but the critical consideration to ensure a full and dense cure is that the resin and light wavelength need to be calibrated to each other.

In developing the NuCure Cold Cure UV system, the NuFlow engineering team calculated the specific requirements needed to cure three-layer fibreglass material. Optical power density was measured as a function of different voltages applied to the LED strips, and Differential Scanning Calorimetry determined the percentage of liner cured as a function of irradiance. This resulted in a precise calculation of the micro-watts per square centimetre required to ensure complete irradiance and a full and dense cure along the length of the liner. Dual power supplies ensure sufficient light power will fully penetrate the entire liner.

'Density of cure' refers to the levels of uncured resin present after the curing process is complete. The NuFlow NuCure system features an extremely high curing density (above 99%) with laboratory tests indicating no detectable levels of uncured resin. In any light cured system, any uncured resin that remains will likely remain uncured indefinitely and can be difficult to clean out. The dense cure of the NuCure system also results in exceptionally high heat deflection temperature (HDT), enabling the NuCure CCUV liners to be utilised in very high temperature applications. At an Ohio brewery in the USA, a NuFlow certified contractor lined over 600 ft (183 m) of 6 in (150 mm) diameter PVC pipe that had cracked as a result of extreme temperature fluctuations. The ability to tolerate high temperatures opens new markets that other lining systems cannot adequately serve. >

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2 in (50 mm) diameter CCUV small diameter UV light train with case.

NuCure CCUV Rig.

Different lining systems will also throw off varying levels of heat while curing. The NuCure resin/light wavelength calibration results in a more controlled reaction, with a low peak exotherm and a short exotherm duration, resulting in minimal excess heat and a true 'cold cure'. Cold cure is energy efficient, but just as importantly, does not require additional active cooling techniques or equipment. Curing processes that require active cooling can depend on additional cooling equipment which can present challenges in smaller work areas. Perhaps more significantly, active cooling can cause condensation along the length of the light train and the resulting light refraction can hinder the curing process.

Beyond resin and light wavelength, the methods by which the liner is installed also matters. Precise liner placement is the principal feature of NuFlow's Precision PIP (push or pull in place). The process ensures installers can avoid under-shots or over-shots during liner installation, which is particularly important for 'blind shot' branch pipe lining. It also ensures that joints and fittings near the end of the liner are properly sealed. In other processes air can be compressed up the pipe, which may result in 'burping' traps and toilets and releasing aerosolised contaminants into buildings.

In addition, the design of the liner tube itself is also critical to the success of light cured CIPP systems. Liner design can inadvertently increase the risks associated with resin bleeding, migration, and resin slugs up remote branch connections. NuFlow's Resin Protection System (RPS) helps contain the resin, which, along with fast cure times, greatly reduces the chance of these kinds of issues. The RPS also protects the liner from inadvertent light exposure, which prevents premature curing while preparing for installation. >

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A CCUV Uninstalled Light Train.

The standard NuCure system is designed for pipes of 3 in to 6 in (75 mm to 150 mm) diameter but a briefcase-sized version is also capable of lining pipes with diameters as small as 2 in (50 mm). NuCure 2" CCUV consists of a lightweight control box and small diameter light train cores. Pipe Restoration Solutions, a NuFlow Certified Contractor, recently used the small diameter UV system on a condominium project. "The shower drains in this building were improperly installed, so there were leaks coming through floors below each unit. The units were occupied, so we needed to get in and out of them as quickly as possible." said Project Manager Frank Rucco. He added: "We applied short repairs to over 50 PVC shower drains. We also used the NuCure Adhesive for Plastic Pipes to make sure we had both a structural and adhesive bond to the pipe. We were in and out of each unit within 20 minutes. It went as smooth as it can go."

Light curing is a leap forward in CIPP lining, improving consistency in the final product, speeding installation times, lowering technician labour costs, and limiting risk by enhancing control over the lining process which in turn reduces warranty time and effort. "In the end, we are capturing more revenue." Rucco concluded. "It has been a game-changing technology for us."

www.nuflow.com

A NuCure shower drain lining underway.

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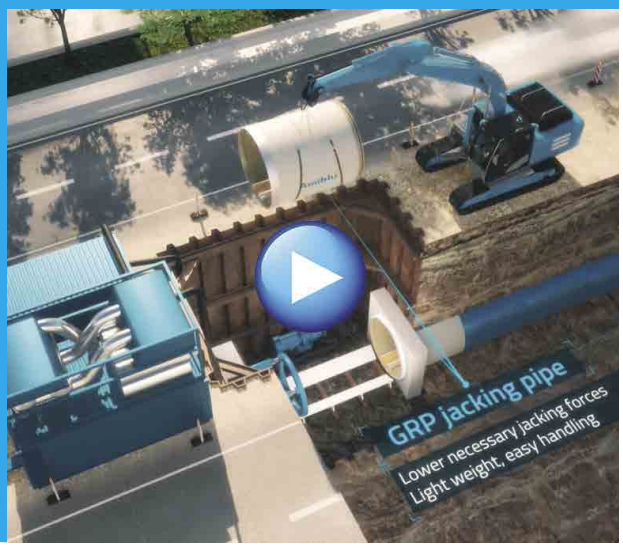

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SMALL CREW SORTS SUBSTANTIAL REPAIR IN SINGLE SHIFT

The pipeline was located at a depth of 4m.

Contractor PBF Drainage has successfully completed a significant repair to a DN375 pipeline at 4 m depth, using the Quick-Lock point repair system, all in just a single shift.

The 3-man crew took just 10-hours to install 28 Quick-Lock units in series creating a durable, refurbished section of pipeline which could be instantly re-commissioned.

The DN375 diameter pipe included a section of 6 m length where the upper part of the pipe had collapsed. The pipe was inconsistent, with issues with deformation and wall thickness, creating a variation in diameter from 375 mm to 450 mm, plus the following downstream section also looked on the verge of collapse. >

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Some of the Quick-Locks on site, before installation.

The initial assessment of the pipe was undertaken by excavation of the 6 m section, following the first CCTV survey. Further excavation for repair or to examine further pipe sections was impossible due to the precarious condition of the pipe and the challenging site conditions. Certainly, further excavation risked the collapse of the damaged downstream section.

James Stern of PBF consulted with Terry Ingleby of S1E Limited, which distributes the Quick-Lock system in the UK. Their discussions around the requirements of the job and the issues on site concluded that the Quick-Lock system would provide the best solution.

PBF Drainage prepared the site by carrying out low-pressure jetting to clean the damaged pipe. The PBF team installed a patch repair to further shore up the collapsed section, preventing any additional damage whilst the main repair was carried out.

To repair the pipe, a pre-liner was firstly pulled into position. The 28 Quick-Lock units were installed within the pre-liner to keep them in line and to size, ensuring they were expanded to the correct size given the variation in the damaged pipe. This also ensured a good connection into the remaining good part of the pipe, which had already previously been replaced during an earlier repair.

The Quick-Lock units were overlapped during installation, according to best practice for this repair product. The overlap creates a continuous repair and an excellent seal and provides additional strength.

There is no requirement for curing with the Quick-lock system, speeding up the work for the contractor and meaning that the pipeline can be immediately placed back into use following the repair. The contractor has claimed that repairing without >

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"The Quick-Lock system has been successfully used for many years as a repair procedure for closed sewer renovation."

The finished pipe after installation of the Quick-Locks.

The Quick-Lock product consists of an EPDM rubber seal and stainless steel locking sleeve.

excavation and replacement, and being able to do so quickly, has saved their client thousands of pounds. The resulting repair contains sufficient strength to withstand ground pressure and pressure from the backfill used to finish the reparation to the site.

PBF Drainage oversaw all aspects of the job including CCTV survey, cleaning with low-pressure jetting, patch repair and installation of the pre-liner and Quick-locks. The company is in its 10th year of trading and carries out repairs across the UK, using a wide range of professional repair techniques. PBF Drainage is also a member of the UKSTT.

The Quick-Lock System

Quick-Lock is an entirely mechanical, seamless assembly system for localised repairs inside pipes ranging from DN 150 to DN 800 (and over 2 m on request) in any common wastewater, well or drinking water pipe system.

The system comprises a stainless steel sleeve and an EPDM rubber seal. The sleeve sits inside the seal and presses and holds it to the inner pipe wall.

To install the Quick-Lock, it is placed in position using a packer which is then inflated until the Quick-Lock is tight against the pipe. A patented ratchet system prevents the Quick-Lock from shrinking back.

The Quick-Lock system has been successfully used for many years as a repair procedure for closed sewer renovation. It can be installed horizontally or vertically, above or below water level.

It is certified by WRc, DIBt, and ASTM and also certified by NSF and is suitable for potable water applications. A wide range of sizes is held in stock in the UK by S1E Limited.

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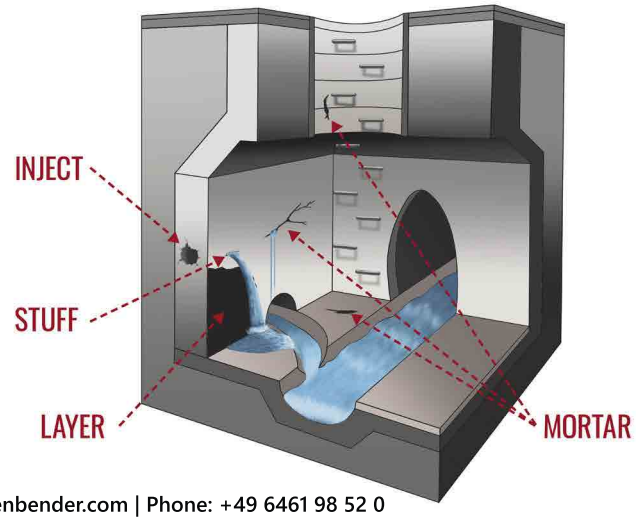

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FILLING A DECOMMISSIONED GAS MAIN UNDER THE M1

The site of the M1 grouting operation.

Steve Vick International's Contract Service team was asked by Cadent Gas to assist in filling with grout an abandoned gas main running under the M1 motorway at Junction 15, Newport Pagnell. The 180 mm diameter pipe had been diverted and replaced as part of the new road infrastructure, for the Northampton Gateway junction widening scheme.

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Keeping the traffic moving on the busy M1 was a vital part of the grouting operation.

“The team from Steve Vick worked efficiently and quickly to complete these works in a safe manner and satisfied the request we had from Highways England to fully grout the abandoned gas main running under the M1.”

The section of main was 140 m long with a volume of 3.65 cubic metres. SVI technicians mixed the cementitious grout on site, setting up the rig 80 m away from the injection point on the motorway embankment. The remote location made it safe to work and kept traffic management and interruption to a minimum.

Some 3,500 l of water were required to mix the grout, and this was supplied by a tanker situated around 100 m away from the motorway.

The project was completed in just over two hours. Andy Jones, Lead Delivery Engineer (Leicestershire and Northamptonshire), of Cadent Gas commented: “The team from Steve Vick worked efficiently and quickly to complete these works in a safe manner and satisfied the request we had from Highways England to fully grout the abandoned gas main running under the M1. I cannot thank them enough for the excellent works they completed on our behalf.”

Permanently filling unwanted pipes and voids from a remote location is just one of a wide variety of solutions for underground pipe renewal problems offered by Steve Vick International’s Contract Service team. The team have over 30 years’ experience, and has worked on many high-profile projects including, work undertaken as part of HS2, work on the Caledonian Canal, at Surrey Quays, and at Heathrow Airport, to name but a few. With engineers strategically placed at depots around the UK, Steve Vick International offers a nationwide service.

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www.trenchlessasia.com

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13-15 September 2022
East of England Arena and Events Centre, Peterborough, UK
www.nodiglive.co.uk

NO-DIG HELSINKI 2022

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

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SVI TRAILERS IN AUSTRALIA

An SVI Pipe Coil Trailer in Australia.

Pipeserv, Steve Vick International's Distributor in Australia, has recently taken delivery of two SVI Pipe Coil Trailers, a 50/90 and a 125/160 model which are designed to safely transport and dispense coiled PE pipe.

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An SVI 50/90 trailer.

The 125/160 Pipe Coil Trailer has been sold to a gas distribution network (GDN) in South Australia which currently has a project comprising a 20 km network of gas pipeline that needs to be inserted with 125 mm diameter PE pipe. Adding to its existing fleet of SVI trailers, which until now has been only 50/90's the GDN has already fed back what a great investment the larger trailer has been for the 125 mm diameter PE project. The 125/160 model has allowed the GDN to use 125 mm diameter PE coils for the first time, before this project, 75 mm diameter PE was the largest coil size used across the network.

The 125/160 Pipe Coil Trailer handles coils of PE with a diameter from 40 mm up to 160 mm. It can accommodate a 100 m coil of 160 mm diameter or a 150 m coil of 125 mm diameter.

The smallest model in the Steve Vick range, the 50/90 Pipe Coil Trailer, handles PE with diameters from 40 mm to 125 mm. For example, it takes a 100 m coil of 90 mm diameter PE pipe and a 50 m coil of 125 mm diameter.

The SVI trailers are also designed with safety as the number one priority. The unique central drum design ensures the pipe is dispensed or recoiled smoothly and quickly. The whole operation can take place from ground level and there is no need for operatives to put hands within the rotating drum at any stage. The coil is restrained within a steel cage to prevent it 'springing away' and pipe is restrained during transport and dispensing. The trailers are robust in construction, the maintenance requirements are low and the trailers can be towed by a typical long wheelbase vehicle.

The 50/90 and the 125/160 pipe coil trailers form part of a larger range of trailers available for purchase from Steve Vick International and its distributors.

www.stevevick.com

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The SPiDER Manhole Scanner.

NEW PIPELINE INSPECTION CAMERAS

The SPiDER Scanner is claimed to be the first wireless and colour manhole inspection technology in a lightweight and compact form. SPIDER collects millions of three-dimensional (3D) measurements during each manhole inspection so the manhole can be measured to less than 5 mm accuracy. SPIDER weighs less than 30 lb (13.6 kg) and can be hand carried to easements or other previously difficult to access sites.

This portability is possible because the processing computer and battery supply are integrated into the scanner. Additionally, SPIDER does not require an inspection truck or other piece of equipment (other than the included tablet) for operational use.

The SPiDER is a scanner which can calculate its position in the manhole shaft by using its sensor data to measure its incremental motion. This technology frees inspections from problems associated with inaccurate, poorly calibrated cable counters and poorly managed cables. The raw data is automatically post-processed to a 3D point cloud that provides engineering and survey quality information on manhole geometry and condition that can be used for structural assessment,
pre- and post-rehabilitation analysis (i.e. lining thickness), hydrological surveys, as well as general condition assessment.

SPIDER also provides live-video stream and recorded video making it an ideal tool for Infiltration and Inflow (I&I) studies which depend on live video to detect moving water.

According to CUES Manhole Inspection Division Director, Pierre Mikhail, the SPiDER scanner will provide a new outlook on how manhole data is collected and applied. “CUES has a long-standing reputation for innovation and excellence in manhole/pipeline inspection and rehabilitation technology. It currently offers a range of tools from wireless hand-held pole mounted units to automated truck mounted units that provide unsurpassed productivity in manhole inspection and measurement. The SPiDER scanner is the future of making intelligent choices and prioritising investment decisions.” he said.

www.cuesinc.com

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- Drill rod
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- Bits

Selected items are placed in an online shopping cart each step of the way. Once the drill string is complete, users can check out via borestore.com or print out their completed drill string to provide to their Vermeer dealer.

"Vermeer RigFitter takes the guess work out of knowing what tooling options are available for your particular HDD model." said Chris Fontana, sales manager for Borestore® HDD tooling and Vermeer Cutting Edge products. "Vermeer RigFitter is the next best thing to working directly with the HDD specialist at your local Vermeer dealer."

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A MESSAGE FROM THE CHAIR

Jari Kaukonen, Chair, International Society for Trenchless Technology

Hi ISTT members! Happy New Year!

It has not happened a lot over the holiday season, but some ideas have come into my head concerning our next conference in Helsinki in October.

I paid a visit to Tallinn just before Christmas to agree a programme for a visit there on Saturday 1 October 2022 as a pre-conference tour. The trip was successful. I agreed with the Tallinn Water Company that they will present an overview of their activities. They sold the company to a British company and now they have bought it back to the city of Tallinn. It is so interesting to hear about their thoughts now. After that we will have a guided walking tour in the heart of Tallinn, which is so beautiful. >

A view of a typical Tallinn Christmas market.

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We have now agreed with Professor Samuel Ariaratnam the programme of the research colloquium for the show in Helsinki on the 30 September and I have agreed with Professor Riku Vahala that it will take place in the Aalto campus area in Espoo which is within metro distance from the centre of Helsinki. The Tallinn tour is a part of the colloquium programme also. There are 80 places maximum for that tour.

The next international No Dig show will take place, as you already know in Helsinki from the 3 to 5 October 2022. We are well prepared to meet all experts from around the world. I have heard that from the Scandinavian countries we will receive about 100 delegates. So it is no wonder that we should have a conference with 500 delegates!

"The next international No Dig show will take place, as you already know in Helsinki from the 3 to 5 October 2022. We are well prepared to meet all experts from around the world."

The call for papers is now open and to keep you updated about the arrangements visit the show website: www.nodighelsinki.com and book the week in your calendar. Send your paper in. On the Thursday we will prepare some post conference tours which delegates can vote for. You will get an election notice from Kyoko, our excellent secretary.

The next Year we have many excellent conferences locally where I will try to pay a visit. I have already got three sessions of vaccination, so I am prepared to travel again. I will also take the antigen test almost every week just to be sure I am not carrying anything nasty!

I hope that you all had a visit from my home country during Christmas; Santa lives here!

With best regards,

Jari Kaukonen

Chair, ISTT

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ISTT WEBINAR
DESIGN METHODS FOR CIPP LINERS IN GRAVITY AND PRESSURE PIPES

Tom Sangster, Chair Technical & Education sub-committee.

8 February 2022, 2pm Speaker: Tom Sangster, Downley Consultants

The design of CIPP liners in both gravity and pressure pipes has evolved significantly since the first somewhat empirical designs. There are now well established methods for gravity pipe liners in the USA, the UK, Germany, and France, to name but a few. These are evolving as more research and empirical evidence shows that the modified Glock method is more accurate than the Timoshenko method formerly used. France and Germany have already made the transition and the UK is doing so at present. The USA is expected to follow as well. In pressure pipes the situation is less clear and significant challenges remain in understanding the interactions between the liner and the host pipe. This webinar will review the design approaches for both gravity and pressure liners and will identify the key areas where more research and information is required, especially in the design of pressure pipe liners.

The ISTT webinar series is free to attend and open to UKSTT members and all affiliated societies.

Register to attend:
https://www.istt.com/index/webapp-registrant-form/id.14

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

Abstracts sought:

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

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

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

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

Conference Schedule

Notification of acceptance:
1 May 2022

Draft paper due:
15 June 2022

Review sent back to authors:
15 July 2022

Final paper due:
15 August 2022

For any questions regarding the conference, please contact:

conference@nodighelsinki.com
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17TH PIPELINE TECHNOLOGY CONFERENCE TO BE HELD FOR THE FIRST TIME AS A HYBRID EVENT IN BERLIN AND ONLINE

Panel discussion at the Pipeline Technology Conference (@ 2019 Philip Wilson / EITEP)

From 7 to 10 March, 2022, the European flagship event for the pipeline industry, the 17th Pipeline Technology Conference (ptc), will once again take place in Berlin.

Transmission and distribution system operators from around the world will again come to ptc to learn about the latest developments and offerings in the industry and to exchange ideas with other operators and market participants.

Thanks to the integration of NO DIG Berlin into ptc 2022, more municipal network operators will also be attracted to Berlin. They will be able to find out about new developments in trenchless construction techniques at the exhibition and conference.

The GSTT, The German Society for Trenchless Technology, as a partner of the ptc organiser EITEP, organised NO-DIG BERLIN which includes a trade exhibition in the NO-DIG area. As well as in Germany, GSTT is also active GSTT in the international market, and holds the opinion that this aspect is open for expansion. For NO-DIG BERLIN, with its international speakers, the language of the conference will be English.

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

As a hybrid event, the central face-to-face event ptc Berlin will be combined with a virtual platform, ptc Remote, where all information related to the event will be available and which will offer extensive networking opportunities for all participants. The AI-based matchmaking will be further expanded. Participants in Berlin and at home in front of their computers can search for specific solutions and enter into direct exchange with exhibitors and participants.

For more information on the 17th Pipeline Technology Conference, visit https://www.pipeline-conference.com/

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6th EDITION
Trenchless Romania

Conference & Exhibition

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

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SOCIETY NEWS

ukstt.org.uk

Society News brought to members by Trenchless Works

HELLO FROM THE CHAIR

Dawn Greig, Chair, UKSTT

"After the success of the first European No-Dig Conference at No-Dig Live last September, we have a fantastic follow-up two-part webinar, details can be found on our website."

I hope that all of you had an enjoyable break over the festive period, which seems like a distant memory already. The good news is that we have had a very busy start to 2022 at UKSTT. Collaboration with the Pipeline Industries Guild on Green Alliance has resumed and we are planning a series of webinars for Spring. It was lovely to meet the new CEO of PIG, Kate Lazenby, who we are all very much looking forward to working closely with over the coming months.

At a jam-packed Council meeting we unanimously voted to promote Lynn Maclachlan from Business Development Manager to the Associate Director of UKSTT. As I am sure you all know, Lynn works tirelessly for the Society and has effected a lot of positive change over the years she has been with us. Congratulations Lynn – exciting times ahead!

While we plan our first face-to-face event, which will be a Masterclass, we intend to keep up our online schedule. After the success of the first European No-Dig Conference at No-Dig Live last September, we have a fantastic follow-up two-part webinar, details can be found on our website.

Whilst we are going digital for now, we do have some incredible events lined up this year, from working with Westrade on a Roadshow in Belfast in June, to another No-Dig Live and Annual Awards Gala Dinner in September. Time to start getting those award entries in, you deserve recognition for all your hard work!

I would also like to take this opportunity to thank our Members for their continued support. Along with your certificate of membership you will also receive your loyalty logos and member logos. We would love to see those all over social media, remember to post, like, share and use #ukstt

Stay Safe!

Dawn x

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THINK TRENCHLESS FIRST - UKSTT

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

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

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

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

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

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

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UKSTT – 1ST EUROPEAN CONFERENCE WEBINAR PART 2
10 FEBRUARY 2022, 12 NOON (GMT)

Programme:

Welcome: **Scott Stone, UKSTT**

Presentation: **Olivier Thepot, Ph.D.**
Response of a cured in place liner in cast iron water pipe to joint expansion due to permanent ground deformation or seismic wave

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

Q & A

Registration is now open and free to attend:
https://register.gotowebinar.com/register/7171405583291412236?source=UKSTT

SUMMARY:

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

The response of segmented pipelines to permanent ground deformation as well as seismic waves are briefly discussed. Permanent deformation can be due to earthquake as well as tunnel boring or voids collapse. Ground strain typically varies from 0.1% to 1% and the corresponding joint opening varies from a few mm to a few cm. Unlike ductile iron pipes, cast iron pipes with lead caulked joints have low joint expansion capacity since leakage may occur at joint openings as low as 2 mm. The response of a cured-in-place pipe (CIPP) liner as it spans an expanded joint is then examined through an analytical approach and finite element axisymmetric model. >

The effects of friction between the liner and the old pipe as well as the internal pressure and the material properties of the liner (Poisson's coefficient and Young modulus) are investigated. It is shown that the axial stress increases with the pressure, the coefficient of friction and the modulus but that it decreases with the Poisson's ratio. The Poisson's ratio has here a positive effect because it decreases the contact pressure as the liner stretches. It is also shown that the axial stress can easily exceed the hoop stress of the free tube under internal pressure even for a displacement as small as 1% of the host pipe diameter. It is concluded that only a loose-fitting installation can guarantee the resistance of the liner.

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

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

The project, promoted by Acquedotto Pugliese S.p.A., concerning the renovation of four pressure pipes located inside the 'Ponte Punta Penna-Pizzone' bridge in Taranto (Italy) represents one of the most significant international examples in the field of close-fit lining technology.

The Italian region of Puglia is the only shareholder of the Acquedotto Pugliese S.p.A society that leads the Integrated Water Service in the entire region. It manages the water supply in different municipalities located in Campania region, as well as providing sub-contracted water up to 40% to the region Basilicata, in southern Italy. Acquedotto Pugliese cares for one of the most complex system in the country for drinkable water regarding its transport and distribution, characterised by different hydraulic devices, transport capacity and state of age - maintenance. The company is responsible for 25,000 km of pressure pipes (5,000 km for supply and 20,000 km for distribution), serves 250 districts and provides drinking water to 4 million citizens.

The bridge rests on 14 spans rising up to 47 m above the sea and holds four steel pipes of 1,200 m in length, at DN 500 mm, hanging inside the deck of the structure. Through these 4 pipelines, a water flow of 500 l/s passes, providing the water needs of approximately 200,000 inhabitants; 40% of the population of Taranto. The pipelines were built at the same time as the bridge, which was inaugurated on 30 July 1977and it is one of the longest in Europe that connects two coasts separated by a sea.

Registration is now open and free to attend:
https://register.gotowebinar.com/register/7171405583291412236?source=UKSTT

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UKSTT AWARDS WEDNESDAY 14 SEPTEMBER 2022 CALL FOR ENTRIES

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

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

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

This year we are delighted to announce the following categories for the 2022 awards.

Innovative Technology Award

An award to cover product/system technologies that support the trenchless technology industry and must show a real application. Innovative technologies must be trenchless and new to the UK market e.g. underground mapping or other software, equipment, new materials, safety equipment, techniques such as jointing systems etc. This list is illustrative only.

New Installation Award – Pipe Jacking, Microtunnelling, Guided Boring

This award will be presented to the entries best demonstrating their key roles in successful new installations of pipelines using pipejacking, microtunnelling and guided boring trenchless techniques.

For the avoidance of doubt, projects that replace the host pipe by means of bursting, splitting or eating of the original pipe and thus no longer remain dependent on any residual strength of the original pipe shall be entered for judging within the new installation category rather than the renovation category of the awards process.

New Installation Award – Horizontal Directional Drilling (HDD)

This award will be presented to the entries best demonstrating their key roles in successful new installations of cables, ducts or pipelines using HDD. >

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Deadline date for entries is

18 May 2022

Pipe Rehabilitation – Cured in Place Pipe Lining (CIPP)

This award will be presented to the entries best demonstrating their key roles in successful pipeline renovation or rehabilitation projects of any diameter using CIPP techniques

Pipe Rehabilitation – Techniques other than Cured in Place Pipe lining (CIPP)

This award will be presented to the entry best demonstrating their key roles in successful pipeline renovation or rehabilitation projects of any diameter using techniques other than CIPP.

Environmental Award

The Environmental award will be presented to the entry which best demonstrates how the Project/Process/Product has reduced environmental impact.

Detection, Location and Inspection

This award will be presented to the entry which best demonstrates the use of detection, location or Inspection techniques to overcome significant challenges.

Young Professional Award

The UKSTT Chairman's award will be presented to the young professional (<30 years old) who can best demonstrate their contribution to the field of Trenchless Technology. We will be looking for evidence of an understanding of Trenchless Technology, the individual's contribution made, the quality of the submission and the candidate's vision for the future of Trenchless Technology.

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

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EVENTS AND MEETINGS

2022

February 8 2022: ISTT Webinar – Design Methods for CIPP Liners in Gravity and Pressure Pipes – an Overview
14:00 GMT (09:00 am EST, US, 22:00 Beijing, 15:00 Berlin) Check your local time from here.
Details from: https://www.worldtimebuddy.com/

February 10, 12:00-13:30: UKSTT Euro Conference virtual event Part 2
Webinar. Details from:
https://attendee.gotowebinar.com/register/7171405583291412236?source=Westrade

March 7-10: No-Dig Berlin – 17th Pipeline Technology Conference
Estrel Congress Center, Berlin, Germany
Ptc Seminars: 7 March 2022
Pts Conference & Exhibition: 8 – 10 March 2022
Details from: https://www.pipeline-conference.com/no-dig-berlin

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

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

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

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

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

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

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

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

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

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

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

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