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TRENCHLESS Works

The voice of the trenchless community

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Pressure pipe rehabilitation - revolution or evolution?

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WESTRADE GROUP LTD

Welcome to the fantastic new-look Trenchless Works! This fresh new platform will provide a greatly enhanced experience, offering even more engaging and easily accessible content for all our readers. In addition, it will present a host of impressive new opportunities to spotlight our valued advertisers and supporters. We look forward to embarking on the next stage of our journey with you - delivering insightful and enriching content like never before. Thank you for being a part of this exciting new chapter!

As the voice of the trenchless industry, we are keen to provide a platform for thought-leaders from across the sector. This month we are introducing a regular new opinion piece written by Tom Sangster. Tom is a qualified civil engineer with over 35 years' experience in managing water and sewer pipe inspection, condition assessment and rehabilitation projects around the world. In this month's issue, he discusses the contrasting approaches to water mains and pressure sewer rehabilitation in the UK and Germany. Keep an eye out for more from Tom over the coming months or if you have some views of your own, please get in touch, we'd love to hear them!

Trenchless Works remains committed to promoting the latest in technological innovation and I'd strongly recommend taking the time to check out the piece by Nicholas Smith from Ditch Witch in which he looks at how the company is using virtual reality to transform training in underground construction.

It's also always exciting to be able to share news of trenchless technologies delivering tangible benefits. The use of the SAERTEX-LINER® H_2O, to rehabilitate over 500m of potable water supply line in São Paulo is a great example of this. We'd be keen to get out and see more trenchless work in action so if you have something that you think worth sharing, please drop me a line.

Finally, just a quick reminder that we have the first in this year's No-Dig Roadshow series taking place at the Hilton in Reading on 26th June. Hopefully I will see you there.

If you have an opinion or news on projects and innovation that you would like to share, please send us a note and I'd be happy to discuss.

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Enjoy the magazine.

Austen

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Pressure pipe rehabilitation – revolution or evolution?

Tom Sangster, Managing Director, Downley Consultants

UKSTT recently held a very informative and interesting Masterclass on CIPP for Pressure Pipes. The Masterclass covered water, gas, and pressure sewers, considering their needs, differences, and the common ground. Both the problems and the solutions were presented and discussed, and the number of people attending was testament to the importance of the topic in the UK. Two of the keynote papers on water mains and pressure sewer rehabilitation highlighted very different approaches to solving the problems that are so widespread in these networks – one of revolution and one of evolution.

Revolution in the UK

This focused on the OFWAT-funded Designer Liner project. Here the project team has been given a utopian wish-list of capabilities in order to develop a new solution for water mains rehabilitation.

At first sight, the requirement for something that is cost-effective, DWI Regulation 31 compliant, environmentally friendly, minimally disruptive and which offers long-term durability seems reasonable. But the list doesn't end there, and we must add a lifespan of more than 100 years, self-healing materials, embedded fibre, smart networks, sensors, and biofilm suppression. So, can a project with so many objectives succeed? And what does success look like? Typically, such wish-list driven projects are saddled with an all or nothing approach; achieving 80% or even 90% of the wish-list is not enough, only 100% will do – the best is often the enemy of the good so some potentially worthwhile innovations will be lost.

There are many technologies already available that can meet the primary objectives and are widely and successfully used internationally. But apparently these are not suitable for the UK needs. The reasons for this are not immediately clear. So, a smart, talented, and dedicated project team is faced with a Sisyphean task. Regulation 31 will remain a ubiquitous obstacle for future solutions as it is for current ones and while we wait for perfection to be achieved water mains will continue to fail and leaks will remain a daily occurrence.

Evolution in Germany

The Institute for Underground Infrastructure (IKT) in Gelsenkirchen has undertaken a test programme to evaluate the capabilities and limitations of Class A (ISO 11295) fully structural pressure sewer rehabilitation solutions. Supported by the Nordrhein-Westfalen sewer

network owners and the State Environment Ministry a test bed was set up to test six products currently available and to compare them. The sewer owners and Environment Ministry decided the evaluation criteria and the test bed contained the full range of defects and damage scenarios that they considered relevant.

Four pressure CIPP liners and two PE close-fit liners were tested. Their performance was analysed and the sewer owners now have good information and an understanding of the capabilities and limitations of each, including several key lessons. As a result, they can implement those that performed well and do so with realistic expectations. Moreover, the limitations and shortcomings are understood so the manufacturers can address them and the technologies will evolve to meet the customers' needs, even as they become more demanding.

Is there a right or wrong?

The contrasts between the two approaches are striking. One can argue that it is not a fair comparison because the requirements of the water and pressure sewer sectors are not the same. This however is a weak argument as fundamentally the requirements are very similar. Suitability for use with potable water is the key differentiating aspect of the water sector; the chemical conditions and frequent on-off pumping cycles define the pressure sewer sector. Otherwise, the requirements to be cost-effective, durable, environmentally friendly and to involve minimal disruption are the same, as are the performance requirements: to be fully structural, leak tight and capable of lining around bends

in the pipe.
Which is better, or right? Each has its merits. The revolutionary approach, looking for innovative new solutions, can yield worthwhile and valuable progress even if it falls short of the perfection it pursues. New materials such as graphene and new methods such as 3D printing have properties and capabilities that may result in revolutionary change, to take just two examples. But at a cost in time and risk.

A question of time

The key contrast between the two approaches is in the results. The evolutionary approach enables the customers to make best use of available technologies to solve problems right away and the competitive pressure to meet customers' needs more cost-effectively will drive continued evolution and innovation. The revolutionary approach leaves the customers waiting for a long time for a dream that may never come true while not addressing the current problems. The UK utilities will protest that they are addressing the current problems while the Designer Liner project is under way and that the OFWAT 3-hour rule precludes them from lining. But they are reported to have lined 20km of water mains in the current AMP period; that is a pitiful 0.005% of the total network length.
I do not advocate abandoning innovative research and seeking better solutions. To do so would be absurd and genuinely valuable innovation can come from projects such as the Designer Liner. I sincerely believe and hope that they will. But the need is pressing; it is here and now – and so are the solutions. It is telling that the presentation of the Designer Liner project identified the barriers to new lining solutions in the UK water sector regulation, cost of market entry, lack of a consistent testing approach, and lack of definition of need. These make the market unattractive to new entrants and the Designer Liner in itself will not overcome them.

Address the barriers and the current solutions can be deployed to tackle and solve the problem of failures and water loss. They are cost-effective, durable, and environmentally friendly and can be deployed with minimal disruption. Were the UK water utilities to send a strong signal of consistent demand, i.e. a clear policy of mains rehabilitation (as has been the case in the gas sector) the suppliers would go through the Regulation 31 process and the full gamut of solutions would be available. This begs the question - what is stopping them?

Sheikh Hamdan announces groundbreaking sewerage plan for Dubai

The AED 80 billion (US$22 billion) sewerage infrastructure plan will serve Dubai's ever growing population for the next 100.

Sheikh Hamdan and the Executive Council of Dubai have approved the construction of a groundbreaking centennial sewerage system designed to address the evolving needs of Dubai's population over the next century. With a strong focus on advanced infrastructure and sustainability, the project will be implemented in collaboration with the private sector and aligned with key strategic frameworks such as the Dubai Economic Agenda D33 and the Dubai Urban Plan 2040. In doing so, it aims to reduce carbon emissions in the sector by 25% while promoting circular economy principles. Private sector involvement, encouraged by Sheikh Hamdan's directive to the Dubai Municipality, underscores the vital role of collaboration in advancing Dubai's integrated infrastructure, with private sector investments projected to exceed Dh1 trillion by 2033.

Paul Harwood, Managing Director, Westrade Group and organiser of Trenchless Middle East, commented: "This approval represents a significant opportunity for the trenchless technology industry. This aligns with our commitment to innovation and sustainability. We're excited to see how our industry's expertise will contribute to Dubai's future"

For professionals in trenchless technology, the approval of Dubai's centennial sewerage system signifies a significant opportunity. Trenchless technologies can play a crucial role in implementing environmentally friendly solutions and optimising the system's operational efficiency. Moreover, with Dubai positioning itself as a global leader in modern, sustainable infrastructure, the sector could contribute to shaping the city's future and setting new standards for urban excellence on a global scale.

> "This approval represents a significant opportunity for the trenchless technology industry. This aligns with our commitment to innovation and sustainability. We're excited to see how our industry's expertise will contribute to Dubai's future.

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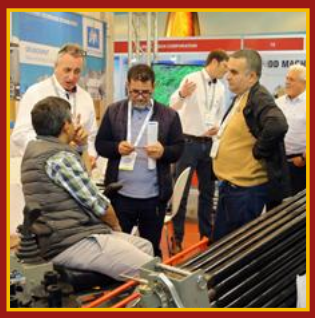

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New cooperation for T.A.Drilling and Terra

T.A.Drilling (TAD) and Terra are excited to announce their new partnership.

Both companies have recently signed an exclusive dealer agreement covering the UK and Ireland that will see TAD bring the full Terra line into the UK and Ireland. This includes Directional Drills from 6 to 20 tonnes with all models having an All-Terrain Dual Rod Rock Drilling version, Pit Launched HDD machines from 4 to 10 tonnes, Lead Replacement Systems, Pipe Bursting Equipment using rods and wire cable, Pipe Pushing Machines, Piecing Tools/Moles from 45mm to 210mm and Pipe Ramming Equipment.

Benjamin Jenna, Managing Director, Terra commented "This new partnership has come together at an exciting time in our development as we bring new models to our range of Directional Drills and continue to increase our production to keep up with demand, we are really looking forward to working with the TAD team who have a proven track record and have considerable in house knowledge and whose customer support is second to none".

Phil Benford, Managing Director, TAD added "We had some initial discussions with Benjamin last year and after visiting the Terra facility it quickly became apparent that Terra manufactures great quality equipment with a real focus on innovation. Take their

18 tonne DJ18 directional drill which has many innovative features that make it the standout rig in its class and now available as an All Terrian version DJ40 AT.

We feel that having a complete range of equipment for Trenchless Installation and replacement will be a big advantage and one that will benefit our customers in the years to come".

TAD and Terra will be exhibiting their equipment at this years No-Dig Live Show.

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"Their 18 tonne DJ18 directional drill which has many innovative features that make it the standout rig in its class and now available as an All Terrian version DJ40 AT. We feel that having a complete range of equipment for Trenchless Installation and replacement will be a big advantage and one that will benefit our customers in the years to come.

New subsite® Utiliguard 2 RTK

The latest UtiliGuard 2 offering achieves centimetre-level survey grade accuracy for locating and mapping utilities in challenging areas.

Subsite®, a leader in underground utility locating products, has announced the launch of the UtiliGuard 2 RTK (real-time kinematic) receiver. Designed with survey-grade technology and dual-band antennas, the UtiliGuard 2 RTK receiver delivers centimetre-grade accuracy, making it an ideal solution for locating abandoned and untracked utilities that are often difficult to pinpoint.

The simple and easy-to-operate UtiliGuard 2 RTK receiver empowers operators with reliable positioning data, enabling them to quickly verify installed utilities and tailor bids to match jobsite needs. Its high-precision capabilities also provide valuable insights into underground infrastructure, helping crews avoid cross bores during future projects.

Like the UtiliGuard 2 Standard and Advanced units, the RTK receiver features integrated data capture, GPS positioning and an intuitive user interface to improve work quality and maximise locate awareness. Additional enhancements include dead-reckoning capabilities, which help operators maintain accurate locates in heavy tree canopy or areas where GPS signals falter. A multi-frequency fault-finding capability also empowers contractors to accurately identify and locate faulty power lines using a broad spectrum of customisable frequencies, up to 10kHz.

Utiliguard2RTK

“These enhanced features can help contractors meet growing demand for precision in areas where achieving high accuracy have traditionally been a challenge,” said Rodolfo Cabello, Subsite product manager, “Centimetre-grade accuracy and mapping ready data makes the UtiliGuard 2 RTK receiver the ultimate precision tool for contractors seeking to maximise productivity, enhance safety and comply with the latest industry regulations.”

To further enhance efficiency in the field, the MyUtiliGuard app enables seamless data capture, mapping, and sharing directly from the RTK receiver, streamlining the entire utility locating process. The Subsite Realtime Mapping app also seamlessly logs real-time data with Esri GIS platforms, removing the need for manual data exporting and file conversions.

To learn more about the UtiliGuard 2 RTK, visit https://www.subsite.com/products/utility-locators/utiliguard2rtk/

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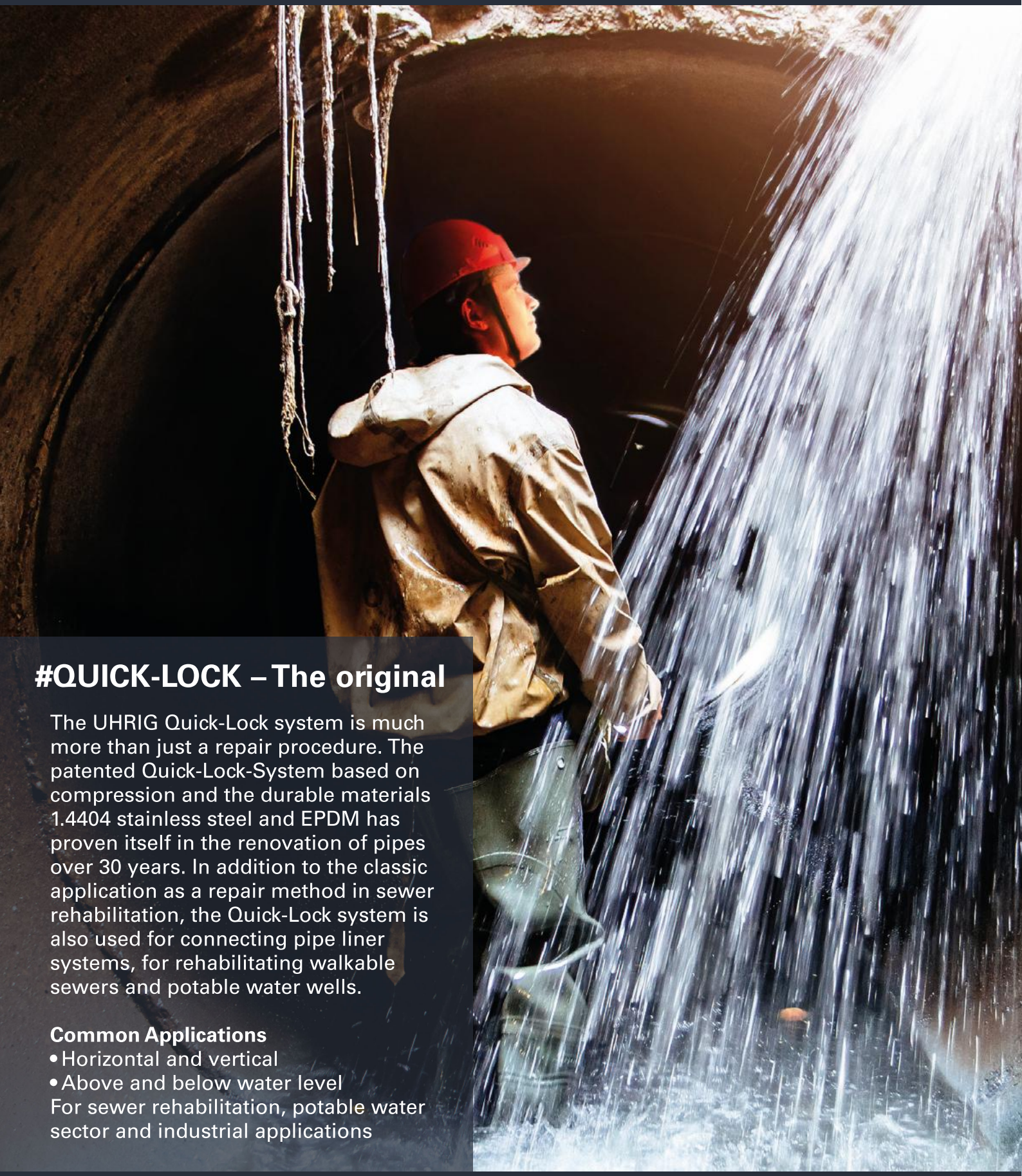

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Bodenbender- further development on all sides

"Innovation is the ability to see change as an opportunity, not a threat," said Steve Jobs, and the last few months have been true to this guiding principle at Bodenbender GmbH.

In 2020, Bodenbender from Biedenkopf (Hesse), the leading supplier and developer of materials, equipment, and special vehicles for the trenchless sewer rehabilitation industry opened a site in Münchwilen (AG), Switzerland. The aim of the foundation at that time was to be closer to the long-standing customers based there, and the company succeeded in doing so. Administration and order processing had previously been handled mainly via the main site in Germany but was supported locally by Roland Lang. Lang has been with the company for many years and used his industry expertise and knowledge of the Swiss market to further establish the company there.

Bodenbender - Steamcuring

Managing Director, Christian Kunkel, explains: “Roland Lang has made an outstanding contribution to our business in Switzerland with his decades of experience in the industry. He was largely responsible for customer support and further development and is now entering his well-deserved retirement.”

Mr. Ruedi Mettler, Managing Director at AKASAN AG will take over this role on April 1st. He can look back on decades of experience in the industry.

Ruedi Mettler and Christian Kunkel

“Ruedi Mettler has learned the sewer renovation business from the very bottom up. A major advantage is that he has already gotten to know our company very well as our customer,” says Christian Kunkel. “We are delighted to have gained a real expert in the field of trenchless sewer renovation in him. In his role as Managing Director and thanks to his good knowledge of the Swiss sewer rehabilitation industry, his task is to build on the successes of the past few years and continuously develop the company further.”

There was a favourable overlap during Mettler’s induction. Just in time for the start of the new Managing Director, Bodenbender was also able to present the deepened partnership with the construction chemicals manufacturer IPA Bauchemische Produkte GmbH - something that is interesting for the Swiss market as well as for the greater European and British markets.

Bodenbender GmbH has already been purchasing products from the Bavarian family-owned company for several years, and now they are working together on research and development.The result is a wide range of products for manhole renovation, “We can really meet all requirements with this range of products - whether sewage treatment plants, separators or normal manholes; highly resistant to chemicals, dissipative or anything similar,” says Jonas Bodenbender, Managing Director Bodenbender GmbH. “Our technicians are regularly at IPA and discuss product requirements with the laboratory manager, carry out tests and thus further develop the products,” he continues. This partnership creates synergies for both sides, IPA and Bodenbender can mutually refer customers to the right expert. Those who were previously only active in manhole renovation can now also renovate long-distance trenchless pipes and vice versa, but these are not the only two developments.

Steam curing has now also been included in the DIBt certification for the Bodenbender Inliner System. Strict practical and laboratory tests have been carried out. The in-house system is now in the queue to be certified with this “German Construction Quality Seal”; the tests are still ongoing.

“Seeing the current developments is of course enjoyable for us internally and also makes us proud! We are a relatively small team and still family-run. There is no large corporation behind us and decisions can still be made easily,” says Anna Gerlach,Team Leader Internal Sales, Marketing & Communication, “Of course, our customers and resellers worldwide also notice this and they enjoy working with us and look positively on our ideas and progress. We want to use this upswing to expand our network and open up new markets.”

Next up for Bodenbender is the launch of a vehicle specifically for manhole renovation. This will be presented at a trade fair in Vienna in June at the latest - so it’s well worth looking.

> “We can really meet all requirements with this range of products - whether sewage treatment plants, separators or normal manholes; highly resistant to chemicals, dissipative or anything similar.

Wales & West Utilities celebrates milestone

Wales & West Utilities (WWU) has proudly announced the acquisition of 128 trailers from industry leader Steve Vick International (SVI) over the past three years, significantly enhancing operations for its gas mains replacement programme across Wales and the south west of England.

These acquisitions are a testament to WWU's commitment to reducing environmental impact while enhancing operational efficiency across its network in Wales (Cardiff, Llandarcy, Wrexham), Central (Bristol, Swindon Bridgwater), and South West (Exeter, Plymouth, Redruth) regions. The strategic partnership between WWU and Steve Vick International is a critical building block in WWUs long term plans for improvement and transformation of gas transportation across its distribution network. The Hexi Trailer's introduction marked a significant leap forward in their sustainability goals, enabling WWU to substantially reduce pipe wastage while maximising the benefits of insertion techniques. Prior to the adoption of the Hexi Trailer, WWU faced challenges with pipe wastage rates averaging 20% annually, particularly in diameters of 63mm, 75mm, and 90mm.

However, the transition to 500-metre coils has led to a remarkable reduction, slashing pipe wastage to just 7%, significantly improving the bottom line. Beyond environmental benefits, the Hexi Trailer offers various cost-saving advantages, including reduced fusion time, fewer pipe fittings, and minimised excavation requirements. With its innovative design featuring a hexagonal drum frame and hydraulic operations, the Hexi Trailer ensures efficiency and safety, with all loading and dispensing procedures carried out from ground level.

Wales & West Utilities Trailers

The Hexi Trailer boasts GIS LC14 approval and incorporates features to secure leading and tail ends of PE, ensuring compliance with industry standards and safety regulations. The Hexi Trailer is also compatible with standard long-wheelbase vehicles enhancing versatility and accessibility across diverse project sites. "We are proud to partner with Steve Vick International in our journey towards sustainability and operational excellence," said Jeanie Beasley, Transport Compliance Officer at Wales & West Utilities. "The adoption of SVI's innovative solutions underscores the industry's collective effort to minimise environmental impact while delivering superior performance." As WWU continues its mission of excellence in gas mains replacement, the collaboration with Steve Vick International underpins a shared commitment to innovation, efficiency, and sustainability.

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> "The adoption of SVI's innovative solutions underscores the industry's collective effort to minimise environmental impact while delivering superior performance.

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Growing demand for quality and training

S1E celebrate UV-CIPP Lining partnership, by announcing the first SAERTEX multiCom® installation training programme to be held in the UK.

The announcement of their new partnership was made on the 3rd of April 2023, now celebrating their first anniversary together they are pleased to announce their new installation training opportunity to take place in the UK.

Both S1E and SAERTEX multiCom® have been working closely together throughout the year helping supply various drainage contractors with the SAERTEX-LINER® MULTI Type S+ and new Type E liner for gravity applications. The liners have strong mechanical properties, with lower wall thicknesses, shorter curing times, higher pulling forces, as well as a service life of up to 100 years.

S1E has helped deliver SAERTEX-LINERS liners to sites and worked alongside national representative, Chris Watson, the Technical Sales Manager – UK & Ireland at SAERTEX multiCom® to provide onsite support and guidance with installs.

Due to continued growth of demand and interest in the SAERTEX-LINER®, the SAERTEX multiCampus will be in the UK for the first time, to deliver installation training in partnership with S1E Ltd.

The comprehensive training programme over two days at S1E Head Office will enable participants to learn more about the products and technologies required for trenchless pipeline rehabilitation with the SAERTEX-LINER® which will include practical installation training, theoretical expert knowledge, and a certification from SAERTEX multiCom, as they become a certified installer.

S1E-SmC-Training

"When we started this partnership with S1E, in addition to material supply, we were already planning further steps to implement a higher level of service and support," commented André Oberfeld, Area Manager Northern Europe & UK at SAERTEX multiCom®.

He continued, "We've seen great interest from contractors wanting to come to SAERTEX multiCom® for installation training, however due to contracted work and the logistics of sending whole lining teams to Germany, we believe this is the perfect opportunity with our S1E partners to bring the training to the UK and extend our service levels."

"We are glad to have found a strong partner in SAERTEX multiCom®. This new training partnership is great added value for our customers. Not only does it show we can supply high-quality, market-leading products to our CIPP Lining range, but also support our customers by bringing this advanced training programme to the UK, so customers can gain expert support more conveniently." says S1E General Manager, Terry Ingleby.

The new training opportunity hosted by S1E and SAERTEX multiCom® will improve the availability of SAERTEX-LINER installation training and enable expert knowledge to be passed on when purchasing materials. Both companies are continuing to work in partnership to provide products and services for the trenchless rehabilitation industry, that protect the environment and benefit customers.

UKSTT Member

Clancy bolsters senior team

Clancy has made two appointments to its senior leadership team in civil engineering and utilities sectors, strengthening the business' expertise in delivering civil engineering projects across water, energy, and transport infrastructure.

Daniel Tonkin

Simon Hyams

Working across major frameworks and alliances in energy and water, as well as supporting ground-breaking infrastructure programmes, the business is one of the UK's largest privately owned, independent contractors – employing, training, and supporting a workforce of over 3,000 people across the UK.

Daniel Tonkin has joined the business as operations director for Clancy's work for South West Water. The appointment follows Clancy's success in November 2023 in securing a place on South West Water's Capital Delivery Programme Tier 1 Delivery Partners framework, which will include the installation, refurbishment and renewal of pipelines, gravity mains and sewers, and pumping stations across Devon and Cornwall. Daniel joins with over 25 years of expertise in water and infrastructure, including most recently as contract director for Morrison Water Services.

Simon Hyams has been appointed as operations director at Clancy's major infrastructure division, which includes its work on projects for HS2 and wider transport networks as well as on new water and energy pipelines. Reporting to the executive team, Simon will work alongside Clancy's business development and operations teams to support the long-term growth of its civil engineering and major infrastructure division. He brings with him more than three decades of experience, including as managing director for major projects at Buckingham Group Contracting as well as senior roles at Energy Technologies Institute and at Galliford Try.

Matt Cannon, chief executive of Clancy, said: "We're pleased to welcome Daniel and Simon as we expand our senior team in a reflection of the strong growth in our civil engineering teams. As our partnership with South West Water gets underway and as significant capital investment is put in place to improve critical networks and transport across the UK, Daniel and Simon's expertise will provide extra firepower to our delivery.

> "Consistent investment in and development of our people, as well as a long-term approach to succession planning, are incredibly important to us as an independent, family-owned business.

UKSTT Member

ESE 6 - the next generation excavator

RSP showcases new ESE 6 model at European No-Dig. For over 30 years, this family-run company from Saalfeld in Thuringia has provided mobile and stationary solutions for non-contact suction excavation.


The New ESE 6
SLF SB 456

RSP, a company widely regarded as a pioneer in the alternative excavation and civil engineering industry, took the opportunity to profile its new ESE 6 suction excavator to an international audience at the recent European No-Dig event in Berlin, Germany.

The new ESE 6 is the next generation of the world's best-selling suction excavator and has had both a visual and technical makeover. Reduced fuel consumption, higher suction power and an extended working range are just some of the customer requirements that drove the development of the ESE 6, and which now make it even more efficient and cost effective.

RSP suction excavators have always been among the most innovative construction machines in the industry and the new ESE 6 is no exception," said Denis Büttner, Partnermanager at RSP GmbH. "As with previous models the ESE 6 is suitable for numerous applications and capable of withstanding the challenges presented by some of the toughest working environments. RSP is synonymous with reliability, innovation, and strength and thanks to our three production sites in Thuringia, Germany the latest model in this exciting range is now available for customers to order."

Further information on the ESE 6, areas of application and other customised suction solutions can be found at www.rsp.com

UKSTT Member


SLF SB 456

The PJA issues new design guidance for CDM duty holders

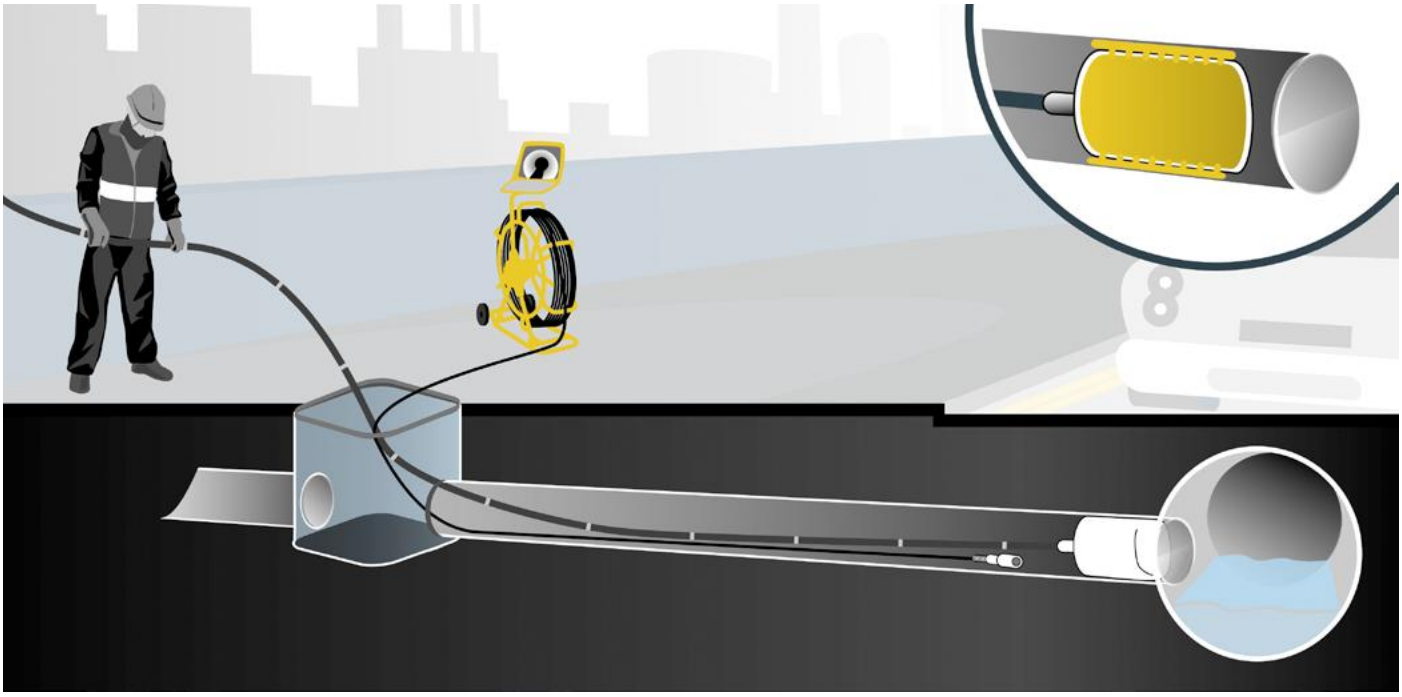
The Pipe Jacking Association has released an update to its 'Tunnelling & pipejacking guidance for designers', which is now titled 'Pipejacking design guidance for CDM duty holders'. The document is intended to inform designers on the basic parameters to consider when designing schemes. The accompanying notes section provides detail on interpretation, whilst the table gives a visual representation as to what is acceptable and possible at various sizes. When read alongside the notes the document provides detail on the risks that need to be considered by the CDM duty holder.

The PJA chairman Sean Martin said: "The original guidance was published a number of years ago and has been a key source document to the trenchless industry - predominantly in the UK, but also as a reference document across the world. The latest version reflects changes in UK regulation and equipment capabilities and supports the association's dedication to providing best practice guidance for the cost effective and environmentally sensitive installation of underground utility services."

The new document along with other free to access resources can be viewed at https://www.pipejacking.org/publications

Steve Vick International introduces RATBLOCK™ and DRAINBLOCK BAG™

In the dynamic realm of trenchless technology innovation such as that showcased at European No-Dig serves as the cornerstone for addressing the ever-evolving challenges of the underground utilities sector.



Steve Vick's recent collaboration with S.F.L. International A/S, their longstanding distributor, at the European No-Dig event in Berlin, showcased their dedication to innovative trenchless technologies. One product that gained significant attention was their RATBLOCK™ system which leverages their patented FOAMBAG™ technology and is engineered as an effective, permanent solution to combat vermin intrusion into disused drains and sewers. Setting RATBLOCK™ apart is not just its efficacy but also its embodiment of decades-long expertise. Encapsulated within a self-actuating polyurethane foam sachet, RATBLOCK™ ensures a water, odour, and gas-tight seal within pipes. The inclusion of articulated steel plate membranes, further fortifies its effectiveness, providing unmatched reliability in preventing vermin passage.

Alongside RATBLOCK™, Steve Vick's DRAINBLOCK BAG™ offers a versatile solution for sealing off disused laterals remotely and without excavation. Refined through their established FOAMBAG™ technique, DRAINBLOCK BAG™ exemplifies an enduring commitment to innovation.

A standout feature of DRAINBLOCK BAG™ is its remote positioning capability, allowing installation up to 20 meters from the point of access. This eliminates the need for disruptive excavation, particularly beneficial in congested urban areas and sensitive locations.

Furthermore, DRAINBLOCK BAG™ goes beyond pipe sealing, offering comprehensive protection. By preventing groundwater ingress, blocking odours, and deterring vermin movement, it ensures the integrity of sewer systems while mitigating any environmental risks.

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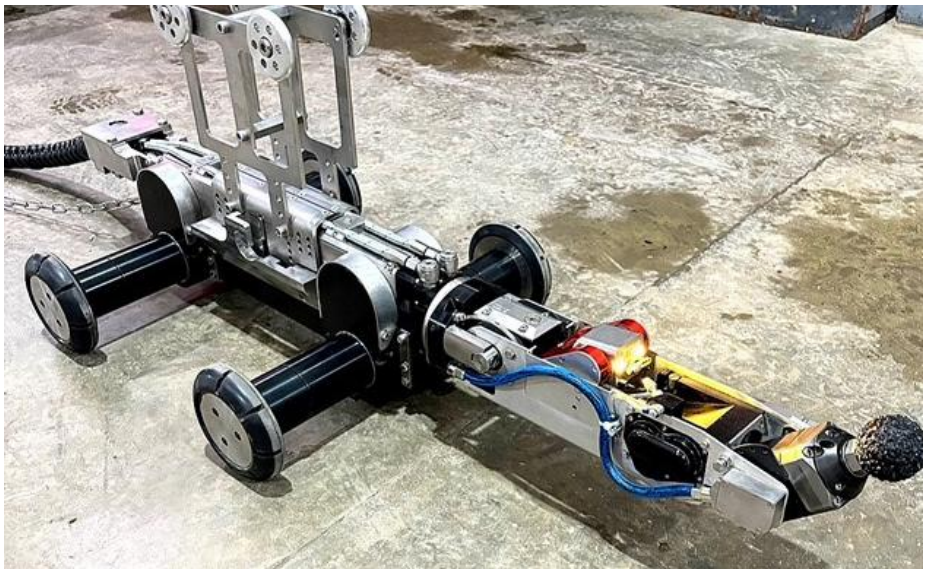

Drainwizards invests in "UK first"

Sustained business growth and increased customer demand has seen Drainwizards add a high specification DRIVEplus cutting system from IMS Robotics to its offering.

Based in Swindon, Drainwizards provide drain clearance and No-Dig pipeline repair services to customers across Berkshire, Hampshire, and Wiltshire. In doing so, they have earned a reputation for providing the highest levels of customer service to their loyal client base.

Following a comprehensive review of the market, and the latest robotic cutting innovations on offer, Drainwizards' team took the decision to contact IMS Robotics UK Ltd for their advice and guidance.

After discussing their requirements, it was determined that the latest generation IMS Group DRIVEplus mainline cutter, with cutting capabilities up to DN600, would be the perfect solution. The ability to equip the DRIVEplus carriage with two different sized air motors would allow Drainwizards to meet their cutting requirements and perfectly match their upcoming schedule of works.

John Rose, Sales Manager of IMS Robotics UK said "As we are able to offer a complete turnkey solution to meet our clients' demands it was proposed to the Drainwizards team that we showcased our very own sale stock "UK First" high specification DRIVEplus system. This had recently been professionally fitted out into a vehicle complete with an onboard PTO system. Upon demonstrating the system and the vehicle fit-out they were so impressed that a deal was concluded there and then for that particular asset. We are delighted to welcome Drainwizards into the IMS Group family and myself and all of the IMS Robotics UK team wish Dean Stephenson and the team every success with their significant investment."
Dean Stephenson, Director of Drainwizards 24/7 Ltd concluded: "After doing some research we contacted IMS Robotics UK Ltd as they have a broad range of robotic cutters in their range and they also came highly recommended to us. John Rose demonstrated the DRIVEplus vehicle to us and we were impressed not only with the system but also by John's in-depth knowledge of the products. Upon delivery John delivered a great training program to myself and my team and we have completed multiple cutting projects with the system already. We are very happy with our new cutting system and the service that we have received from John and the IMS team."

> "John Rose demonstrated the DRIVEplus vehicle to us and we were impressed not only with the system but also by John's in-depth knowledge of the products.

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Ditch Witch – Virtually limitless

How Ditch Witch is transforming training in underground construction

By Nicholas Smith, product trainer, Ditch Witch

It's no secret that contractors can more safely and efficiently complete underground construction projects when their operators have a strong grasp of the equipment they use. But today, as contractors face rapidly increasing demand, and challenges like more compact urban jobsites, complex underground networks and an ongoing workforce shortage, there is even greater pressure to ensure that operators are ready for the job.

Original equipment manufacturers (OEMs) know this and are taking actions such as developing innovative and adaptable training solutions that engage the next generation of workers. With flexible training options already in place – such as online training platforms, simulators, instructor-led courses, and hands-on job training – OEMs are turning to technology to help prepare operators for the demands of the jobsite. And one technology

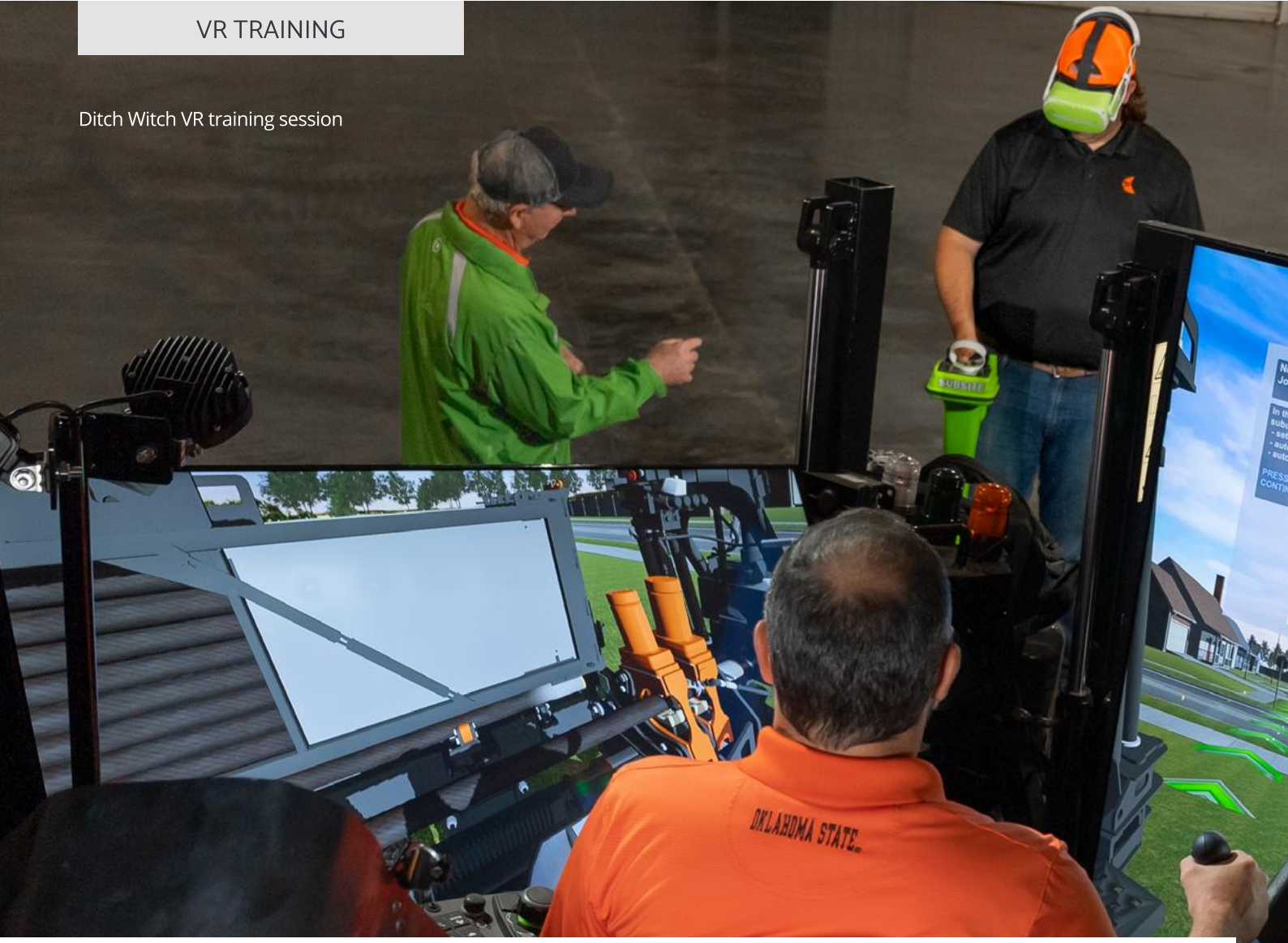
in particular that is bringing training into a new era is virtual reality (VR).

VR provides an innovative way to engage and upskill new workers. By simulating 3D underground environments, VR allows trainees to gain hands-on experience safely and efficiently. Using VR, trainees can apply textbook knowledge in lifelike scenarios before ever stepping foot on a jobsite and operating expensive and often intricate machinery.

From operating Horizontal Directional Drilling (HDD) equipment to navigating complex jobsite conditions, operators can use VR to gain the skills, muscle memory and confidence they need for real-world jobs.

Build knowledge in a safe environment

OEMs like Ditch Witch and Subsite have been using simulation in training for years. For example, Ditch Witch has a 2D HDD simulator curriculum that is divided into three progressive lessons. The first lesson introduces the basics of operating a directional drill in an open space, focusing on pipe handling and drilling. The second lesson focuses on navigating tighter spaces in residential areas, emphasising utility awareness. The third lesson simulates drilling under a bustling four-lane highway and teaches trainees back-reaming best practices. >



Ditch Witch VR training session

However, today's underground construction industry, with its diverse skill requirements and demanding backlog of work, needs a more comprehensive training solution that equips contractors with the necessary expertise to operate a safe jobsite.

Operating HDD equipment and their guidance systems can be daunting and intimidating for beginners. Incorporating VR into training adds a heightened sense of realism and immersion, allowing trainees to practice complex tasks while eliminating the fear of costly mistakes. This can save contractors from potentially significant equipment downtime and project delays. And it can give workers a broad range of machine and tool experiences that they would typically encounter day-to-day on the jobsite.

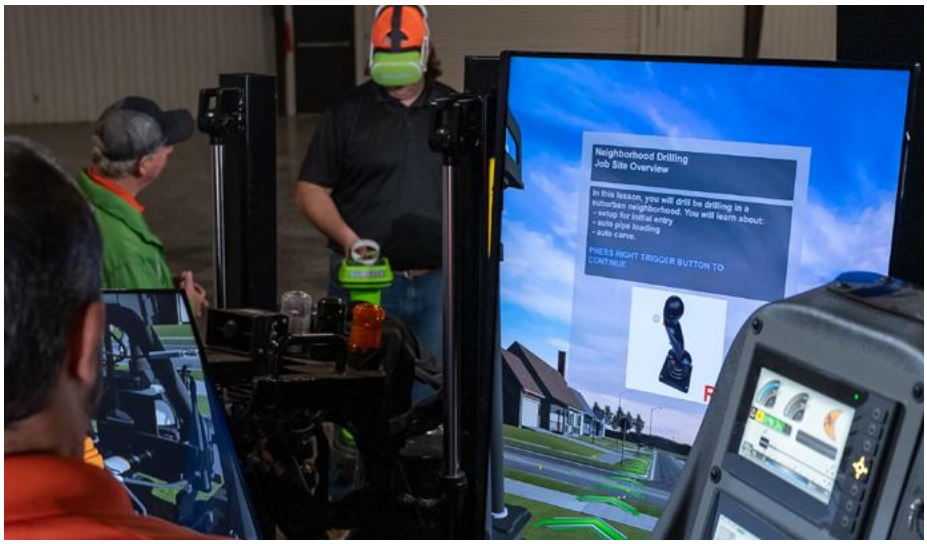
Additionally, with safety top of mind, VR training alleviates worries about injuries or damaging valuable machinery and existing underground infrastructure during initial attempts. In the virtual world, mistakes become learning opportunities instead of costly equipment damage or jobsite catastrophes. Trainees can hone their skills in precise machine operation and techniques within a safe, simulated environment before they transition to real-world tasks.

Gamify training for young workers

VR gives the underground construction industry a powerful tool to engage with, and appeal to, the highly sought after next generation of workers.

Immersive and interactive, VR resonates with young professionals who grew up in a world of video games, including VR gaming. The technology also offers digital-first experiences that appeal to tech-savvy professionals. This modern approach to training can help attract new operators to help fill the talent pipeline.

“VR gives the underground construction industry a powerful tool to engage with, and appeal to, the highly sought after next generation of workers.



Gamification transforms training from routine to revolutionary. Trainees are immersed in 3D underground environments where they can see first-hand the interplay of utilities and drilling operations. Through VR training with Subsite's Marksman Guidance System, operators can virtually see beneath the ground to assist navigation through utility-laden areas in today's neighbourhood rights of way. This not only equips them with practical skills but also adds fun into their learning journey.

However, VR is not a catch-all solution. Instructor-led courses bridge the gap between virtual learning and practical application, helping get VR-trained operators jobsite-ready. The optimal use of VR lies within a blended training approach, which complements traditional methods, preparing a new generation of professionals for the demands of the real world.

Additionally, VR is not just for the novice. Ongoing employee development also benefits from VR's versatility. Seasoned operators can leverage VR to refresh their skills or cross-train on new equipment, maximising jobsite efficiencies. >

Strengthen skillsets with virtual lessons

Ditch Witch introduced its latest training platform for HDD guidance in 2022 and has developed multiple lessons for it. Designed in a trailer to make VR training accessible and mobile for the OEM, the lessons mimic the hands-on work of underground construction. The Subsite Marksman VR lessons coupled with Ditch Witch's HDD simulator feature actual drilling console controls and provide operators with a diverse skill set.

While drilling is traditionally easier to teach, tracking the drill head and helping guide the driller presents a unique set of challenges. The Subsite Marksman VR tackles this by visualising underground utilities and equipment working in tandem, enhancing training effectiveness.

HDD guidance training is split into two lessons: the first covers equipment setup and calibration of a tracker, which has proven to be one of the most difficult jobsite tasks. The second focuses on beacon tracking and its critical role in underground construction and directional drilling. An upcoming third lesson will teach operators how to run a drill and tracker simultaneously, mimicking a real-world application to set up trainees for success.

The training blends text instruction and audio instructions and is currently available in Spanish, English and German. Operators can learn more about these trainings by reaching out to their local Ditch Witch dealer.

Transforming training and more

Today, VR is bringing tremendous value to underground construction by serving as a compelling recruitment tool and a means for operators to build and refine their skills. Still, this is only scratching the surface in terms of what the technology can do.

OEMs will continue to broaden VR's applications, integrating diverse equipment to streamline training, attract new talent, and improve jobsite safety. As VR becomes more prevalent, it has the potential to bridge the skills gap, mitigate workforce shortages and shape the underground construction industry of the future.

Michels Trenchless installing HOBAS pipe in San Diego

Large diameter sewer rehabilitation

When it comes to sewer rehabilitation, trenchless technologies have continued to develop and improve over the past 40 years.

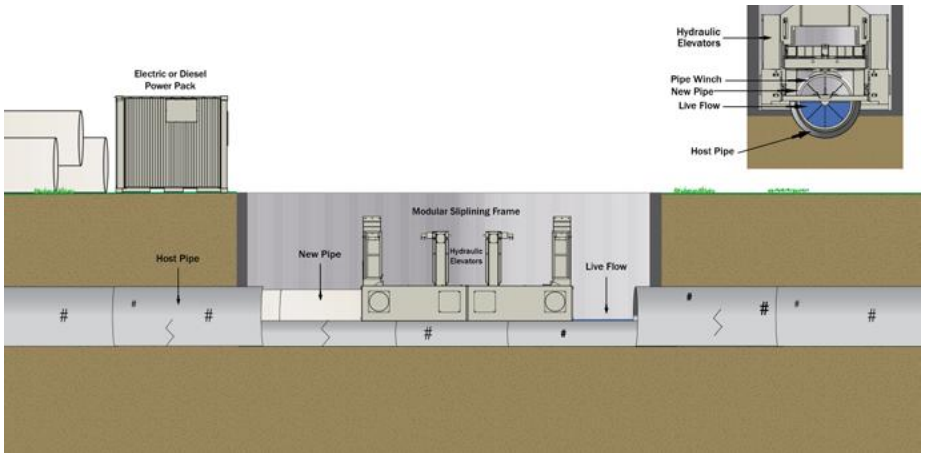
By Jason Holden Vice President, CRO of Akkerman

While Cured-in-Place-Pipe (CIPP) continues to be applied with the greatest success for rehabilitation of small diameter sewers, new advances in sliplining technology benefit sewer district owners facing challenges with deteriorating, large diameter sewer infrastructure. The best asset is to be aware of all current technologies available so you're not overlooking an opportunity to implement the most suitable method for your project. With this knowledge, the most effective combination of repair, rehab, or replacement techniques can be implemented to meet the objectives of the project.

A conditional assessment of the existing infrastructure is critical before considering a rehabilitation technique. The assessment may lead to decisions where a variety of approaches are applicable throughout the sewer network. Some of the factors to consider include:

Host pipe

The diameter, age, shape, material type, depth, slope, alignment, and number of lateral connections are just some of the major characteristics that should be known about the existing structure.



Public right-of-ways

Existing sewer lines typically lie underneath above ground public and private infrastructure such as roads, sidewalks, railroads, etc. Existing services may need to be suspended or bypassed requiring extensive preplanning.

Ground and water conditions

Rehabilitation is used to mitigate water infiltration, structural integrity, flow conditions, or any combination of these factors.

Large diameter lines are often the most difficult and costly infrastructure to take “off-line” to perform restoration services. Equipment manufacturers, pipe suppliers and trenchless contractors have worked vigorously to develop sliplining solutions to rehabilitate these systems safely and efficiently.

These efforts have allowed sliplining projects to be performed at diameters above 110in (2.8m) and distances exceeding 5,000ft (1.5km) with minimal to no bypass pumping.

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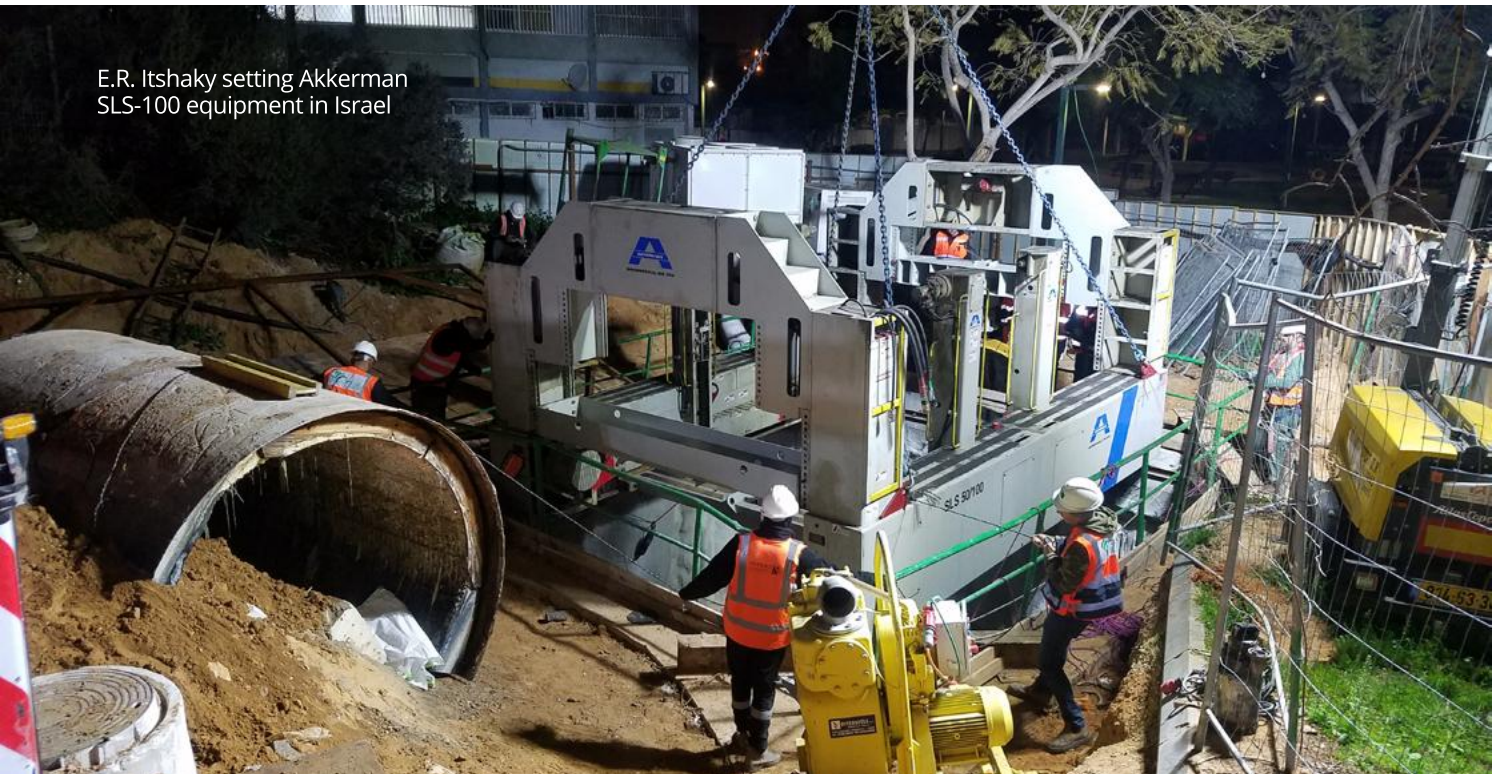
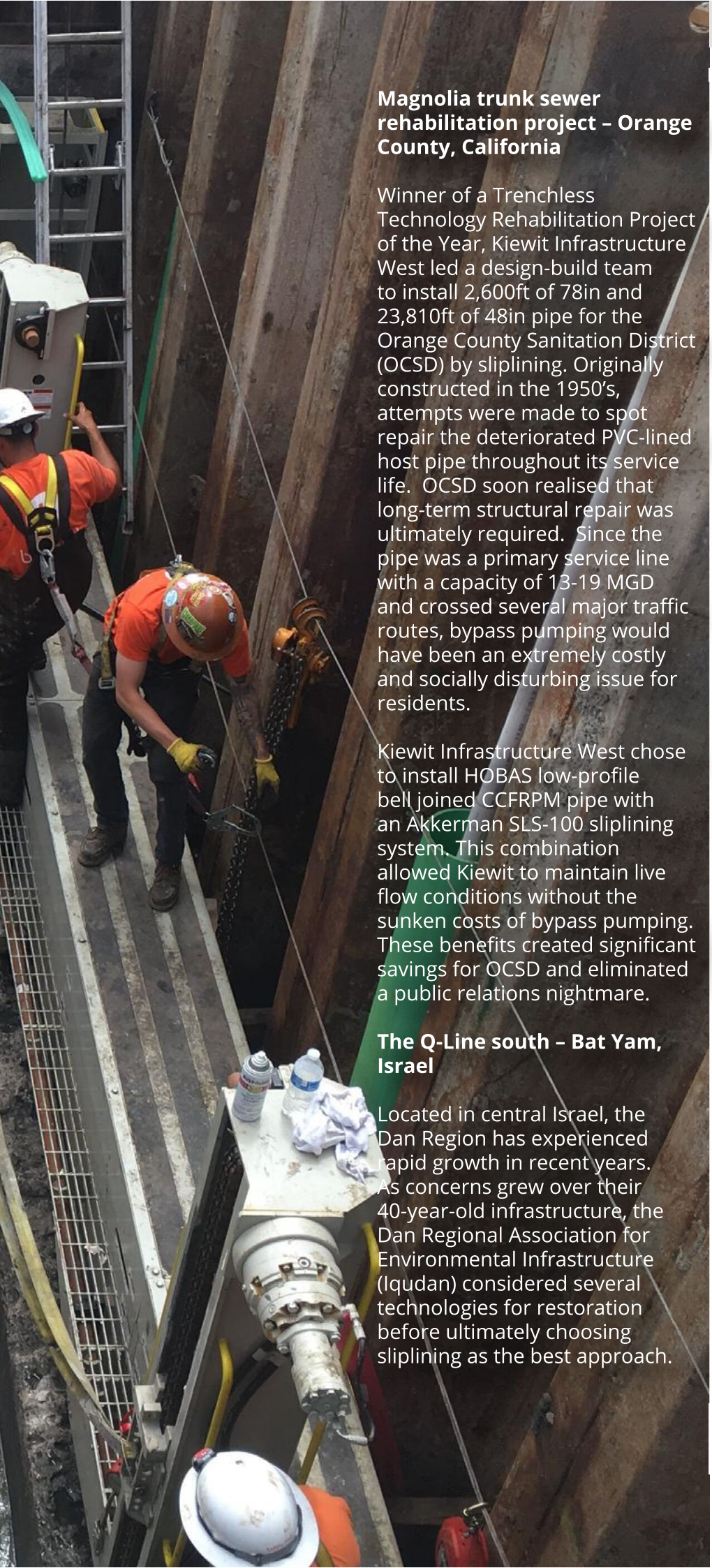


E.R. Itshaky setting Akkerman SLS-100 equipment in Israel



Magnolia trunk sewer rehabilitation project – Orange County, California

Winner of a Trenchless Technology Rehabilitation Project of the Year, Kiewit Infrastructure West led a design-build team to install 2,600ft of 78in and 23,810ft of 48in pipe for the Orange County Sanitation District (OCSD) by sliplining. Originally constructed in the 1950's, attempts were made to spot repair the deteriorated PVC-lined host pipe throughout its service life. OCSD soon realised that long-term structural repair was ultimately required. Since the pipe was a primary service line with a capacity of 13-19 MGD and crossed several major traffic routes, bypass pumping would have been an extremely costly and socially disturbing issue for residents.

Kiewit Infrastructure West chose to install HOBAS low-profile bell joined CCFRPM pipe with an Akkerman SLS-100 sliplining system. This combination allowed Kiewit to maintain live flow conditions without the sunken costs of bypass pumping. These benefits created significant savings for OCSD and eliminated a public relations nightmare.

The Q-Line south – Bat Yam, Israel

Located in central Israel, the Dan Region has experienced rapid growth in recent years. As concerns grew over their 40-year-old infrastructure, the Dan Regional Association for Environmental Infrastructure (Iqudan) considered several technologies for restoration before ultimately choosing sliplining as the best approach.

Serving the region for over 60 years, E.R. Itshaky was granted the project and selected an Akkerman SLS-100 sliplining system to install multiple diameters up to 2,000mm of GRP over the 4.6km span.

The longest section of the rehab project was 765m and included a 150m radius curve. Shorter lengths of GRP were used to navigate the curvature in the alignment, while the efficiency of the equipment allowed crews to install over 100m of pipe per shift.

3rd street sewer interceptor – Oakland, California

Originally constructed in the 1950's, the South Interceptor Sewer was a 105in arch shaped reinforced concrete sewer servicing the East San Francisco Bay area. Earlier attempts had been made to rehabilitate portions of the line in 2003 with a PVC liner, however the process proved too time consuming for required service disruptions. Mladin Buntich Construction Company proposed sliplining to the East Bay Municipal Utility District as bypass pumping was cost prohibitive and flow capacity was critical. The sliplining process also provided structural integrity to the heavily corroded sewer without service disruptions to the public.

Mladin Buntich Construction used an Akkerman SLS-100 sliplining system to install the 96in HOBAS totaling 4,400lf. Sliplining was performed with no bypass pumping and was completed ahead of schedule.

To learn more about recent sliplining projects, please visit Akkerman's website at www.akkerman.com

Geopolymers and wastewater technology

Geopolymers - a milestone in the use of resilient materials for wastewater technology.

By Dipl.-Ing. Jörg Brunecker Managing Director of Swietelsky Faber GmbH Kanalsanierung

Dipl.-Ing. Jörg Brunecker

Sustainability awareness also plays a key role today and will continue to do so in the future for construction products used in sewer renovation. Due to their energy-intensive production and enormous CO^2 release, traditional cement products are now even classified as climate killers by experts.

This is because, depending on the cement used, the enormous amount of CO^2 released can only be partially absorbed again. The construction industry therefore urgently needs solutions. Anyone looking into this cannot avoid the term geopolymer, but what is a geopolymer, and is it also used in the wastewater network?

Swietelsky Faber GmbH Kanalsanierung has found what it was looking for in its search for geopolymers for sewers in America and is now launching the GeoKrete system for the trenchless lining of sewer pipes and structures exclusively in the German-speaking market. Geopolymers are inorganic, non-hydraulic binders. In contrast to polymer concrete, they can be used to produce geopolymers with a drastically reduced proportion of cement. The play on words “geo” symbolically refers to the three-dimensional polymer cross-linking structure of the building material, which results in outstanding material strength and high resistance to temperature and chemicals. under external pressure. The reason for this was insufficient fabrication of the liner, which took place without static proof. It was therefore not a Class A liner and consequently received the overall rating INADEQUATE, regardless of performance against all other criteria.

Basically, geopolymers are two-component systems that contain a reactive silicon and aluminum oxide component as well as a basic activation solution of alkali hydroxides. As with classic cement, the solid component consists of natural minerals. The concrete-like strength of the inorganic polymer is then achieved by mixing the ground solid mixture with the so-called activation solution.

An innovation from Vortex

Geopolymers already appeared on the market in the 1970s. However, the breakthrough in the classic construction sector has not yet been achieved due to the price disadvantage compared to cements and the two-component processing. One of Vortex’s innovations is that they were able to bypass the two-component variant to create a single-component product that is soluble in water on the construction site by adding powdered aluminosilicate.

Parameter	*All results presented for repair of a 0.0046 ft length of 96” concrete pipe of 1.5” thickness*			
	GeoKrete® geopolymer based mortar	Portland cement-based mortar	Calcium aluminate cement-based mortar	Cured-in-place pipe (CIPP)
Carbon Footprint (kg CO_2e)	0.15	0.32	0.38	3.1
% Reduction in Carbon Footprint for GeoKrete® compared to baseline products	-	51%	59%	95%


GeoKrete in use for the classic lining of sewer manholes in Charlotte South Carolina

This means that the GeoKrete geopolymer can now simply be mixed with water and processed. Unlike conventional cements, which bind additives through hydration, GeoKrete simply uses water as a catalyst to trigger a chemical reaction. This reaction results in very high early and long-term strength, exceptional binding properties and ideal conditions for precise mixing, pumping and spraying on the construction site.

How Geopolymerisation works

In contrast to polymer concrete, where only synthetic resins are added to the cement products as a binder, the way geopolymers work is very different. The term geopolymerisation refers to the chemical reaction of geopolymeric materials, and the reaction mechanism initially involves the nucleophilic attack of hydroxide ions on the partially positively charged aluminium compounds and silicon crystals of the material. This leads to the breakage of the silica and aluminum oxide chains. At the same time, oligomer structures are formed, which polymerise to form a three-dimensional chain scaffold. The hydroxide ions undergo multiple chain scission.

Due to their structure, kaolinite and metakaolin dissolve in layers and release adsorbed water, which significantly reduces the viscosity of the not yet hardened geopolymer. Cement is still the most commonly used building material in the world, but geopolymers can quickly overtake it for special applications. This is because they also have technical advantages: they are more heat-resistant than concrete - the bound water in concrete builds up vapor pressure in the event of fire, which leads to cracks or spalling. And they are more resistant to chemicals, as they do not contain lime, which dissolves on contact with acids and aggressive substances.

After just one day, geopolymers develop compressive strengths similar to high-strength concrete. They can be stripped quickly and are suitable for the mass production of prefabricated parts.

Various manufacturers are currently experimenting with chemical-resistant wastewater pipes made from geopolymers. Although they are currently still more expensive than cement or concrete pipes... the sustainability and durability is a very good argument for the use of geopolymer pipes.

For trenchless sewer rehabilitation, the employees of Swietelsky Faber GmbH Kanalsanierung are convinced that geopolymers are ideally suited for use in manhole rehabilitation, the lining of accessible and non-accessible sewers and special structures of all kinds. For this reason, Swietelsky Faber GmbH is initially offering sewer rehabilitation with GeoKrete from Vortex exclusively in German-speaking countries. The first projects are already being planned and we will be happy to report back.


GeoKrete in use for the classic lining with the spray method in the DN 3000mm sewer in Phoenix Arizona

Enormous wall thickness requires rapid installation

In Offenbach an der Queich (GER), several DN 190 and DN 1200 sewers were rehabilitated in several construction phases in the middle of a residential area. The special feature of this project was the wall thickness of the IMPREG liner DN 1200, which was an exceptional 25.4 mm.

Feeding the IMPREG liner from the refrigerated truck via a conveyor belt

Placement holder insertion of the liner with insertion packer

The stormwater sewer in old pipe condition IIIa lies under a footpath and access roads to private properties. This led the municipality of Offenbach an der Queich, represented by the technical staff of Department 5 Municipal Operations and the engineering firm Dilger GmbH, to opt for a trenchless rehabilitation method using UV pipe lining. This did not restrict the mobility of local residents.

Stability against high external pressure

The reason for the high wall thickness of the GRP pipe liner is a different one: "The compaction during the renovation of the adjacent road creates a very high external pressure that the liner has to withstand," says Michael Carius from the engineering firm Dilger. >

Working in the reusable airlock

Packers set in the narrow excavation pit

Creating optimum conditions for liner installation

A short storage time of only approximately 12 hours works in the refrigerated truck and additional prophylactic sun protection when installing the liner were necessary precautions. As this liner was produced with peroxides (thermal initiators) and already starts to react at a temperature of 24 °C, speed and perfect site preparation were essential. “Even small rays of sunlight can start the curing process, which is why we had to hurry a little when pulling in the liner,” explains crew leader René Nickel from Kuchler GmbH Kanalsanierung. With the help of a conveyor belt, the liner could be installed directly from the refrigerated truck using a construction road.

Fast and efficient

Despite the high wall thickness, the renovation only took one day per construction section. The IMPREG liner DN 1200, WD 25.4 mm, length 73.7 m, had a weight of 13.8 tons. With flexible intake packers and a Prokasro Power UV system with 3 x 12,000 W (36,000 W total output), the rehabilitation was carried out professionally and as planned.

Concentrated expertise and a well-coordinated team led by Oliver Vorlop, Sascha Faul (both IMPREG GmbH) and the UV teams from Kuchler were at work here under the direction of site manager Christopher Gropp and managing director Andreas Geiß. The construction site was successfully completed thanks to the great commitment of everyone involved, many years of experience, and good teamwork.

Contact:
Jack Talbott, Technical Sales
Phone +44 7740 197 127
e-Mail jtalbott@impreg.com

Completed rehabilitation of the rainwater sewer

Renovation of 50 year old pipes in Paris

With more than 3000m of BRAWOLINER® 3D DN 100-150 and 4 tonnes of BRAWO® resin, the company AFS Chemisage renovated the vertical wastewater pipes of the Pullmann Hotel in Paris.

Pullmann Hotel

The hotel building and the pipelines were from the 1970s. The vertical wastewater pipes were made of cast iron and the building had to undergo a major renovation that would take four years. Originally, all the wastewater pipes were to be replaced. However, during the renovation, the replacement of the pipes was cancelled due to the high costs and time involved, and after flooding on some floors due to damaged pipes, the work was re-evaluated.

The customer chose the relining method option due to time and costs. The challenge was the very short time frame of only five weeks, to repair 42 vertical cast iron DN 125 down pipes with the lengths of 70m and 64m each. We needed four people to install the liners and ten people to re-open the connections.

"The work was cleaning, relining, re-opening connections and reconnecting, and because of the big job site we had a lot of equipment and people, so the tight supply demands had to be delivered just in time on the job site," Yaker Ait from BRAWO SYSTEMS described. "We managed the supply and service of this big volume in spite of the extreme length of the liner just as planned."

Impregnation of the 70 metres of BRAWOLINER®

Inversionstrommel

BRAWOLINER® 3D DN 100-150

The BRAWOLINER® 3D was used in this project due to its extraordinary properties. As it was especially developed for large dimensional changes or several jumps in dimension in succession, the BRAWOLINER® 3D could be used in widths from DN 70 to DN 400. The seamlessly knitted liner adapts optimally to any pipe diameter and impresses with an excellent installation result.
The extremely flexible polyester loop construction allows for enormous lateral expansion. This makes the BRAWOLINER® 3D an optimal rehabilitation solution for difficult wastewater systems.
The BRAWOLINER® 3D was able to demonstrate these unique properties in the project. After the installation work, the liners fitted perfectly and crease-free to the old pipes in the Pullmann Hotel.

Fast hardening due to steam curing

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

DrainIT-Team Wet Out

A whole island rehabilitated by BRAWOLINER®

S1E Ltd supply and provide onsite support alongside BRAWO SYSTEMS GmbH, as Drain It Ltd tackle the Jersey drainage system.

Drain It Ltd are drainage specialists in Jersey, with 34 years of industry experience performing both domestic and commercial plumbing and drainage work. Over the course of several years, Drain It has conducted extensive surveys on the island of Jersey, alongside a major project with the Government of Jersey.

The surveys carried out by Drain It primarily highlighted issues relating to water infiltration and the need for an overall improvement to the island's drainage system. With long lengths of lengths of pipeline in various locations across the island needing to be repaired, this project needed to be done effectively and with minimal disruption – resulting in the need for Cured-In-Place Pipe (CIPP) lining methods to be used.

Due to the need of future proofing the islands drainage system, the Government of Jersey mandated that any drainage liner installed must be CIPP leak tightness tested as per the Water Research Centre's CP308 standard.

Drain It selected liner from BRAWO® SYSTEMS, their BRAWOLINER® XT. An extra strong liner that has a higher

> "Due to the requirements from Government of Jersey we needed to ensure we were working with accredited and quality products. We'd worked with BRAWO® products before, and they have a good and trusted reputation within the industry.

stiffness whilst still maintaining its unique flexibility that comes with the BRAWOLINER® range. The construction of the BRAWOLINER® XT make it compliant with the WRc's CP308 leak tightness test to meet the contractual obligations with the Government of Jersey.

Collaboratively with S1E Ltd, UK specialist suppliers in trenchless technology and UK partners and distributor with BRAWO® SYSTEMS, Drain It was supplied with various lengths of the BRAWOLINER® XT liner and their BRAWO® III resins. S1E also provided onsite support from Andrew Sapnik, Area Sales Manager at S1E and technical support from Thomas Matthias, from BRAWO SYSTEMS GmbH.

On site in Jersey for five days, Thomas and Andrew assessed Drain Its liner installation practices and provided recommendations for enhancing their procedures. Throughout the week both representatives were on hand as Drain It installed liners ranging between 150mm and 300mm in diameter with lengths spanning for 50m to 150m. >

DrainIT-Brawo Resins

Carl Burrell, Managing Director at Drain It Ltd, commented: "We started working with the Government of Jersey sewer rehab project in 2016, initially surveying and assessing the island's drainage system. Due to the requirements from Government of Jersey we needed to ensure we were working with accredited and quality products. We'd worked with BRAWO® products before, and they have a good and trusted reputation within the industry."

He continued: "We appreciate both the team from S1E and BRAWO® SYSTEMS making the time and effort to join us on site and provide support during the installation. It's so valuable to have that support on such a large project like this and provides us with confidence we can rely on our suppliers."

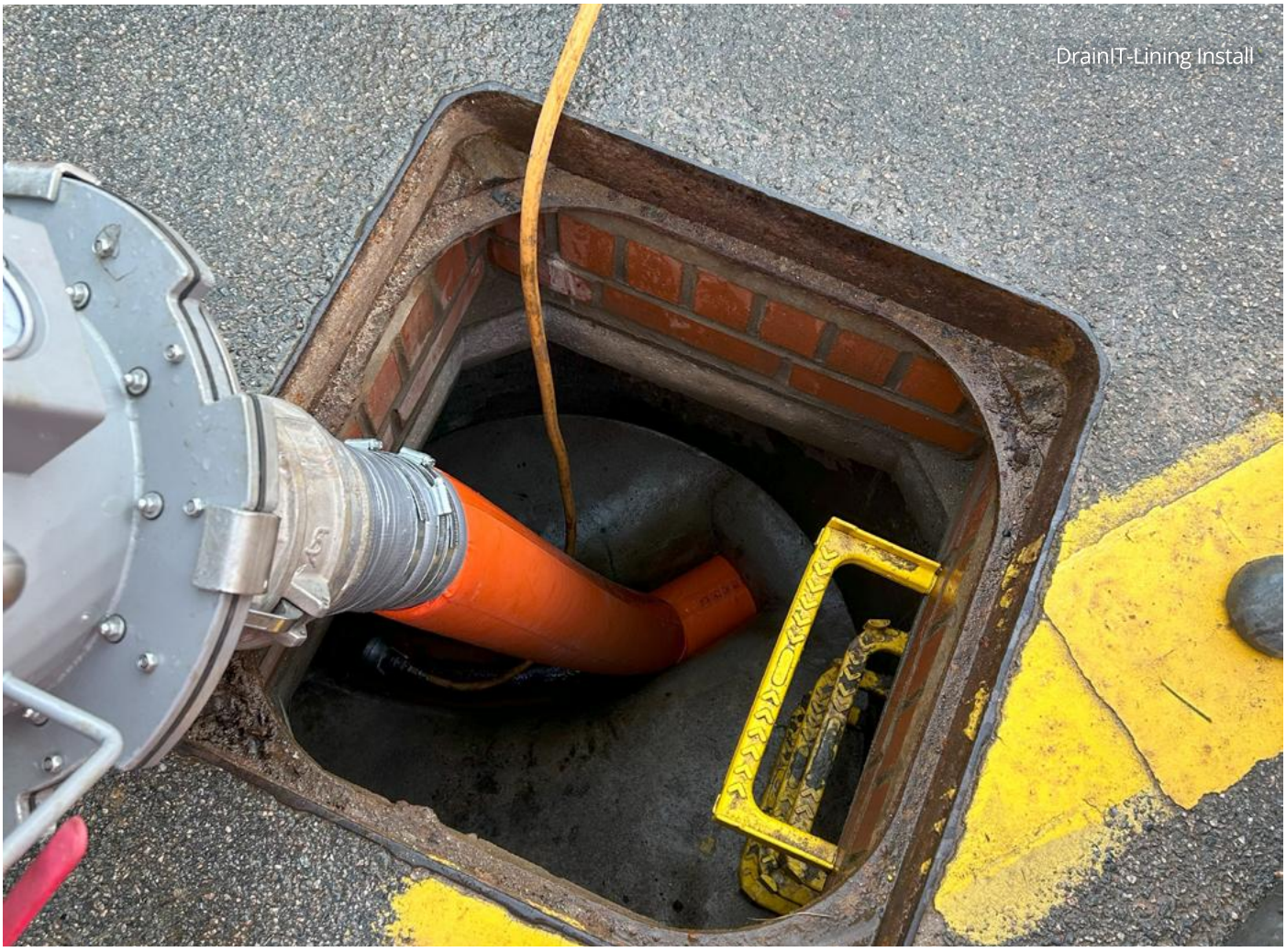
Water infiltration is a common challenge in the drainage industry, but using CIPP installation methods, alongside the reliable and accredited liners from the BRAWOLINER® range, Drain It were able to successfully renovate and rehabilitate long lengths of repair, all above ground and with minimal disruption to improve the Jersey's drainage systems structure and flow capacity.

Hakim Dehimi, International Sales Director at BRAWO® SYSTEMS, said: "BRAWO SYSTEMS GmbH, has the knowledge of 25 years' experience in rehabilitation of inhouse and domestic sewers. We are very proud we can join with S1E and provide onsite support to users. We are looking forward to continuing to work in partnership with our partners in UK."

Andrew Sapnik, Area Sales Manager at S1E, said: "It's been great to join the Drain It team out in Jersey to help with this project. At S1E we are committed to not only providing high-quality products from reputable manufacturers, but also providing excellent customer service, so, it was important to us to ensure we can dedicate the time and key resources to support our customers."

The current contract with Drain It Ltd for this project is scheduled to continue until April 2024, with numerous additional contracts anticipated for upcoming rehabilitation projects in other areas.

UKSTT Member



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Wastewater pressure main realignment

kwik-ZIP® HDXT-103 spacers were installed to facilitate the sliplining of a MSCL Wastewater pressure main into a RC Jacking pipe running under a rail line for the Gosnells Main Pumping Station Wastewater Pressure Main Realignment project.

HDXT-103 courtesy of Rob Carr Pty Ltd

The simple and efficient installation process does not require any special tools nor is there any requirement to pre-wrap pipe.

kwik-ZIP® spacers have no metal parts and are made from Kwik-ZIP's engineered thermoplastic blend with high flexural strength, high temperature resistance, low co-efficient of friction, abrasion resistance and outstanding chemical resistance.

Integrated rubber grip pads under collars to prevent slippage. kwik-ZIP® spacers load sharing suspension system allows heavy loads to be shared across multiple runners reducing point loading and increasing the overall load capacity of the spacer. >

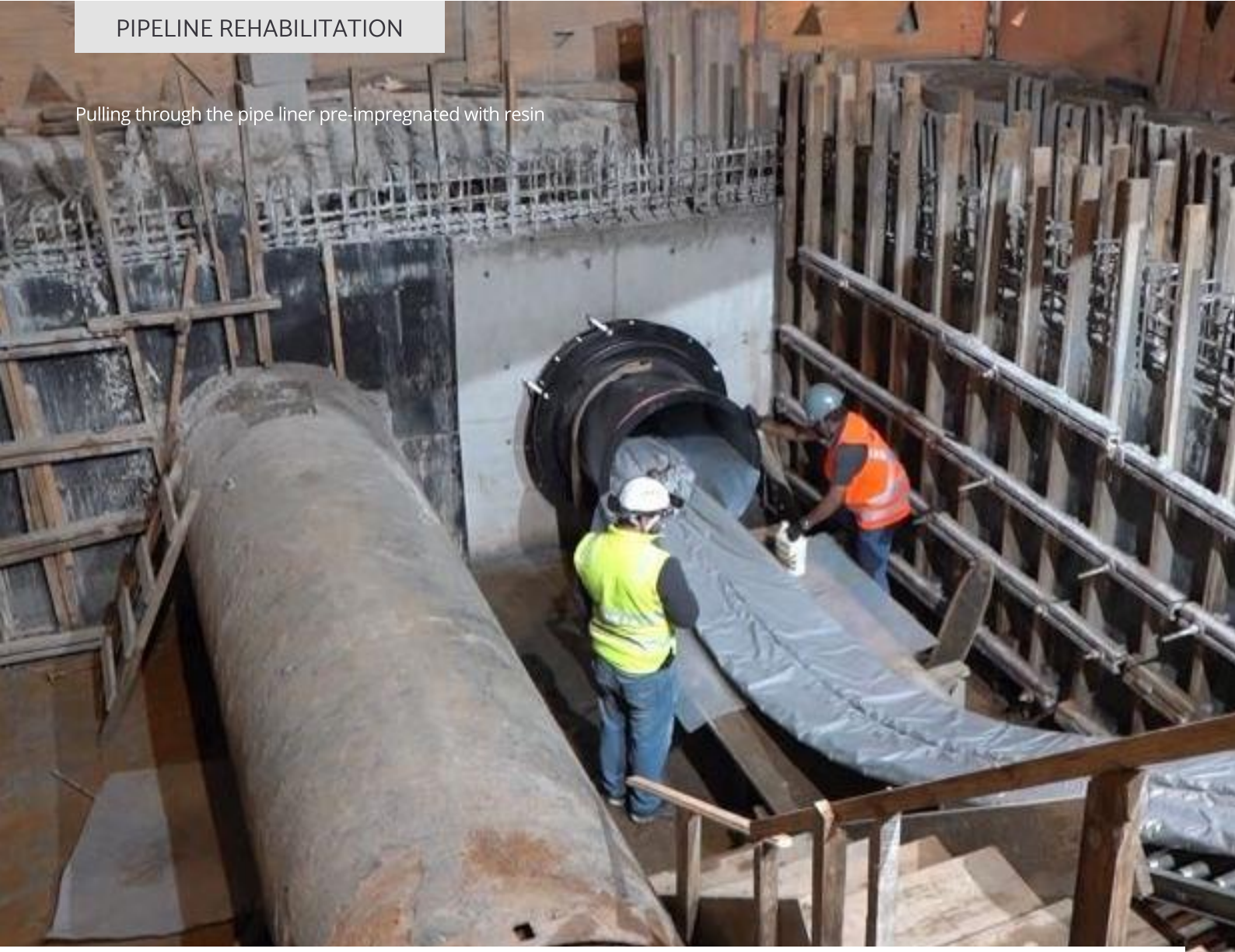
"The MSCL pipes insertion is making good progress despite a challenging environment, with production efficiency notably enhanced by the simplicity of installation of the Kwik-ZIP spacers."

kwik-ZIP®'s large range of spacers caters for a wide range of ID / OD combinations as well as providing flexibility to deal with project alterations.

All kwik-ZIP® spacers are designed to meet the requirements of WSAA Product Spec # 324 (Casing Spacers).

"The MSCL pipes insertion is making good progress despite a challenging environment, with production efficiency notably enhanced by the simplicity of installation of the kwik-ZIP spacers." Marie Piette, Project Manager, Rob Carr Pty Ltd.

For further information on kwik-ZIP® products and to discuss your specific project requirements please contact us at sales@kwikzip.com



Pulling through the pipe liner pre-impregnated with resin

Trenchless by night

Over 500m of potable water supply line has been rehabilitated in São Paulo using the UV-CIPP process.

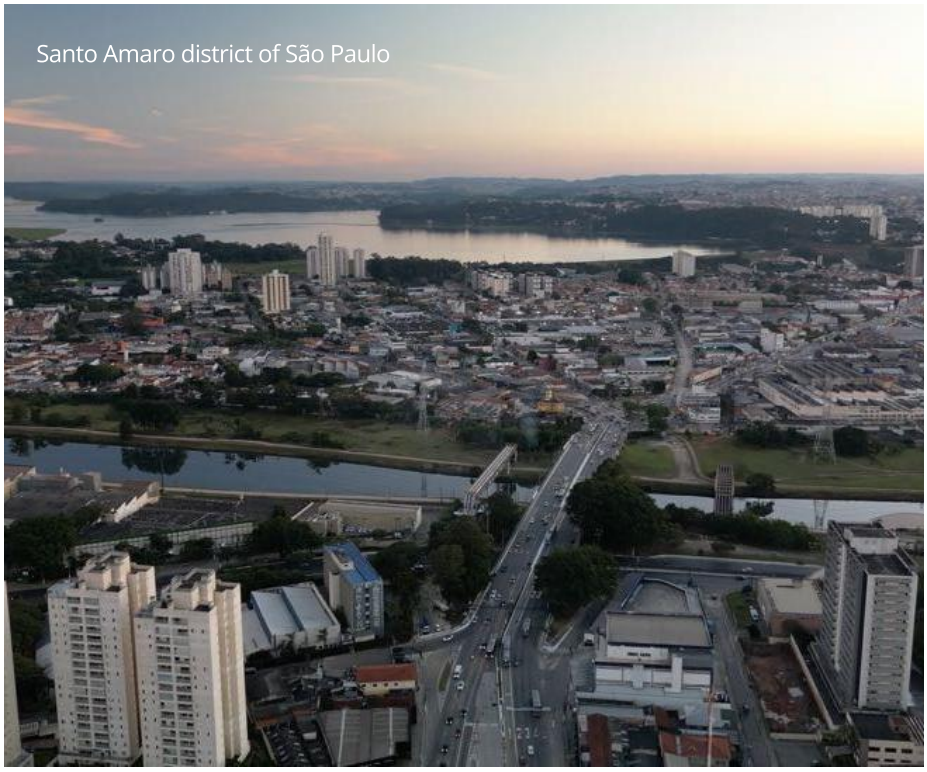
The project, which utilised the SAERTEX-LINER® H_2O, secured the potable water supply for around 900,000 families in the Santo Amaro district of São Paulo with minimal impact on the busy road network, residents, and local businesses.

At the outset of the project, Sabesp, the company responsible for the water supply and wastewater collection and treatment facilities in São Paulo's 375 municipalities established that open construction would cause huge traffic disruption and have too greater impact on the local community. The solution was to employ trenchless technologies that would facilitate the required rehabilitation in the shortest possible time with minimal environmental impact.

This supply line had already been repaired eight years ago using the sliplining method, however a weld seam failure had caused a new leak. To avoid losing water and to prevent the potable water line from rupturing completely, Sabesp prioritised the need to find a long-term solution.

The contract for the project was awarded to the Brazilian company Sanit Engenharia, which specialises in trenchless pipe rehabilitation using the SAERTEX-LINER® H_2O from SAERTEX multiCom. The product is approved in over 14 countries worldwide and has already been used in more than 400 installations.

To repair the leak and guarantee the continued supply of water to the large population of Santo Amaro, it was necessary to rehabilitate an existing



Santo Amaro district of São Paulo

polyethylene potable water supply line with a nominal diameter of DN 873 and a length of 520m whilst maintaining full capacity in another two lines while the work was undertaken.

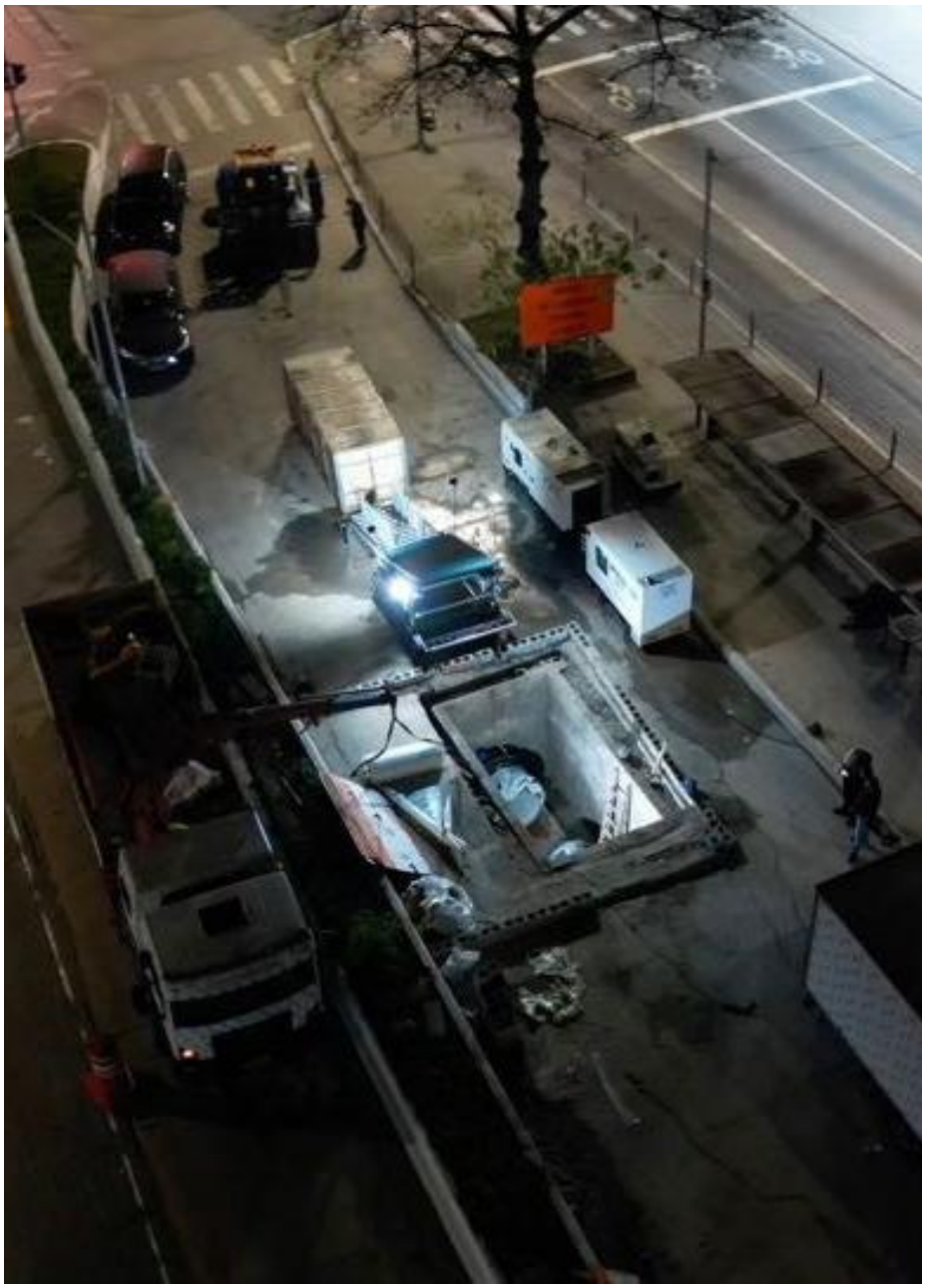
Prior to commencing the works, the team had to find suitable sites for the construction pits and make them as small as possible to minimise the impact on the busy road system. Once these were determined the entire section was divided into four lengths ranging from 109m to 172m. To install the GFRP pipe liner, which is specially approved for use in potable water pipelines, 5 construction pits were excavated to a depth of over 6m. This gave the installation team access to the system and enabled them to perform all the necessary work. **>**

Setting up and calibrating the liner

Curing the liner with UV light

Installation of the four liners was performed by Sanit Engenharia's highly experienced installation team. After pulling through the liner impregnated with styrene-free resin, it was cured with UV light. During the process all the vital parameters were continuously digitally monitored and controlled. Cameras and sensors at the UV light source provide real-time data to the control centre in the rehabilitation vehicle on site ensuring the highest degree of process reliability.

Commenting on the success of the project SAERTEX's Managing Director, Latin America, Felipe Montuori, emphasised the enormous time saving offered by the UV-CIPP process saying: "I would particularly like to highlight the longest section of 172m, where the curing time took just over seven hours and were able to complete the entire section in just 18 hours. This includes all of the work stages such as signage, traffic diversions, transportation of materials and equipment to the construction site, setting up the construction site, cleaning the old pipe, CCTV inspection, installing the SAERTEX-LINER® H_2O and connecting the liner ends".



RSM leads UV LED cure development

RSM Lining Supplies continue to spearhead the growth of UV LED Cure within the CIPP Industry

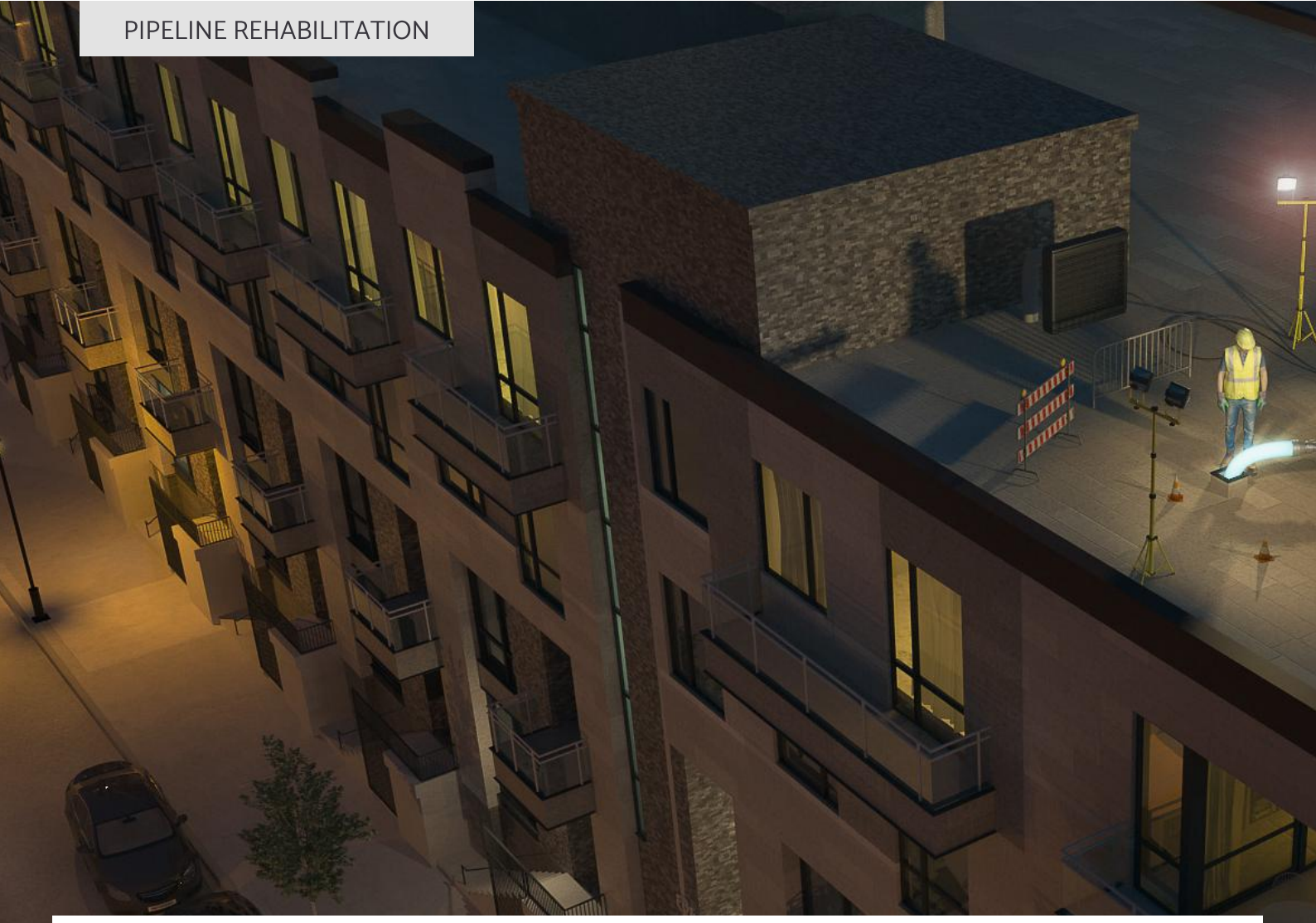
The development of technologies for Cured In Place Pipe Repair (CIPP) has led to the expansion of multiple facets of the CIPP process. UV LED cure technology has progressed rapidly with multiple different types of material & equipment readily available in the market in 2024.

The idea of UV curing was first introduced back in 1990 when the first UV CIPP lining systems were developed, offering faster curing times and a stronger strength characteristic than more traditional curing methods. However, traditional UV liner is unable to navigate bends or handle diameter changes, limiting its suitability.

This is where UV LED Cure comes in, the newest cure method in the CIPP industry. UV LED cure is a fast, safe, and simple curing process with a much smaller on-site footprint than all other curing methods. It is the only cure method in the market that has the capability to cure both standard UV glass re-enforced liners and felt liners impregnated with UV LED resin.

RSM Lining Supplies Global Ltd offer two main types of resin suitable for UV LED cure, UV LED Vinylester and UV LED LT. Both resins are styrene free, eliminating any odours during installation and can either be factory impregnated or impregnated on site. They are also both supplied as one component, meaning there is no need to mix any resin or hardener. >

The Sewertronics SpeedyLight+ VX System



Both resins have excellent mechanical properties, with the main difference between the two being that UV LED LT also offers an IKT tested leak tight finish. It bonds directly to the pipe offering additional assurance to the contractor and their client that there will be no form of infiltration once the installation is complete. Both resins are compatible with all RSM's felt liners and their experienced impregnation team ensure pre-wet liners can be supplied on demand.

RSM's contribution towards the development of UV LED Cure doesn't stop with resin - they offer two variations of UV LED curing equipment – the Sewertronics SpeedyLight+ and the Sewertronics SpeedyLight+ VX System. The SpeedyLight+ VX is a small, portable unit suitable for diameters up to 225mm. It fits perfectly into hard-to-reach areas and is an ideal piece of starter equipment for UV LED lining.

The SpeedyLight+ VX has been developed specifically to be suitable for use in both horizontal and vertical pipes and requires significantly less power and energy than more traditional UV curing systems. The all-in-one design allows the system to be used virtually anywhere with the control unit, power supply, and cable reel all integrated within a single, portable unit. It has a total weight of less than 60kg.

Phil Steele, RSM's Sales Director, commented "The easy manoeuvrability of the SpeedyLight+ VX makes it perfect for use on domestic jobs or those with limited access. The option of purchasing the unit with either 25m or 40m of cable allows the customer to tailor their purchase to their individual requirements, making it a fantastic starter piece of equipment for UV LED lining."

Incredibly versatile, the VX system is suitable for use with felt liner impregnated with either of RSM's UV resins and can successfully navigate bends up to 90°. It has an integrated CCTV camera within the curing head delivering a clear image of the pipe throughout the installation process to ensure everything is running smoothly.

The Sewertronics SpeedyLight+ has the additional capacity to cure liners in diameters up to 600mm, with the ability to reach cure speeds from 1.3m per minute. It is ideal for the repair of leaking joints, cracks, root intrusion, and deformation in wastewater pipes.

Like the SpeedyLight+ VX,

The SpeedyLight+ VX in action

and the lightweight and portable curing equipment means access to small working areas is achievable and less power is required than with traditional systems.

Since the invention of CIPP in the 1970's, the advancement of curing techniques has been exponential. The introduction of UV LED Cure has dramatically shortened the time required for pipe rehabilitation whilst requiring less power and energy than more traditional curing systems.

UKSTT Member

The Sewertonics SpeedyLight+ System

the SpeedyLight+ system can negotiate bends of up to 90° and is also capable of curing both standard UV glass liners and felt liners impregnated with both of RSM's UV LED resins.

UV LED cure is fast becoming one of the most used curing methods within the CIPP industry. Boasting a multitude of benefits, it is a fast, safe, and simple curing process with a much smaller on-site footprint than all other curing methods. The time required for pipe rehabilitation is reduced dramatically when compared with traditional curing methods

The world's largest pipe rammer

Crossing under a heavily frequented motorway with GRUNDORAM Apollo

Extreme weather events such as heavy rainfall are having an increasing impact on the planning of transport routes. While expanding a central six-lane motorway in Germany between Munich and Karlsruhe, it became necessary to revise the entire drainage concept of the community of Elchingen in this area, including the construction of several new rainwater retention basins and a sewer connection to the Danube. For this purpose, a steel pipe with a diameter of 2,200mm was laid under the busy A7 motorway using dynamic pipe ramming.

Thomas Sauter from the planning office Wassermüller as site manager for the municipality of Elchingen and knows the project inside out, "In the past, the wastewater from the motorway and the surrounding area simply seeped into the ditch, which is no longer in keeping with the times. The wastewater is now throttled and cleaned via various retention and cleaning basins and only then channelled into a sewer that leads to the Danube."

The sewer now runs from Unter-Elchingen to the Danube. The first section of the sewer was initially built from the Danube to the motorway crossing. For the second section, the 40m long steel pipe, which would later accommodate several sewage pipes, was driven under the motorway with the help of the world's largest GRUNDORAM Apollo pipe rammer while traffic continued to flow. This made it possible to avoid damage and the resulting closure of the motorway for repairs.

Experienced civil engineering contractor

This project was realised by civil engineering contractor Helmut Uhrig Straßen-und Tiefbau which has over 55 years of experience in the construction of wastewater and rainwater systems. Uhrig had recently acquired the 11.5 tonne GRUNDORAM Apollo specifically for this project. The 4.4-metre-long rammer has an impact energy of 40,500J for pipe installation, making it the ideal choice for measures of this

The 2.200m diameter steel pipe was rammed in three sections using the GRUNDORAM Apollo

Pipe ramming under the motorway was carried out while traffic was moving, with the sewer being installed with 4.20m upper edge - without causing any damage to the motorway

magnitude. Thomas Sauter says: "The aim was to find a method that was low in vibrations and also resulted in only minimal settlements on the motorway; the client's specification was less than 15mm. Uhrig was able to achieve this with its new pile driver." According to expert estimates, this settlement would have been 4cm to 7cm using conventional tunnelling methods and would therefore have resulted in the motorway being closed for repairs at an additional cost of over €250,000. >

Challenging project completed within a few days

Double T-beams mounted on a concrete foundation were used to guide the spiral-welded pipe string, which weighed several tonnes, and a 50-tonne excavator helped with the positioning. Despite various adversities such as tough, clayey soil and the failure of a compressor, the first segment, with a top edge of 4.2m, was driven into place in pouring rain within two days. Due to the difficult ground conditions with rocks, roots and scrap metal in the jacking pipe, emptying it also proved to be more time-consuming than expected.

After some technical improvements, the second and third segments were driven much faster, so that Uhrig Managing Director Christoph von Botmer and Project Manager Tim Strauch were very satisfied with the first use of their new GRUNDORAM.

The project took around two weeks in total - including the time-consuming welding together of the individual pipe segments and the relatively time-consuming removal of the excavated soil, rocks, roots and scrap metal from the sewer, which had to be done with the help of an electric mini excavator and a suction excavator.

Dynamic pipe ramming has many advantages

Dynamic pipe ramming is a proven method for installing media or protection pipes up to 4000m diameter at a high degree of accuracy in soil classes 1 - 5 (partly even class 6 - easily soluble rock). The average installation speed is approxmately 10m/h. The dynamic ramming impact shatters obstacles and easily overcomes difficult starting resistance after standstill periods. The soil gathered in the pipe is removed with air and/or water after the installation is completed. The technical and economic advantages of the ramming technique result from the fact that abutments (in the rear, front or underneath) are not required, thus shortening the set-up times. This technique also ensures that the pipe string is stably embedded in the ground as the structure of the surrounding soil is not loosened, this also makes pipe installation in water-bearing and rocky soils possible. Due to its very small displacement volume in the area around the cutting shoe, ground heave can be ruled out even with little cover.

At the end of the measures, site manager Thomas Sauter was able to state: “The calculation worked out perfectly, the pipe ramming method was optimal with regard to vibrations and settlements. There was hardly any noticeable ground settlement, so this method represents a win-win situation for both the client and the contractor in terms of time, use of materials and machinery and therefore costs.”

After the first 17 m-long section had been driven in, the 11.5 tonne rammer was lifted away to create space for the next pipe segment to be welded on

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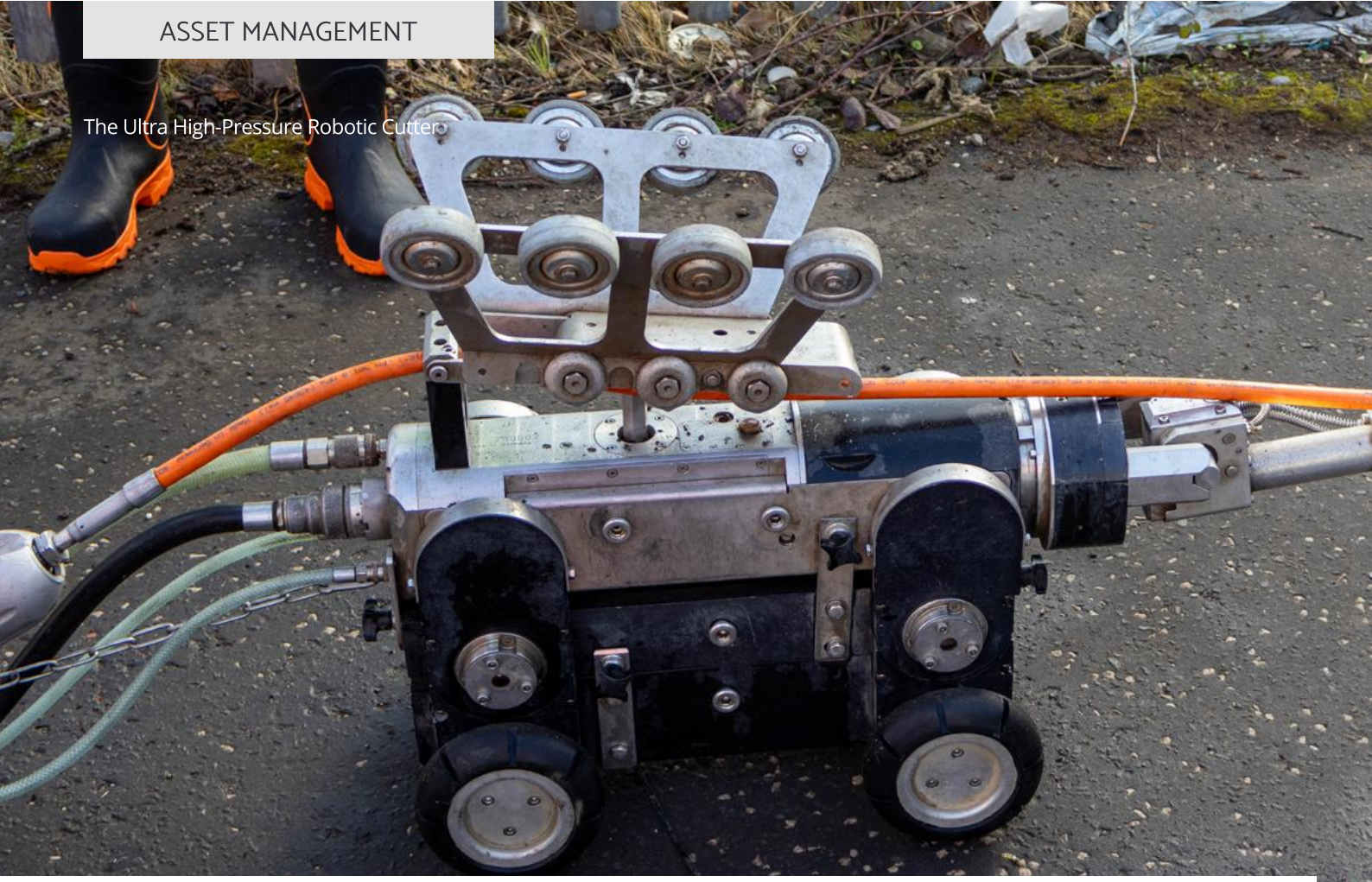


The Ultra High-Pressure Robotic Cutter

High-tech UK first to solve historic sewer water problem

Scottish Water has turned to ultra high-pressure robotics in a UK-first to remove decades of industrial deposits blocking a strategic sewer in South Lanarkshire.

By Matt Bingham, Corporate Affairs Officer

Nearly a kilometre of Rutherglen's Eastfield trunk sewer had become clogged with concrete-like calcite and suspected hazardous materials running under former industrial land.

All efforts to safely remove them using conventional methods such as jetting, and diamond-tipped milling heads had proved unsuccessful.

But then Scottish Water Project Manager Marc McKinnie started speaking to people in the publicly owned utility's supply chain, including delivery partner George Leslie Ltd.

He said: "As a project team we rapidly understood that typical methods would not work here and that we needed to be inventive.

"We started to ask around and one of our suppliers told us about a new robotic cutter on the market in Germany capable of operating at 40,000 pounds-per-square-inch with outstanding precision.

This is the first of its kind to be used in the UK and one of only three worldwide, and it has made all the difference.

> "In just three months we have been able to clean the entire kilometre of sewer – something we had been struggling to achieve for several year using conventional methods.

"In just three months we have been able to clean the entire kilometre of sewer – something we had been struggling to achieve for several year using conventional methods."

The robot works by directing narrow, ultra high-pressure jets of water onto the hard deposits, effectively 'cutting' them into smaller pieces.

The technique is safe for the environment and ensures potentially hazardous materials from historic industrial sites can be flushed out and safely disposed of.

Robert Emans, Operations Manager at Enviro-Clean (Scotland) Ltd said: "We are excited to have been able to support Scottish Water in finding an innovative approach to the problem and successfully demonstrating the capability of the Ultra High-Pressure Robotic Cutter.

"It really is a game changer for us, allowing greater versatility in tackling stubborn blockages in sewers from 10cm to a metre wide, coupled with constant CCTV monitoring allowing our team to ensure precision cutting.

"It also significantly reduces time on-site, cuts costs and lowers our carbon footprint providing a greener solution.

"Enviro-Clean continues to invest in cutting edge technology, to provide the safest solutions possible, keeping us at the forefront of the waste water industry."

Marc McKinnie added: "It was beginning to look like the only option would be to dig up and replace the sewer – which would have been disruptive and extremely expensive - so it was exciting to be a part of pioneering new technologies to address challenging projects.

"Thanks to the inspiration and enthusiasm of our delivery partners, we have achieved a great result. This shows how working together we can deliver great value for our customers and benefits to the environment, helping Scottish Water achieve its aim of delivering net zero emissions by 2040 and beyond."

100 building campus selects Electro Scan for detection survey

Prestigious New York University Bard College decides to Inspect their Water Lines Using advanced pipe assessment technology without digging.

Electro Scan Inc., a leading provider of advanced pipe assessment technology, is proud to announce its partnership with Bard College to conduct comprehensive assessment of the college's underground potable water piping infrastructure.

The survey will be conducted campus-wide, including water service lines delivering drinking water to over 100 buildings, using the Company's patented SWORDFISH Buried Lead Pipe solution.

With an estimated student population of over 2,000 undergraduates and 200 graduate students, Bard College offers a diverse and vibrant learning community known for its rigorous academics, commitment to the arts, and dedication to social justice and environmental sustainability.

The university reached out to Electro Scan Inc. after the recent passage of the Lead and Copper Rule Revision (LCRR) and State of New York legislation, which requires the inventory of all lead pipes.

New legislation places stricter regulations on lead and copper levels in potable water, requiring institutions like Bard College to conduct thorough investigations of all campus water distribution pipelines.

Common inventory methods often involve excavation of each pipe which can be disruptive and costly, thereby causing distractions for students and faculty and unintentional internal pipe disturbances that may cause elevated lead levels in potable water pipes.

"When Bard College started planning for the required Water Service Line Inventory, we knew we would need to find an accurate and efficient way to collect data with minimal disruption to the Bard campus," stated Salvatore Russo, Assistance Director of Buildings & Grounds, Bard College.

"The expertise Electro Scan possesses, along with the technology they utilise for material identification, will help us achieve these goals," continued Russo. "Bard College looks forward to working with Electro Scan in continuing our efforts and commitment to providing safe water to the Bard community."

Using SWORDFISH, Electro Scan's patented and patent-pending leak assessment technology, a sleek and flexible probe can enter water service lines without excavation through any access point in any condition. The key is the electrical resistance testing, which is able to automatically analyze pipe material 360°,

identifying copper, galvanised, plastic, and lead pipe materials in a quarter of a second.

"Over 400,000 schools and childcare centers must conduct inventories to identify lead water services," stated Mike App, Executive Vice President, Electro Scan Inc. "Our work at Bard College will deliver results needed well before the EPA's mandated deadline of October 16, 2024."

By partnering with Electro Scan, Bard College aims to proactively address any issues within its underground piping infrastructure, minimising the risk of costly failures and reducing the environmental impact associated with leaks and pipe failures. Electro Scan's assessments will provide Bard College with actionable data to make informed decisions regarding pipe repair and replacement, ensuring students are able to study safely.

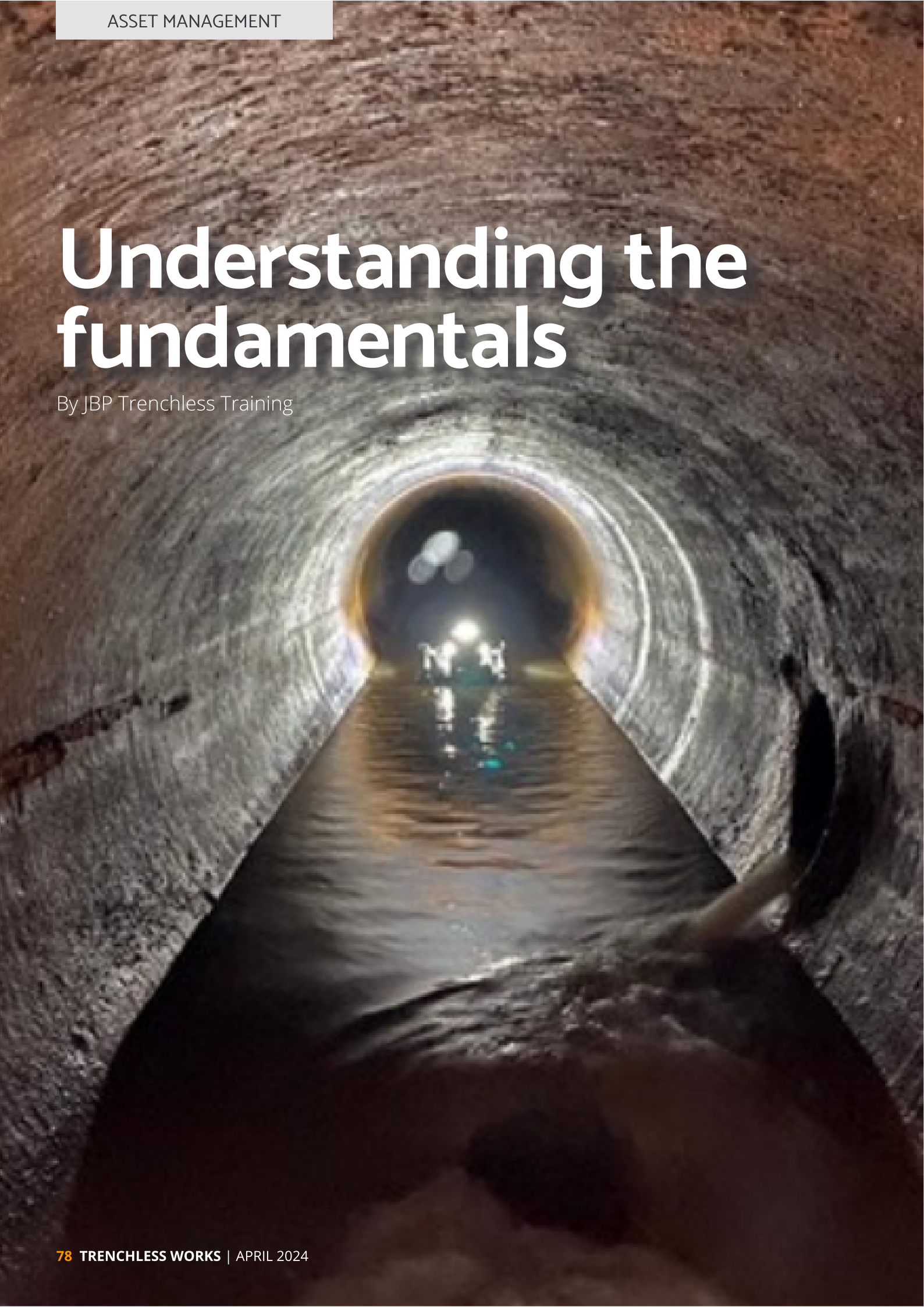
On December 20, 2023, Governor Kathy Hochul signed legislation S.5112/A.6115, also known as the Lead Pipe Right to Know Act, to protect New Yorkers from the extraordinary public health risk posed by lead pipes.

The legislation requires making information easily accessible to the public about the number and location of lead pipes so that state and federal resources can be secured and efficiently targeted to support local efforts to remove all lead pipes impacting New York's drinking water.

"Over 400,000 schools and childcare centers must conduct inventories to identify lead water services," stated Mike App, Executive Vice President, Electro Scan Inc. "Our work at Bard College will deliver results needed well before the EPA's mandated deadline of October 16, 2024.

Understanding the fundamentals

By JBP Trenchless Training



In the demanding world of water and wastewater assets management, where the condition of our vital pipeline infrastructures are out of sight, hidden beneath the surface, the key to successful management and maintenance lies continual vigilance and crucially an understanding and mastering of the fundamentals of inspection, assessment, and decision-making. These key principles are the backbone of every trenchless project, ensuring efficiency, reliability, and long-term sustainability. At the core of all the courses included in JBP's Trenchless Training programme are the applied skills and knowledge-sharing from experienced experts, to support Trenchless professionals working in the important area.

It starts with good quality inspection

The journey towards successful trenchless projects begins with comprehensive and high-quality diagnostics inspections. With a good knowledge of the most up-to-date technologies and methods such as CCTV, acoustic resonance technologies, ground penetrating radar, sonar imaging and others, pipeline inspectors are able to delve deep into pipeline networks to uncover potential issues. From detecting leaks and cracks to identifying structural weaknesses, a thorough inspection lays the groundwork for subsequent phases. Without a high-quality level of inspection accurate data and subsequent informed decision-making becomes challenging.

Accurate condition assessment - an essential

Once inspection data is gathered, the next crucial step is condition assessment. This phase involves analyzing the collected data to evaluate the overall health and functionality of the pipeline infrastructure, in line with nationally adopted systems such as the coding structures laid out in the WRc's Manual for Sewer Condition Classification (MSCC) and other systems derived from CEN Standard 13508-2:2003+A1. System Engineers and technicians need to meticulously examine the inspection reports, to pinpoint areas of concern, prioritize maintenance or repairs, and develop strategies for optimization. Accurate condition assessment forms the bedrock of proactive maintenance, ensuring that resources are allocated efficiently and for potential risks to be mitigated in a timely manner. >

Information-informed risk assessment

Armed with insights from inspection and accurate condition assessment, water utilities and their contracted partners will consider the information they have received in pipe condition reports and together with other factors such as structural integrity, environmental impact, and regulatory compliance, decision-makers will evaluate the likelihood and consequences of various scenarios. This information-informed approach enables prioritization of interventions and allocation of resources to address the most critical risks. From repairing critical pipelines to implementing preventive measures, risk assessment guides strategic planning and will foster resilience.

What to do next?

Once risks are identified and assessed, the pivotal question arises - what to do next? This phase of decision-making entails weighing various options and selecting the most suitable course of action. Whether it involves rehabilitation, replacement, or routine maintenance, the chosen strategy must align with organizational goals, budget constraints, and long-term objectives. Effective decision-making hinges on collaboration among stakeholders, clear communication of priorities, and a commitment to achieving optimal outcomes.

Different sakeholders, different responsibilities

In the trenchless ecosystem, multiple stakeholders play critical roles in the inspection, assessment, and decision-making process. From government agencies and utility companies to engineering firms and construction contractors and consultants,

each entity brings their own expertise and perspectives to the table and carries their own specific responsibilities in the process. Collaboration among these stakeholders is essential to ensure that all aspects of a project are thoroughly considered, from technical feasibility and regulatory compliance to budgetary constraints and community impact. By recognizing and respecting the diverse responsibilities of each stakeholder, projects can proceed smoothly and efficiently, ultimately delivering positive outcomes for all involved parties.

Importance of training

Proper training and ongoing professional development are essential to ensure that contractors working with CCTV inspection, technicians and engineers working with condition coding and assessment, and utilities and supporting consultants making decisions on risk management have the right skills sets and knowledge to successfully fulfil their professional roles and responsibilities.

JBP's course in sewer condition assessment and coding, not only gives CCTV contractors and Water Utilities engineers and technicians a solid knowledge of the main principles of accurate condition assessment, coding, and reporting, but also uniquely gives them the option to learn, understand and apply systems of condition coding in accordance with CEN Standard 13508-2 and WRc's MSCC (5th Edition). The course instructs participants in the importance of the process they are involved in, and hammers home the simple principle and consequences of "rubbish in equals rubbish out" when working with condition assessment coding and reporting. All candidates successfully passing the course exam are certified for a period of three years before renewal is required.

Further, JBP's four courses focusing on Water Mains and Rising or Pumped mains, guides engineers and technicians, step by step through the processes of inspection, assessment, and decision-making for rehabilitation or maintenance options. The courses take an applied approach, based on the experiences of the experts with whom the courses have been developed, and refer to up-to-date methods and technologies wherever relevant.

For those engineering, technicians, and other professionals with working responsibilities for inspection, assessment, risk management, and pipeline maintenance and rehabilitation, JBP's course in Sewer Pipeline Trenchless Rehabilitation gives a thorough introduction to the full range of methods and technologies currently being used, as well as examining the decision-making process of selecting appropriate methods and technologies based on condition and risk assessment.

In all cases, JBP's courses address the need to support Trenchless professionals with both the necessary knowledge and applied skills for them to be able to successfully fulfil their responsibilities.

In conclusion, understanding the fundamentals of inspection, assessment, and decision-making is paramount in the realm of trenchless works. By starting with good quality inspection, conducting accurate condition assessments, and carrying out informed risk assessments, stakeholders can make sound decisions that lead to positive outcomes. Collaboration among different stakeholders, along with ongoing training and professional development, further enhances the effectiveness and reliability of trenchless works projects. With a commitment to excellence and innovation, the trenchless industry can continue to thrive, meeting the infrastructure needs of today while safeguarding the future for generations to come.

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Online versus in-situ?

By Frank Reilly - JBP Trenchless Training Director

Frank Reilly
Director JBP's Trenchless,
Training Programme

I must declare a personal bias. Coming from a training and education background, I've always felt nothing competes with the interaction found in the physical classroom, or so I thought. I recollect introducing my parents, at the time in their eighties, to smart mobile phone use. It opened up a whole new world to them.

Immediacy versus flexibility, controls versus convenience and cost are often cited when comparing in-situ and online training. I'd like to briefly examine if online can compete with in-situ training, from the perspective of learners' experiences and outcomes. Post-pandemic we've all experienced both.

I still think very little can replace classroom-based face-to-face interaction amongst students and with the trainer. However, with the increased popularity of online access to training, models for delivery have evolved to include autonomous learner access, blended learning incorporating access to pre-prepared materials and live webinar sessions, and hybrid sessions bringing together online and classroom

environments.
These all give great flexibility and reduce geographical distances and time differences to a near irrelevance.

Online learning has actually been around since the 1990s. The corporate online learning industry is predicted to be worth € 45 billion by 2026, a 250% increase in just a decade. The sophistication of learning management systems (LMS), on which any professionally based online course should be hosted, and the multitude of tools available, such as interactive whiteboards, break-out rooms, chat forums, polls, achievement badges, inclusion of a wide variety of media resources, as well as carefully monitored examination environments, have all come on leaps and bounds.

Working over the last couple of years to expand and develop JBP's own Trenchless Training programme, and to adapt JBP's courses for online delivery and

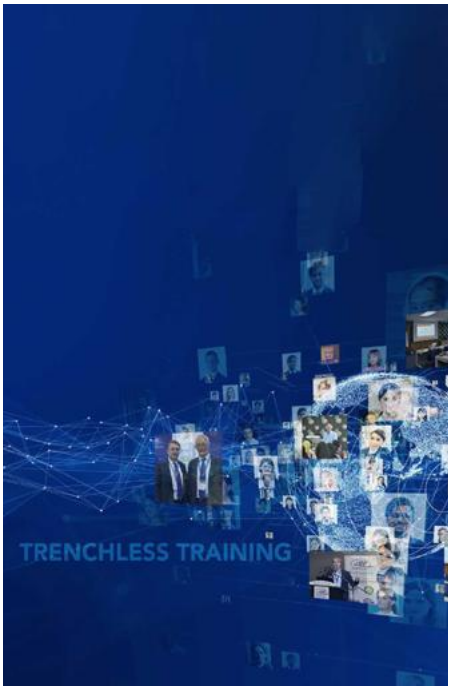
access, I've learned a lot.
It is not and should not be a case of trying simply to replicate the classroom experience online. The two environments are different and should be treated as such, both for instructor and learner alike. This is important if we aim to optimise learning outcomes.

Let me be clear, I'm not talking here about replacing classroom sessions with live webinars. Webinars do have their place in the training toolbox, but they are also not a replacement for a fully developed on-line course. A carefully planned approach needs to be adopted to guarantee the learner experience and outcomes when moving training courses online.

Here, a bit of reverse engineering and the application of Bloom's taxonomy (not wishing to get too technical) might be helpful. Bloom's taxonomy is a set of six objectives that educators can use to define desired learner outcomes and determine how best to deliver them. The reverse engineering process requires course developers and trainers to place themselves in the learner's shoes and work back through the learner's experience of the course. This approach ensures appropriate use of all available tools to suit the environment, whether it is a classroom or online.

That brings me back to my parents and their smart phones. It's a brave new world out there, with so many opportunities to embrace and so much more to learn – a virtual classroom in our pockets. As a teacher, I will always enjoy the interaction and hubbub of the classroom, be it online or in person.

Next issue: Identifying your training needs.



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SOCIETY NEWS

Society News brought to members by Trenchless Works

ukstt.org.uk

A message from the Chair

Ian Ramsay, Chair, UKSTT

We are well into Spring and the temperatures are going in the right direction, however the excessive rain fall is causing serious issues throughout the country. I know it is my pet subject, sewer spills. However with the volume of rain (I have 3 x rain butts at home and they were full in January) the infrastructure and assets are under increased pressure which as always will result in more spills, more fines, more upset members of the public, court cases etc etc. At least on a positive note there is a lot of press, discussion, features on TV and public awareness. The UKSTT continues to lobby where we can and I am looking at one of the next road shows and maybe during No-Dig Live in October to have an event giving more explanation about the issues and also potential solutions.

The UKSTT supported by Westrade held a masterclass covering trenchless aspects of pressure pipes. It was one the best events we have held and was really well supported. Thank you for all who attended and also the speakers who really gave an informative and in depth insight into one of the fastest emerging aspects of the trenchless industry.

I am always open to ideas for future events and topics. If anyone has any thoughts please feel free to contact us.

In June we will hold the first UKSTT National Conference. This will be at the Manufacturing Technology centre in Coventry. It will give attendees a great insight into the world of trenchless, including features and benefits, standards and regulations, recruitment, opportunities and awareness. There will be a range of top level speakers and information as well as information on how to grow your business and understanding the opportunities available. Even if you are well established or starting out, advice, information and understanding is all available at the event. I look forward to seeing you there.

Lastly, we felt it was time to polish our logo's up and bring it up to date. I am really pleased with the efforts and ideas for our new logo's. Dawn our past chair and marketing guru along with Lynn have made a superb job. Thank you again.

Ian Ramsay, Chair, UKSTT

Masterclass magic

A reflection on the recent UKSTT CIPP for Pressure Pipe Event

The UK Society for Trenchless Technology (UKSTT) highlights the latest innovations and professional insights through its variety of events, including the most recent Cured in Place Pipelining for Pressure Pipes Masterclass led by Iain Naismith, Technical & Education subcommittee Chair for UKSTT that took place on the 20th of March at the Woodland Grange Hotel in Leamington Spa.

These events, recognised for their contribution to Continuing Professional Development (CPD), foster discussions, knowledge sharing, and networking opportunities within the trenchless technology industry.

The UKSTT CIPP masterclass underlines the charity's dedication to advancing the science and practice of Trenchless Technology for the public benefit. With CPD points available and membership discounts, the event attracted a significant number of industry professionals, reflecting its high value and importance.

Highlights of the event

The masterclass was a comprehensive exploration of trenchless technology, featuring a broad array of topics and presentations that engaged the audience.

Highlights included:

- Developing CIPP for permanent replacement of cast iron gas distribution networks: The event shed light on the latest developments and invaluable insights into the advancements in CIPP Technology
- 70% reduction in Carbon: An independent study over a typical 60m stretch has demonstrated that each application of this method will help us to reduce operational CO^2 production by approximately 70% when compared to open-cut replacement
- Key lessons from a comparative evaluation of pressure sewer liner performance:
- Developing CIPP liners for pressure pipes: Attendees had the opportunity to hear the perspectives on the requirements required from the liner supplier/ manufacturer.

Key outcomes and discussions

In the evolving landscape of trenchless technology, the UKSTT CIPP masterclass spotlighted significant advancements and challenges. Moreover, the event underscored the importance of innovation in repairing existing pipelines. These discussions and outcomes not only highlight the ongoing advancements and challenges in the trenchless technology sector but also pave the way for future innovations and improvements. The most common takeaway from the event was the

> "It was a great pleasure to introduce and moderate this well-attended and topical event, that was so well supported by the different sectors in the Trenchless industry. We are now planning and looking forward to our 'Increasing the use of Trenchless Technology Conference' on the 11th of June.

need for more collaboration between stakeholders, utilities, contractors, manufacturers, consultant engineers, etc. Other concerns that arose during discussions were the industry's need for skilled workers for the next AMP period and the potential to look at what is happening globally to see if solutions are being used there that can be adopted in the UK.

Impact on the Trenchless Technology Industry

The impact of the UKSTT CIPP event and related activities on the trenchless technology industry is multifaceted, reflecting both the growth and challenges within this sector:

- Environmental Benefits and Regulatory Support: Trenchless methods have proven to reduce greenhouse gas emissions significantly. This environmental benefit, coupled with regulatory support in many cities worldwide, underscores the industry's role in sustainable urban development.
- Challenges Facing the Industry: Despite its growth and environmental benefits, the trenchless technology industry faces several challenges, including higher operational costs, the need for specialist materials and skills, and a general lack of awareness about the benefits of trenchless methods. These challenges highlight the importance of events like the UKSTT CIPP event in promoting industry best practices and innovations.

Conclusion

The masterclass created an invaluable platform for industry professionals to share knowledge and discuss evolving methodologies and challenges. It also highlighted the UK's increased involvement in looking at the current standards which is important for International Standards. This echoes Chairman Ian Ramsay's appreciation, highlighting the significance of acknowledging the efforts of speakers and organisers who contribute to the success of these events. The collective insights and discussions emphasise the dynamic nature of trenchless technology and its critical role in shaping a sustainable and efficient future in infrastructure development.

Commenting after the day's presentations, Iain Naismith said "It was a great pleasure to introduce and moderate this well-attended and topical event, that was so well supported by the different sectors in the Trenchless industry. We are now planning and looking forward to our 'Increasing the use of Trenchless Technology Conference' on the 11th of June".

Associate Director, Lynn Maclachlan said "The first masterclass for 2024 was a huge success; it was fantastic to find out more about common issues and the different approaches to solving them. Information sharing is crucial, and it was wonderful to have open discussions between peers. Thank you so much to Iain Naismith and his team for pulling together such an interesting programme and to all of the speakers who contributed greatly to this event. I would also like to thank everyone who attended and by being there help make the event such a success"
The outcomes and discussions from the event pave the way for further innovation, research, and collaborative efforts, positioning trenchless

technology as a key player in addressing contemporary environmental and urban development challenges.

In acknowledging these contributions and the ongoing industry growth, it's essential to continue fostering such platforms for knowledge exchange and professional development. If you're looking to stay at the forefront of trenchless technology trends and insights, consider attending the next UKSTT Event, The UKSTT National Trenchless Conference "Increasing the use of Trenchless Technology" that is taking place on the 11th of June at the MTC (Manufacturing Technology Centre) in Coventry. As we anticipate future advancements and synergies within the trenchless technology community, the importance of such events in promoting excellence and innovation cannot be understated, underscoring a collective vision for a more sustainable and advanced infrastructure landscape.

Thank you to the UKSTT Patrons who attended and supported the masterclass: Cadent, Southern Water, Severn Trent, Wessex Water, YTL

TECHNICAL ENQUIRIES

Free trenchless technology technical enquiry service - for all enquiries regarding installation or repair of underground utilities

The UKSTT website has a dedicated link for visitors to raise any technical enquiries you may have concerning trenchless technology and whether it may be applicable to any specific project:

https://www.ukstt.org.uk/technical-enquiry/

UKSTT Council has a dedicated technical sub committee to offer advice, support and guidance.

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admin@ukstt.org.uk

UKSTT Free Technical Enquiries

Would you like help with a current project?

Do you wonder if there is a trenchless solution?

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

UKSTT Council has a dedicated technical sub committee to offer advice, support and guidance.

We have an extensive list of members experienced in all aspects of trenchless technology, who want to help you!

Email us:
admin@ukstt.org.uk

We have had a variety of interesting enquiries recently, ranging from invitations to tender in various locations of the UK & Europe, to requests for advice and proposed solutions for projects currently on-going.

All of these enquiries 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/

Jo Parker - embracing the challenge!

Jo's mile a year challenge for Alzheimer's Research UK

Alzheimer's Research UK, established in 1992 as the Alzheimer's Research Trust, has been at the forefront of battling Alzheimer's disease through dedicated research. This organisation's challenge extends beyond the lab, supporting a network of 15 centers of excellence across the UK and inspiring individuals like Jo Parker to contribute through distinctive challenges and donations.

Jo has been a great supporter of the UKSTT for a very long time and we are all proud of her dedication & commitment to this charity.

Embracing the challenge, Jo's mile-a-year journey not only raises critical funds for Alzheimer's Research UK but also boosts awareness about the disease.

How to support Jo Parker and Alzheimer's Research UK

Through Jo's mile-a-year journey, the critical mass of awareness and support for Alzheimer's Research UK demonstrates a compelling narrative of community and commitment. It is clear that the combined forces of individuals' stories, innovative fundraising, and groundbreaking research offer a beacon of hope in the ongoing fight against Alzheimer's disease. By spotlighting the significant achievements in research and community engagement, we underscore the importance of continuous effort and solidarity in this cause.

As we reflect on the strides made toward understanding and combating Alzheimer's, it is crucial to remember that every contribution matters in this journey. Whether through participation in fundraising events, volunteering, or raising awareness, each action adds to the collective push for a future free from Alzheimer's. To further amplify this mission and assist Jo Parker in reaching her target, you can donate to Alzheimer's Research UK through her JustGiving page. Let us continue to support and rally behind the innovative research and compassionate initiatives that bring us closer to overcoming Alzheimer's disease together.

https://www.justgiving.com/page/jo-parker-703#timelineUpdates

Trenchless Technology: Paving the way for sustainable development

After recently celebrating its 30th anniversary in 2023, the United Kingdom Society of Trenchless Technology (UKSTT) remains at the forefront of environmental preservation with the trenchless methods that harness innovation.

Going into its fourth decade, UKSTT has achieved many milestones across its history, and today its mission still remains the same: To advance the science of practice of trenchless technology for the public benefit and to promote education, training, study and research in the practice and to publish the results.

Addressing the urgency of climate change is a priority for UKSTT moving forward and by putting itself in the centre of the action enables the company to remain focused on promoting the technology for the benefit of the environment and everyone involved.

Through sustainable impact, effective collaboration, lasting partnerships and knowledge transference, UKSTT's main focus is to continue supporting and engaging its membership within the utility sector.
The range of trenchless solutions available that offer key advantages across inspection & detection, cleaning methods, renovation, new installations, and keyhole & other techniques can be found on the UKSTT website.

https://www.ukstt.org.uk/

UKSTT's logo has been updated!

UKSTT's marketing team have given the Society's logo a bit of an update!
Trenchless Techniques are more environmentally friendly than open cut methods and we wanted to show that in the logo by turning the UK green!

If we all "Think Trenchless First" we can all help to make the UK greener.

Membership services report

The Membership Services (MS) committee has a spring in its step.

Leon Woods
Membership Services co-chairs

Dawn Greig
Membership Services co-chairs

After a successful Masterclass in Leamington Spa, it's time to take a look at other ways in which UKSTT can add value for members, in particular via the first National Trenchless Conference and of course, at our Annual Awards Dinner.

What does that mean for the MS committee?

Well, we are looking at a theme for the Awards Dinner, with suitable entertainment and of course a lively host. I think we can all agree that Kieran Bracken did an excellent job in Bristol, so there is a lot to live up to! Introducing a co-host for the Dinner has not only taken some of the stress away from the Chair but also provided a more varied and engaging evening. Finding someone to not only co-host but also enhance the proceedings is quite an undertaking and our media partners Westrade always give us a quality list of options to consider.

In terms of the Awards themselves, we also look at the way in which the process works. Last year we introduced a new digital entry format which seemed to work well, offering up a bumper number of entries. Keep your eyes peeled for this year's entry window, which should be open very soon!

The new Awards themselves were also well received, debuting at Bristol. The sleek blue glass design modernised the experience and were (hopefully) easier to display for our worthy winners. The MS Committee is currently looking at whether or not some of the individual Awards, for example the 'Trenchless Woman of the Year' needs to be a different design.

You may have noticed a new UKSTT logo across social media and your inbox. We wanted to emphasise that Trenchless technology is a greener option, which is why we have introduced a green map of UK in our traditionally blue logo, as well as refreshed the overall design.

These are a few of the things that we are currently working on, as well as looking at ways to further improve processes and benefits for our membership. We are always open to ideas so please feel to contact UKSTT, we would love to hear from you!

The new award!

Upcoming events

1st UKSTT National Trenchless Conference

"Increasing the use of Trenchless Technology"
11th June 2024 MTC (Manufacturing Technology Centre) Coventry

This is the first planned conference for UKSTT with a theme based on 'Overcoming barriers to using trenchless technologies'

The programme will include the following session topics: Trenchless - demonstrating the benefits, Standards & Regulations - help or hinderance?, Recruitment into Trenchless - meeting the demand, Increasing awareness of Trenchless options to customers and Future opportunities - new utility networks needing Trenchless.

To register your interest please email lynn@ukstt.org.uk

Westrade Group in association with UKSTT are holding a No-Dig Roadshow in Reading on 26 June.

Exhibition space is limited so we would recommend you fill in a booking form and return it as soon as possible. Forms can be requested from Annabelle akeatley@westrade.co.uk and all sponsorship enquiries can be discussed with Trevor tdorrell@westrade.co.uk.

This roadshow is being supported by Thames Water and in the catchment area for Wessex Water, Southern Water, Dwr Cymru Welsh Water, SES Water, Bristol Water, SGN & Cadent.

We look forward to an insightful conference programme focusing on the latest innovations and trenchless technology techniques.

Technical & education report

The highlight in March was the CIPP for pressure pipe Masterclass, and there are plenty of other interesting developments and events to look forward to.

Richard Swan

Iain Naismith
Technical & Education
sub-committee Chair

Tim Sargent

Standards, research & awards (Sub-Group 1 Chair: Richard Swan)

Planning of the awards process for 2024, is progressing. If you attended the Masterclass in March, we rolled out for the first-time pop-up banners about the winners and shortlisted entries for each of the categories from the 2023 awards. These will be displayed at other events. In March Richard and Iain attended a Standards Group meeting at BSi organised by Future Water Association to discuss how to increase engagement in the drafting of standards and regulations, and general awareness. There was an encouraging talk by the chair of the Water UK Standards Board concerning the importance Water UK is placing on standards.

Events – masterclass, conference, No-Dig Roadshows and NDL (Sub-Group 2 – Chair: Iain Naismith)

The Masterclass on CIPP for pressure pipe was very well attended by Patrons, members and many non-members who heard about the trials, tribulations and successes of its application across water, gas and wastewater. There exchange of views and experience between and within the supply side and the customers was much appreciated.

1st UKSTT annual conference– 11th June

Attention has now turned to the programme for the first UKSTT Annual Trenchless Conference, planned for 11th June in Coventry with an overarching theme around driving greater use of trenchless.

There will be five one-hour sessions and three coffee breaks/lunch between them, giving 2 hours of networking opportunity during the day, not including networking before and after.

The topics will cover: demonstrating the benefits of trenchless; standards and regulations – help or hinderance; recruitment to trenchless; increasing awareness of trenchless among customers; and, future opportunities – new networksneeding trenchless.

No-Dig Roadshow Reading, 26th June

Venues for this year's two No-Dig Roadshows are being finalised with Westrade and the utilities who can support them. The first is planned for the South East in Reading on 26th June and the second towards the end of the year, probably in Leeds.

A reminder that No Dig Live in October (1st to 3rd) at its new venue Stoneleigh Park offers an

exciting new opportunity to re-vamp UKSTT events during the show because the conference area will be within the exhibition hall next to the UKSTT stand, not in a building outside the hall, as it was in Peterborough.

Education, client organisations & patrons (Sub-Group 3 – Chair: Tim Sargent)

Our primary focus is switched to encouraging Patrons and Education establishments to be more actively engaged in the society. This is being demonstrated through the speaker line up and attendance at No Dig Live events and Masterclasses. For the CIPP in Pressure Pipe Masterclass it was very encouraging to see teams from Anglian Water, Severn Trent Water and Wessex Water. Tim will be chairing a session on spreading the word within network owners at the UKSTT National Conference on 11th June.

International relations with other STTs and events in Dubai and Goa this November

At No-Dig Europe in Berlin at the beginning of March a well-attended gathering of national societies for trenchless technology confirmed that there is much interest in developing inter--national co-operation between us. European societies (Germany, UK, France, Turkey, Romania, etc.,) were also joined by the International STT's chair, Albert Shou, and by the Latin America STT. The latter is particularly interesting its based in Colombia but its membership extends to all the Spanish speaking countries in South America. The outcomes from the event will be advised when available.

The other major opportunity for a gathering of the STT's will be at Trenchless Middle East in November and the inauguration of the new Middle East Society for Trenchless Technology. If India interests you, there is the Indian STT's two-day exhibition and conference in Goa at the beginning of November.

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Cevdet Yılmaz, Deputy President of Türkiye, 05 February 2024

Figures from 2023 Event

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13 INTERNATIONAL COMPANIES

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International Society
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SOCIETY NEWS
ISTT News brought to members by Trenchless Works

A message from the Chair

Keh-Jian (Albert) Shou,
Chairman, ISTT

Dear ISTT members

I hope this message finds you and your colleagues well. I believe the events in the following few months will be more active and prosperous, so please do not forget to check the event calendar in the ISTT website. As you may remember, I have attended the No-Dig events in many countries, and will continue to do so, in China, Latin America, France, Hong Kong, Japan, Malaysia, Middle East, Turkey, etc, in 2024.

Through the regional events like 2023 Trenchless Latin America, 2023 No Dig Turkey, and 2024 European No Dig Turkey, the organizing societies successfully attracted the spotlight by integrating the governing sector, consultants, contractors, suppliers in trenchless business, also created more cooperation between the affiliated societies in their region.

In addition, the intercontinental China-Europe TT Conf. in Jinan also successfully gathered more than 500 attendees and 35 exhibitors, showing the strong support of the central and local governments. Like the cooperation between Asian societies, the bi-lateral and multi-lateral cooperation also help in developing new technologies and good business. I strongly believe the regional No-Dig conferences will be the major trend in the next few years. Obviously, the demands and challenges in different regions also create different opportunities.

I would like to remind you that we will soon have new ISTT educational webinars, please do not forget to check the notice and register in ISTT website. Again, ISTT will try to provide more services to our affiliated societies. To enhance our service, we will soon create a plan of actions based on our surveys and your feedbacks.

All The Best!

Keh-Jian (Albert) Shou

Chair, ISTT

ISTT educational webinar: greenhouse gas emission calculation of trenchless technologies

We are thrilled to announce that Mr.Heikki Aakko, a leading authority in environmental engineering, will be joining us as the next speaker in our upcoming webinar.


Mr.Heikki Aakko

Heikki Aakko is a project engineer at uGidon Infra Oy, a Finland-based independent design and consulting office specialising in trenchless solutions. He has experience in projects ranging from preliminary studies to assisting with the tender process, tailored to customer needs. He holds a master's degree in environmental engineering from the University of Oulu, specialising in water and environment. He has a background in water and wastewater network design and site supervising experience. His thesis on the emission calculation of trenchless technologies was published in December 2023. He is passionate about learning and spreading knowledge of trenchless technologies with a sharp focus on sustainability.

"In the webinar, I'll give a short summary of my thesis, explaining the general principles used to develop the theoretical framework for calculating and estimating emissions of different trenchless techniques in carbon dioxide equivalent (CO_2e). Although the calculator itself is not publicly available, I will go through the general ideas of how the calculator was constructed, what kind of challenges there were building it, and what other observations were made."

Heikki continues "I will explain the relevance of my thesis and its need and the key objectives, like transparency, credibility, and adaptability. It is important to understand all the relevant variables and acknowledge which factors are not accounted for. Some calculation examples from the thesis will be presented, and what can be concluded based on the results and which questions still need further research. The outcome from the sensitivity analysis part of my thesis will be explained, i.e., how changes in variables affect the results. Finally, I will summarise all the key takeaways from my thesis, explain the conclusions on what should be done in the future, what can be done based on my thesis, and what can be done to lower CO_2e emissions when it comes to trenchless technologies."

Register here

> "I will summarise all the key takeaways from my thesis, explain the conclusions on what should be done in the future, what can be done based on my thesis, and what can be done to lower CO^2e emissions when it comes to trenchless technologies.

Call for applications: No-Dig award

ISTT is excited to announce the call for entries for the 2024 ISTT No-Dig Awards. These awards are given to individuals and organisations that have achieved outstanding accomplishments in the trenchless technology industry. The winners receive extensive recognition via media articles and website presence. We encourage you to apply for this opportunity.

No-Dig awards

There are four categories available, including Academic research or training, trenchless project completed (projects completed within a year or two) and limited to Corporate members, New technology (tool, material, system or technique introduced)- limited to Corporate members and a Student or young professional.

Submit your entries here: link

Closing date: 30 July 2024 (17:00 US EDT)

Contact info@istt.com for any questions.

Announcing the trenchless ambassador award: recognizing emerging leaders in trenchless technology

Starting this year, ISTT has launched a new award called the "Trenchless Ambassador Award." The intent of this award is to honor the young to mid-carrier members who have made great contributions to the local trenchless community.

Eligibility

The Trenchless Ambassador Award is open to any active individual, who is a member (individual or part of a corporate) from an ISTT Affiliated Society who has contributed to the development of the local society and/or the development of trenchless technology in the region.

Application:
Submissions must be made by active individual members of an Affiliated Society. Self-nominations are allowed when accompanied by an endorsement letter from the local affiliated society. In addition, an Affiliated Society may submit a nomination on behalf of an individual member.

Criteria of the award

The submission should describe the nominee's efforts to enhance the growth of the nominee's society and/or promote trenchless technology in the society's region or adjacent regions. It should detail the outcomes of the nominee's efforts, including how these efforts improved society and the regional status of trenchless technology.

Award

The signed certificate from ISTT and the announcement of the award will be on ISTT media and on the website. The certificate will be awarded at the ceremony during the annual dinner.

Please go to the website to submit your entry

Deadline: 30 July 2024 / 17:00 US EDT

Contact info@istt.com for any questions.

Call for applications: lifetime service award

During the 1980s -1990s, pioneers in the trenchless industry united to establish national and regional societies aimed at promoting the science and practice of trenchless technology for public benefit. Now, after 30+ years, 28 Societies representing over 40 countries around the world are affiliated with ISTT.

As time goes by, some Affiliated Societies have witnessed the retirement of influential figures who played important roles in founding their societies and promoting trenchless technologies in their regions. In recognition of these individuals' dedication, ISTT established the "Lifetime Service Award" over ten years ago, acknowledging their significant contributions to the advancement of trenchless technologies within their respective regions. We are now pleased to announce the call for 2024 applications, inviting all the Affiliated Societies to nominate deserving individuals for this prestigious honor.

Who can nominate a candidate?

Affiliated Societies in good standing can nominate candidates for this "ISTT Affiliated Society Lifetime Service Award", provided that the candidate has retired or is retiring from active involvement in the trenchless industry.

How to submit?

The nomination must be submitted by a staff member of an Affiliated Society and must include the candidate's name, relevant professional background, and a description of up to 1,000 words detailing the candidate's specific actions and activities related to the advancement of trenchless technology within their Society.

Click to view the past Lifetime Service Award Winners.

Deadline: 30 July 2024 (17:00 US EDT)

Submit Your Entry

Call for applications: ISTT fellows program

As recognition for long-term involvement in the ISTT and technical or professional contributions to the ISTT, the ISTT Board has created the membership grade of ISTT Fellow. For an ISTT member to apply (or to be considered) to become an ISTT Fellow, the member must meet certain criteria, including - been an ISTT member (or worked for a company holding an ISTT Corporate Membership) for a cumulative total of at least 15 years, registered for and attended at least 12 International No Dig Conferences (exhibit-only or 1-day registrations are not counted as full attendance) and had a minimum of 5 technical papers included in ISTT conference proceedings.

An ISTT member wishing to be considered an ISTT Fellow should apply via the below link by 30 July 2024 (17:00 US EDT).

Please note members should go to the ISTT website to view a full list of what to provide, and a more detailed overview of the criteria.

Closing date: 30 July 2024 (17:00 US EDT)

For more details, please visit our website:

Trenchless Romania conference and exhibition 8th edition

The highly anticipated 8th edition of the Trenchless Romania Conference & Exhibition is set to take place in Bucharest on June 6th. This event will feature dedicated panels on trenchless rehabilitation and cutting-edge tunneling equipment, bringing together industry experts and professionals for a day of innovation and collaboration.

Building on the success of its previous editions, the Trenchless Romania conference & exhibition continues to lead the way in revolutionizing the underground construction industry within the region. Attendees can expect engaging discussions, informative presentations, and networking opportunities aimed at driving progress and sustainability in underground infrastructure projects.

This year's event will highlight specialised panels focusing on trenchless rehabilitation techniques and the latest advancements in tunneling equipment. Industry leaders will share insights, best practices, and solutions to address the evolving challenges in underground construction, offering attendees a unique opportunity to stay at the forefront of industry trends.

Annually, the event brings together over 200 national and international companies in the field, manufacturers and distributors of equipment and technologies dedicated to the no-dig sector for horizontal guided drilling (hdd), pipejacking, pipe bursting, microtunnelling, pipe rehabilitation (CIPP) and other trenchless technologies that are ideal solutions for installing underground utilities in urban areas with heavy traffic.

Who participates in the event

- Representatives of contractor/ subcontractor construction companies;
- Representatives of consulting and design firms in the field of infrastructure and public utility networks;
- Representatives of Embassies and Chambers of Commerce;
- Representatives of professional associations in the field
- constructions (ARACO, PSC, APMCR);
- Representatives of central and local public authorities (operators);

The event is supported by Trenchless Romania Club (Romanian Association for Trenchless Technologies), ISTT (International Association for Trenchless Technologies), ARA (Romanian Water Association), GSTT (German Association for Trenchless Technologies), OGL (Austrian Association for Trenchless Technologies), ARACO (Romanian Association of Construction Contractors), PSC (Construction Societies Patronage).

Don't miss out on this exclusive opportunity to explore the future of trenchless technology. Join us at the Trenchless Romania Conference & Exhibition on June 6th in Bucharest and be a part of shaping the industry landscape.

For more details about the event, please contact Maria Nae maria.nae@trenchlessromania.ro or 0724-550830

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Principal Media Partners

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Latino América el mercado para el georradar

Por Arlex Toro Rodríguez, Director Ejecutivo, Asociación Latinoamericana de Tecnologías Sin Zanjas.

La instalación de nuevas tuberías con micro tuneladoras (pipe Jacking, auger boring pilot pipe, pipe ramming, etc.) y excavadoras subterráneas (perforación horizontal dirigida) se consolida como una práctica recurrente en la preparación de proyectos de la ingeniería en las empresas de servicios públicos de acueducto, alcantarillado y gas domiciliario. Para el servicio de electricidad se ha empeñado en soterranizar las redes de los postes en tuberías subterráneas para mayor seguridad de la gente en las calles y de los técnicos que tienen que subirse con alto riesgo para hacer su trabajo. Ello le ha reportado un menor impacto en la huella de carbono ya que la instalación de los tubos requiere un 70% menos de excavación por lo que hay menos viajes de escombros, menos polvo en el aire y menos ruido comparado con las obras cuando se hacen a zanja abierta.

Para llevar a cabo los trabajos de nuevas instalaciones es necesario exigir el permiso de excavación ya sea que se realice con tecnologías sin zanja o a zanja abierta para evitar que rompan las tuberías existentes. Este permiso ha de exigir que se actualice el plano previo al trabajo ya que normalmente se encuentran desactualizados.

Las tecnologías para hacer el levantamiento del plano en muy corto tiempo y con la precisión en el trazado y profundidad se hace mediante el escaneo

del suelo con equipos que encuentran las tuberías. De esta forma, la localización es más exacta. Los equipos comúnmente utilizados son los georradares y se complementan con sonares y otros equipos dependiendo de las condiciones del suelo.

Este equipo también es utilizado para explorar el estado del suelo alrededor del tubo y para encontrar conexiones erradas. Es importante, que los planos se presenten en 2D y 3D así como también que se haga el levantamiento de la ubicación con el sistema de información geográfica para entregar en un mapa de ciudad la ubicación de las tuberías.

Actualmente, se utilizan drones para tomar fotos del lugar. Esta foto sirve de fondo del plano y sobre ella se trazan las tuberías en vista superior y en corte vertical.

Para ello, el profesional que haga este trabajo ha de ser certificado para asegurarnos que conoce la norma de investigación subterránea de servicios públicos. La Asociación BAMI-I Buried Asset Management Institute-International (www.bami-i.org) con La Asociación Latinoamericana de tecnologías sin zanja – (wwwlamstt.org) han desarrollado la capacitación en español.

LAMSTT
LATIN AMERICAN SOCIETY FOR TRENCHLESS TECHNOLOGY
ASOCIACIÓN LATINOAMERICANA DE TECNOLOGÍAS SIN ZANJA

Latin America - The market for Georadar

By Arlex Toro Rodríguez, Executive Director, Latin American Association of Trenchless Technologies.

The installation of new pipes with microtunnelling boring machines (pipe Jacking, auger boring pilot pipe, pipe ramming, etc.) and underground excavators (horizontal drilling directed) is consolidated as a recurring practice in the preparation of engineering projects in public service companies of aqueduct, sewage, and domestic gas.

For the electricity service, efforts have been made to underground pole networks in underground pipes for greater safety of people on the streets and the technicians who have to climb at high risk to do their job. This has resulted in a lower impact on the carbon footprint since the installation of the pipes requires 70% less digging, so there is less debris travel, less dust in the air and less noise compared to the works when they are done in an open trench.

To carry out work on new installations it is necessary to require the excavation permit whether carried out with trenchless or trench technologies open to prevent them from breaking existing pipes. This permission must require that the plan be updated prior to the work since normally it is outdated.

The technologies to carry out the survey of the plan in a very short time and with precision in the layout, and depth is done by scanning the ground with teams that find the pipes. In this way, the location is more exact.

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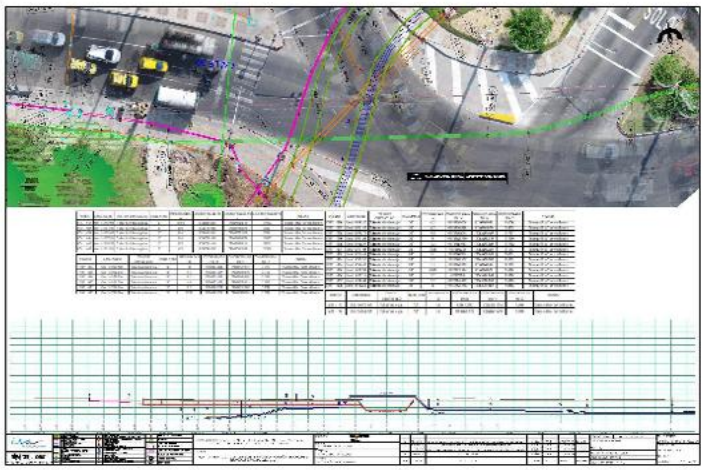

PURDUE UNIVERSITY | Construction Engineering and Management

The commonly used equipment is Georadars and they are complemented with sonars and other equipment depending on ground conditions. This equipment is also used to explore the state of the soil around the tube and to find wrong connections.

It is important that the plans are presented in 2D and 3D as well to survey the location with the geographic information system, and to provide the location of the pipes on a city map. Currently, drones are used to take photos of the place. This photo serves as a background of the plane and on it the pipes are drawn in top view and in vertical section. To do this, the professional who does this work must be certified to make sure you know the underground service investigation standard public. The BAMI-I Buried Asset Management Institute-International Association (www.bami-i.org) with the Latin American Association of Trenchless Technologies – (wwwlamstt.org) have developed training in Spanish.

AFFILIATED SOCIETIES

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NORTH AMERICAN SOCIETY FOR TRENCHLESS TECHNOLOGY

TRENCHLESS TIMES

2025 Call for Abstracts

MARCH 30-APRIL 3 | DENVER, CO
NO-DIG SHOW 2025

SUBMISSION DEADLINE: JUNE 30, 2024

The North American Society for Trenchless Technology (NASTT) is now accepting abstracts for its 2025 No-Dig Show in Denver, CO at the Colorado Convention Center March 30 – April 3, 2025. Prospective authors are invited to submit a 250-word abstract outlining the scope of their paper and the principal points of benefit to the trenchless industry. The abstracts must be submitted electronically at NASTT's website by June 30, 2024: nastt.org/no-dig-show/speakers/call-for-abstracts.

No-Dig North

OCTOBER 28-30 | NIAGARA FALLS, ON
NO-DIG NORTH 2024

The NASTT Canadian chapters work together to host No-Dig North, a must-attend event for underground infrastructure professionals doing business in Canada. The show consists of two days of technical paper presentations and industry exhibits in the trenchless technology field. Who Should Attend? The following professionals will benefit from this conference:

- **Municipalities:** public works officials, construction and rehabilitation personnel, engineers, senior city staff and elected officials
- **Contractors:** sewer, water, gas utility, industrial, pipeline, damage prevention and safety
- **Consulting Engineers:** firms serving the underground infrastructure and industrial markets
- **Gas/Electric Utilities:** officers, managers, construction, maintenance and rehabilitation personnel
- **Pipelines and Energy:** officers, managers, construction and maintenance personnel for transmission pipeline construction, rehabilitation and maintenance
- **Industrial Facilities:** construction and maintenance personnel, engineers and environmental assessment personnel
- **Damage Prevention:** personnel involved in managing damage prevention and safety issues

Join us October 28-30 in Niagara Falls.

Visit nodignorth.ca for details and registration.

Upcoming CONFERENCES, COURSES & EVENTS

May 30
Municipal Sewer Grouting Good Practices Course
VIRTUAL

June 26
New Installation Methods Good Practices Course
VIRTUAL

September 25
HDD Good Practices Course
VIRTUAL

October 28-30, 2024
No-Dig North 2024
Niagara Falls, Ontario, Canada

November 13
CIPP Good Practices Course
VIRTUAL

December 12
Trenchless for the Gas Industry Good Practices Course
VIRTUAL

March 30 – April 3, 2025
NASTT 2025 No-Dig Show
Denver, Colorado, USA

March 29 - April 2, 2026
NASTT 2026 No-Dig Show
Palm Springs, California, USA

For more information and the latest course offerings, visit nastt.org/training/upcoming-events/

EVENTS AND MEETINGS

2024

May 29-30 Ville Sans Tranchée 2024: Paris Event Center
20 Avenue de la Porte de la Villette, Paris, 75019, France
www.salon-villesanstranchee.com

June 5-6 Trencless Romania 2024:
Venue: Caro Club Hotel, Bucharest, Romania
www.trenchless-romania.com

June 11 UKSTT National Trenchless Conference 2024:
Venue: MTC (Manufacturing Technology Centre)
Email: lynn@ukss.org.uk

June 26 No-Dig Roadshow Reading 2024:
Venue: Hilton Reading, Frake Way, Reading RG2 0GQ
www.nodigroadshows.co.uk

July 16-17 Trenchless Asia 2024:
World Trade Center Metro Manila, Philippines
www.trenchlessasia.com

September 17–18 CzSTT Conference and Exhibition on Trenchless Technology
Hotel Palcát, 9.května 2471, Tábor, South Bohemia, 390 02-Tábor, Czech Republic
Email: slovecky@atlas.cz
www.czstt.cz

October 1-3 No-Dig Live 2024:
Featuring the UKSTT Annual Dinner & Awards Ceremony
NAEC Stoneleigh Park, Warwickshire
www.nodiglive.co.uk

October 23-24 No-Dig Turkiye 2024:
Featuring 8th Water Loss Forum
WOW Istanbul Hotel and Convention Center
www.nodigturkey.com

5-6 November: Trenchless Middle East 2024 Featuring the ISTT International No-Dig
Jumeirah Beach Hotel, Dubai
www.trenchlessmiddleeast.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