A STITCH IN TIME SAVES THOUSANDS

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To submit editorial for Trenchless Works Issue 167
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OVERLAND PIPING SYSTEM OFFERS THE HIGHEST SITE PROTECTION

Rädlinger Primus Line GmbH first developed its Primus Line® pipe rehabilitation system in the 1990s and has continually developed the system that today enjoys a worldwide reputation when it comes to the lining of pressure pipe networks including water, oil and gas mains.

As a company that prides itself on not only providing the contractors with materials for their rehabilitation operations but also a site presence that ensures that the products achieve the maximum effectiveness for the future, the company has also noticed over time that there may be other circumstances where buried pipelines may not be the answer to the prevailing circumstances.

As in many cases there is a need to isolate a buried pipeline length whilst a rehabilitation project is undertaken there is also the need to establish a by-pass system to ensure that the service continues to meet customer needs. This bypass is usually run through a temporary pipeline across the surface between two access points at either end of the pipe length being rehabilitated. Or, there may be circumstances where a temporary pipeline needs to be established without the need to bury pipe for the longer term. It was this type of requirement that led to the development of the Primus Line Overland Piping System.

ENSURING THE HIGHEST SAFETY

Using traditional pipe material such as steel or HDPE for by-pass or transport pipelines can be a time consuming and costly exercise as pipe lengths have to be cut and welded to fit to the available route. Similarly, the use of trucks to transport water can also be costly and not always reliable as well as potentially being highly labour intensive and environmentally damaging.
In 2018 the hydraulic fracturing industry in Canada required a solution for the temporary above-ground water supply for its processes. Whilst the industry was permitted to use HDPE or metal pipes or trucking for the purpose by local regulatory authorities, this was deemed unsuitable given the reasons previously mentioned.

So, Primus Line was approached to see if an alternative solution could be found. After careful examination of the technical and economic aspects faced by operators when dealing with transfer of water, the Primus Line team developed the Overland Piping System.

The Overland Piping System is supplied as a continuous pipe length of several hundred metres using the technology established for the company’s pipe lining materials. This eliminates the need for on-site welding procedures and makes the pipe re-usable for multiple applications.

The system offers improved handling for the operator due to a new liner matrix and it is quick to mobilise and deploy given its light-weight and high material strength. The system also has a field tested and proven connection making it a highly reliable, durable and at the same time cost-effective solution for temporary water supply. Not only is the system available for water supply and sewerage removal but it also offers the capacity to transport some hazardous materials such as water/oil mixes and other wastewater products for relatively short time periods when necessary as the materials used have been proven to be chemical and abrasion resistant in its time as a liner material.

The use of Kevlar® as one of the material components also adds to the structural integrity of the pipe. The outer layer of the Primus Line Overland Piping liner is also made of TPU (thermoplastic polyurethane), making it not only more resistant to chemicals and abrasion, but also more flexible. Furthermore, the black outer colour eliminates UV degradation, prolonging the effective life expectancy of the pipe.

**AVAILABILITY**

The Overland Piping System is currently available from DN 150 to DN 300 with operating pressures of 43 bar for a DN 150 pipe and 19 bar for a DN 300 pipe respectively. The operating pressures were determined following API 15s standard with a design life of 20 years. After rigorous testing as well as field trials performed over a period of several months at ambient temperatures as low as -32°C, the Alberta Energy Regulator in British Colombia, Canada approved the Overland Piping System for use by the hydraulic fracturing industry. Since the development and approval of the system in Canada the Overland Piping Systems has also found application in areas such as the municipal sector where over-pumping of sewerage might be needed and in the mining industry which also often requires significant amounts of water for its processes.

Commenting on the new Overland Piping System Andreas Gross, Head of International Business Development for Primus Line said: “Our reputation for our Primus Line system has been well-established for some years now. For our development team to put that expertise into practice to bring this new Overland Piping System to the market in such a relatively short time-frame is extraordinary and at an overall cost that meets, if not beats, that that would be expected for a more traditional by-pass pipe system. We can now offer not only the materials and support to our clients for lining and rehabilitation of pipe networks but we can also ensure that anyone requiring over-pumping arrangements can be sure that their system is as safe as it can be for the protection of the workforce, the nearby residents and commercial concerns and most importantly the environment.”

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NEW GENERAL MANAGER FOR S1E

Source One Environmental (S1E) recently announced that Scott McMurray has joined the S1E Team in the role of General Manager. Scott took up the position from the beginning of June 2020.

Scott has many years’ experience within the drainage industry, including senior roles within S1E’s sister company Flexseal.

“We are delighted that Scott has brought his wealth of experience to the growing S1E Team,” stated S1E MD, Glenn Cartledge. “Scott’s skills will complement those of our other well-established team members and his industry knowledge will help the company continue to move forward.” Website: www.s1e.co.uk

UTILITIES WORKFORCE REPORT SIGNALS NEED FOR CHANGE

British Water has welcomed the 2020-2025 Workforce Renewal & Skills Strategy launched by the Energy & Utilities Skills Partnership.

The document sets out how the sector can ensure a safe, skilled and sustainable workforce, and fill an estimated 277,000 vacancies over the next decade, while addressing challenges such as the climate emergency, skills shortages and a constricted labour market.

British Water chief executive Lila Thompson said: “We welcome and fully support this important document, which sets out tangible action the utilities sector can take to build resilience and tackle the impending skills gap to create a sustainable and positive future. The report’s publication is timely, given one of its main themes is workforce diversity, inclusion and attraction. It highlights a continued gender and ethnic minority disparity in the workforce - inclusion levels for the energy and utilities sector continue to be below the UK averages for gender, disability and Black, Asian and minority ethnic (BAME). BAME people, for example, represent just 5% of the workforce in comparison to a UK average of 12%. At a time when the world’s focus is on supporting diversity and removing, in particular, barriers faced by black people, British Water is passionate about transformational change and invites the water industry to do things differently.”

Thompson added that the water sector, an employer of 65,500 people, now has a unique opportunity to build a more diverse and inclusive workforce, especially given the rise in importance of social contracts, which encourage companies to commit to better representing the communities they serve.

She said: “Let us commit to capturing the talent and creativity that the sector is missing out on and fill the shortage of procurement specialists, civil engineers, process engineers and cyber security specialists, to name just a few key job roles, where recruitment is challenging. The Black
INDUSTRY, COMPANY AND INSTITUTION NEWS AND RESEARCH

Lives Matter movement has led to an extraordinary wave of social media conversations, many highlighting painful experiences and shedding light on present-day inequalities but many of the stories are positive and inspiring. For example, the social media hashtags #DiversityInSTEM #BlackInSTEM and #DiversityInScience show us just some of the important contributions BAME people are making in the worlds of science, technology, engineering and mathematics. I invite my water peers to create safe spaces within their workplaces, if they have not already done so, for open conversations about race and racism and its impact on individuals. Through this and by shining a light on the achievements of BAME people in our industry, we can put in place the mechanisms to bring about the necessary step-change to capture latent talent and creativity in our communities. The Workforce Renewal & Skills Strategy shows us there is work to be done but we can truly grasp this opportunity to make a positive change in the water industry by emboldening all staff to have open conversations. This will allow people the freedom to voice concerns, experiences and stories. We all have a responsibility to drive change.” The full report from can be found at: www.euskills.co.uk/news

ACOUSTIC LOGGERS WILL WORK WHILE SOUTHAMPTON SLEEPS

Southern Water has started the world’s first mass roll out of a ground-breaking new ‘Internet of Things’ leak detection system in Southampton, UK.

The devices are a crucial tool to support both long and short-term challenges. Water use has soared by as much as 20% in lockdown and hot weather is further driving demand making it a challenge for water to be treated and pumped enough to maintain pressure.

Some 700 new Gutermann ZONESCAN NB-IoT devices will be fitted around the city. Southern Water has pioneered the use of acoustic logger technology in the UK and the latest devices will massively increase our ability to detect leaks before they become bursts.

Southern Water is committed to reducing leaks from its network by 15% over the next five years. Southampton has been chosen for the first wave of devices to support the ten year ‘Water for Life: Hampshire’ resource plan. Hampshire must reduce its reliance on water taken from the iconic chalk streams of the Rivers Test and Itchen. The plan includes massive resource development including the construction of a new reservoir in Havant Thicket in collaboration with Portsmouth Water as well as supporting customers to reduce the amount of water they use through the Target 100 campaign: https://www.southernwater.co.uk/water-for-life/target-100

“Building new water resources can never be the whole answer to the challenges of population growth and climate change.” said Phil Tapping, Southern Water’s Regional Demand Manager. “Demand reduction and cuts to leakage from our network will be key. Furthermore, we need to find new ways of tackling leakage - bringing technology to bear is crucial. I am very proud Southern Water is leading the way.”

Previously, leakage data was either collected manually or by driving past the device or by relying on 2G/3G cellular coverage. 2G/3G was primarily designed for use with mobile phones so has never been an optimum way of transferring small packages of data. “It was like delivering a pizza in a lorry,” said Paul Chandler, Gutermann’s Southampton-based UK Sales Manager.

The new devices rely on industry proven Gutermann leak detection hardware and software and the use of the latest NB-IoT (Narrow Band Internet of Things) cellular technology to reliably ensure Southern Water receives its leakage data every day. This then negates the need for manual or ‘Drive-By’ collections therefore reducing Southern Water’s carbon footprint. Website: www.southernwater.co.uk

RELINEEUROPE DELIVERS 100th UV SYSTEM

RELINEEUROPE AG, a system provider for trenchless pipe rehabilitation based in Rohrbach, Germany recently celebrated a special occasion. In May, the 100th UV curing system was delivered to contractor Jeschke Umwelttechnik which plans to use this newest curing technology to focus more heavily on the rehabilitation of very large pipe diameters.

Jeschke Umwelttechnik, a rehabilitation company from Stutensee near Karlsruhe, Germany, has been a RELINEEUROPE client since day one and has installed more than 200,000 meters of

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Alphaliner CIPP liners over the past 10 years. Now, the time had come to renew its UV curing system. “We decided to choose the most powerful REE4000 Professional system, because it is currently the newest technology available on the market and because RELINEEUROPE is the market leader in this industry,” explained managing director Thomas Boos. Apart from its new functionalities for autonomous curing and its unique technology, which is tailor-made to cure GRP-reinforced CIPP liners, the broad range of possible application settings convinced him.

“With this curing system, we can rehabilitate any pipe. Starting from diameters as small as DN 200, all the way up to profiles with a diameter of DN 1800,” continued Boos, who took over as managing director from company founder Steffen Jeschke in January of 2020. With the help of this investment Jeschke Umwelttechnik is not only renewing its curing system, it is also expanding its portfolio, focusing more strongly on installing CIPP liners for very large diameters.

**INDIVIDUAL SYSTEM DESIGN**

RELINEEUROPE adapts all UV systems to specifically match each customer’s needs and desires. Depending on the intended application purpose, the company can choose between two different product lines. The REE2000 UV curing systems are predominantly used to cure diameters ranging between DN 150 to DN 1200 and can be equipped with a cable length of up to 300 meters. The REE4000 comes with functionalities for autonomous operation, covers the full range of diameters all the way up to DN 1800, and can be fitted with a cable length of up to 350 meters. This huge degree of flexibility, in combination with customised vehicle configurations, are the bedrock of RELINEEUROPE AG’s rapidly growing business in this sector. “With now more than 20 UV systems being ordered every year, we clearly hold a leading position.” said Philipp Martin, who oversees RELINEEUROPE’s sales activities in Europe.

On behalf of the entire team, Martin thanked the Jeschke company for their many years of loyalty. According to Martin, delivering the 100th UV system in 10 years is a ‘unique success story’ which the entire RELINE team can be proud of.

“The REE4000 Professional UV curing system is efficient in all areas of application and more cost-effective than any other system available on the market.” stated Martin. Not only had the curing performance of the UV systems increased rapidly over the course of the past decade, to now 24,000 watts, functionalities such as the stepless adjustment of the bulbs’ power output, automatic intensity monitoring of the UV lamps, the import of curing parameters using a QR code scanner, or the automatic stop function are all features which are unparalleled in the industry and which have set new benchmarks for safe and thorough curing of reinforced CIPP liners.

The fact that the 100th UV system is truly something special is also reflected in the decorative design on the truck. “Of course, we want to use this advertisement to promote RELINEEUROPE and ourselves a bit, too,” said managing director Thomas Boos. Website: [www.relineeurope.com](http://www.relineeurope.com)
**Pipebursting is one No-Dig option available when using Pipelife coated pipes.**

**PIPE BURSTING/SPLITTING**

Wherever water mains or supply pipelines need to be replaced because they are either old and at risk of failing or have become too small in capacity, it is often easiest to insert the new pipe directly into the existing line. Rather than opening up roads and dealing with lots of excavation material, there are only two excavated shafts necessary per rehabilitated section, one where the pipe is inserted and one from which it is pulled through the host pipe (exit shaft).

The sections can be up to 200 m long and depending on the available space on site, specially designed PE 100-RC (resistant to crack) Pipes with an additional protective coat are pre-joined to the necessary length. Metal rods are inserted into the old host pipe and attached to a burst or cutter head and an expander. This in turn is attached to the new pipe. A rod puller in the machine shaft slowly pulls the head, expander and new pipe, breaking the old host pipe and pushing the debris aside into the surrounding soil.

PE 100-RC pipes are generally very strong and resistant to point loads. However, to avoid any mechanical damage in addition to point loads, it is important to opt for coated pipes.

“The debris from the host pipe can put high point loads on the new pipe and cause mechanical damage. Scores and deep scratches may not seem harmful at first glance but can shorten the pipes service life considerably. It is highly recommend to exclusively use coated PE 100-RC pipes for this type of pipe rehabilitation.” said Werner Sens, Product Manager Water and Gas at Pipelife Austria adding, “Take, for instance, Vienna’s city department for water: For all trenchless techniques using PE pipes, they accept only those with a protective coating. They know the risks and want their networks to last as long PE 100-RC pipes are supposed to last: at least one hundred years.”

**HDD**

Sometimes, the installation of new water mains and service pipelines requires undercrossing of roads, streams or rivers, or there are simply a lot of existing underground structures that are difficult, costly or simply impossible to bypass. Also, where pipe bursting or splitting cannot be implemented safely due to soil or site restrictions, a new pressure pipe can be installed applying horizontal directional drilling (HDD) technology.

The principle of this method is to first create a pilot borehole which defines the pipe alignment. Provided, the location of all neighbouring buried structures is HDD projects can also benefit from using coating PE pipes.
known, the technician above ground can safely steer the drill head around these and through soil and rock. The hole is consequently enlarged to finally pull the new pipe through.

“The last step in horizontal directional drilling is preferably done in one go before the drilling fluid supporting the boring procedure hardens. Depending on the required length, the coated PE 100-RC pipes are butt-welded to the desired length. Several hundred meters are impressive but very common for HDD.” said Sens.

SLIPLINING
The probably oldest and simplest trenchless technique applied in pipe renewal is sliplining. As the name indicates, a new pipe is slipped inside the existing line and pulled through following the host pipe’s alignment. The drawback about this method is the reduction in diameter and the resulting reduced capacity of the pressure pipe.

The advantages of using coated PE 100-RC in this case is, for one, the flexibility and practically flush joints which allows for minimal radial clearance between the host and new pipe. Second, the smooth inner surface provides optimal flow and therefore partly compensates for the reduced capacity.

“Sliplining is a fast and extremely cost-efficient method. As an example, a more than 1 km long water supply pipe in Paternion in Austria, could be completely renewed within only a couple of days, despite the fact that the pipeline was segmented due to bends and connections to houses. Excavation and backfilling were necessary for only 9 pits and also the heavily trafficked road remained largely unobstructed.” reports Werner Sens.

IDEAL FOR NO-DIG
The advantages of trenchless technologies during installation are obvious. However, they require expertise, experience and special equipment from the installer and they make high demands on the applied pipe.

Recognising the growing trend towards trenchless installation and rehabilitation some 10 years ago, Pipelife Austria developed PE pipes that ensure a full-service life of at least 100 years despite the literally rough installation conditions.

The so-called Aqualine RC Robust Pipes are a combination of a PE 100-RC Pipe (RC standing for resistance to crack) and have a durable coat that can be peeled off for jointing. The PE 100-RC medium pipe itself is already highly resistant to point loads and slow crack development. Under ‘normal’ installation circumstances in open trench, this pipe would be by far strong enough. Under no-dig conditions, and in addition to tensile loads when pulling the pipe during installation, the pipes undergo mechanical forces from the host pipe, debris or rocks. This is where the coat provides extra protection.

All products are of course certified to national and international standards. “It is important to us, that our clients know right away that they are working with state-of-the-art, top quality products when they opt for Pipelife.

Here in Austria, we have an industry acknowledged association for gas and water applications, the ÖVGW. To earn their quality approval, raw materials and products need to pass tests to defined specifications and procedures and we undergo annual external audits. In addition to EN 12201 and the certification for potable water supply, Aqualine also carries the ÖVGW mark for ‘unconventional’ no-dig technologies.” affirmed Sens.

“We are a sustainable company offering sustainable solutions.” said Harald Schwarzmayr, CEO of Pipelife, “and with ‘sustainable’ I am not only referring to environmental efforts. Yes, the products we are talking about are 100% recyclable, and yes, we make sure we re-use material wherever possible ensuring the usual high quality. But what I would like to underline here is, that we make sure our clients have piping solutions at hand that are made to last. The idea is to develop products that have the smallest possible impact on the environment from production, through delivery to installation and during a longest possible service life. We are proud when our products go unnoticed, this is how it should be, for the environment including the people. Ideally, nobody should even notice them being installed.” Schwarzmayr added, “this is why we ‘dig’ no-dig, but only with PE Pipes wearing a coat.” Website: www.pipelife.com
INSTALLING A NEW WASTEWATER CONNECTION TO THE KÄPPALA TUNNEL

The Käppala Tunnel is one of the largest/longest wastewater tunnels in the Stockholm area of Sweden. The Municipality of Upplands Väsby lies just to the north of Stockholm and required a new wastewater connection to be made to join the Käppala Tunnel. The consulting engineer for the project, appointed by the Municipality, was Uppsala-based Johan Lundberg AB.

The new connection was required due to the expected continued urbanisation of the area around Stockholm which is expected to expand significantly over the coming years. This expansion would mean that as population density and housing increases the existing sewerage network infrastructure has to be expanded and adapted also.

In the case of the Municipality of Upplands Väsby, the existing network has already been expanded to its maximum limits and was in need of reconstructing. The wastewater network crosses through the heart of the city of Upplands Väsby which means that any restructuring by conventional means would be not only extensive but also very costly. Currently all wastewater flows in the area are fed into a blasted tunnel some 30 meters underground.

Current plans for the expansion of local housing were also being hindered by the fact that despite various attempts no feasible solution could be found to address the sewer network/wastewater handling expansion requirements.

SEEKING A SOLUTION

The Municipality approached Johan Lundberg AB with a view to conducting a pre-study to see if there was a trenchless technology solution to the problem. Initially Johan Lundberg looked into the potential of feeding the generated wastewater directly to the wastewater tunnel by boring a connection to the tunnel from the specific part of the city that was earmarked for expansion. This would have meant some 230 m of drilling in rock, as well as a 10 m deep shaft to access the bedrock at the start of drilling operations.

However, during the investigation process it became obvious that there other immediate issues that would also need to be addressed as plans proceeded. For example, Sweden’s largest highway, the E4, passes though the Municipality, and there are plans in hand for future urban expansion on the other side of the highway. The highway runs in a valley, which also holds a pumping station serving the existing wastewater network. This pumping station was unfortunately positioned on a ridge which also functions as a hold water reserve for the Stockholm area. It was decided that removal of this pumping station would be very useful to all concerned.

Johan Lundberg then investigated the possibility of constructing a connecting pipeline up to the bore drilled in the bedrock at such a depth as would make the pumping station unnecessary. The existing network could then connect to the main tunnel as a gravity sewer. The pre-study proved this to be a definite possibility. The local authority decided to initiate planning for the construction of this solution.

INSTALLATION

Contractor BAB Rörtryckning of Hisings Backa, Sweden was appointed as the main contractor for the €7 million installation project. In the area designated for installation using microtunnelling, ground conditions comprised sand, silt, clay, and ridge material. As previously mentioned the rock bore to the wastewater tunnel was to be conducted through solid bedrock.

First and foremost, investigations were required to establish the range and complexity of the local ground conditions using accessible archives from previously documented information. Thereafter a

**Image:** The majority of the tunnelling works on the Upplands Väsby were completed using a DN800 microtunnelling machine.

**Image:** The bedrock drilling works are expected to completed shortly. Pictured here is the drill head used for the process.

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traditional geotechnical investigation drilling programme was undertaken as a first step for identifying local ground material, depth of material, and bedrock levels along the projected bore alignment. This was followed by complementary geotechnical investigations as a second step using traditional technology for further understanding critical areas in the ground based on results.

Pits were then excavated to investigate the size of boulders and the extent of ridge material. This was done because significant changes in either could threaten progress of the DN800 microtunnelling machine.

HDD (Horizontal Directional Drilling) was used in some investigation areas to ascertain if materials were free from obstacles that might be problematic to the drilling process. HDD was used because these sites could not be investigated in the vertical plane due to inaccessibility because of bridge foundations etc.

Once ground investigations were completed and work could commence, the rock drilling part of the installation was to comprise some 230 m in length utilising horizontal core drilling techniques. The allowable tolerance for the bore was just ±300 mm at the target point. The pilot bore was then to be reamed to required diameter using a DTH (Down-The-Hole) hammer drill hammer with expansions of the bore being 76 mm to 165 mm, 165 mm to 254 mm, 254 mm to 355 mm and finally 355 mm to 800 mm.

Microtunnelling for the gravity sewer required a grade of just 5% over a length of some 750 meters in total. For the most part the DN800 microtunnel was used to complete this part of the works. However, on one section an AVN1200 were used due to moraine with boulders in the pipes section.

Concrete pipes of DN800 and DN1200 were installed for the microtunnelled installation. The bore drilled in the bedrock was to be lined with a stainless steel pipe which was to be inserted along the bedrock over its full length. The six shafts were excavated each approximately 10 m deep which formed the launch and receive stations for the microtunnelling operations. One shaft, some 12 m deep, was excavated where the microtunnelling went out from the cohesive soil and met the bedrock. This shaft was constructed from drilled RD-piles that were all driven down into the bedrock. After being excavated and blasted to right depth this shaft functioned as the launch pit for the rock drilling operation.

Work on the installation commenced in May 2019. One year later the microtunnelling operation saw its final breakthrough after installing a total of 750 m of tunnel. The microtunnelling
work was occasionally problematic because the microtunnelling machine encountered a number of larger boulders than expected in the ridge material section of the drive, which could not be handled using the DN800 alone. These boulders were removed by digging targeted trenches to depths of between 8 and 10 m. The rock drilling process has also been challenging due to the varying quality of the rock material along the bore alignment. At the time of writing this drilling process has yet to be finalised with some 150 m of DN800 having been completed so far of the 230 m total required.

Commenting on the project to date, Johan Lundberg, founder of the NoDig consulting agency Johan Lundberg AB said: “It has been a joy to participate in the project from the start, investigating whether or not No-Dig technology may be a solution the municipality’s challenges of increasing the capacity of the wastewater-network in order to enable the new plans for housing. To then also take part in the full process of planning and construction has been a pleasure. Seeing the opportunities created when understanding the benefits of No-Dig technology is amazing.” In the event, a cost/savings comparison for trenching/trenchless methods cannot be made in this case as this project could not have been completed with conventional trenching options. “Trenchless methods are always taken into consideration when the municipality of Upplands Väsby approaches new projects and yes, trenchless technologies are examined when planning projects, and chosen when it seems beneficial, quite simply.” said Magnus Fernström, of Upplands Väsby kommun.

For the contractor, Magnus Tingstrand of BAB Rörtryckning explained: “The project has been very interesting and includes many of the methods that we specialise in and have experience of. Many municipalities in the area have shown great interest. They are either planning new connections to wastewater tunnels or are interested in conducting projects in collaboration.”

Website: [www.johanlundberg.se](http://www.johanlundberg.se)
The GRUNDOMAT mole proved to be a useful piece of kit for contractor JC Balls & Sons Ltd, of Ambergate some 15 miles south of Chesterfield, UK, when working on the construction of the prestigious JCB Golf & Country Club in the Staffordshire countryside.

The installation of a 150 m long drainage pipe to connect holiday lodges to a pumping station included crossing a 10 m wide road that linked two separate areas of the construction site. Excavating the road would have caused disruption to the build, unnecessary inconvenience and additional time and cost to the job. So, the company turned to specialist equipment supplier, PSS Hire (soon to be named Sunbelt Rentals) for a trenchless solution to minimise the need for digging. With the pipe being laid 2.5 m deep at either side of the road PSS Hire recommended a 130 mm GRUNDOMAT Mole with launch cradle, scope and ranging pole to complete the job. Two small trenches either side of the road were excavated ready for the launch of the mole and using the scope and ranging pole, the operator was able to guide the mole accurately to the exit pit. The drainage pipe was then attached to the mole and pulled into the channel created from the first pass. Putting the mole into reverse enabled the drainage pipe to be pulled all the way back to where it started in the launch pit, leaving drainage pipe at each end ready for connection. The job took just 2½ hours in total, far quicker than digging a trench, laying the pipe and reinstating the road and more cost-effective too.

During the installation construction traffic was able to continue using the road ensuring continuity of the wider project with minimum disruption from the trenchless activity. Brent Smith, MD of PSS Hire and a long term advocate of the mole technology said: “The GRUNDOMAT is a tried and tested product and highly efficient. This job was the perfect illustration of how trenchless technology can often provide the most cost-effective solution for a pipe installation.”

Website: www.tracto-technik.co.uk
A STITCH IN TIME SAVES THOUSANDS

Mammoth MTS is the UK’s main HammerHead Trenchless dealership supplying impact hammers for installation, ramming and piling operations as well as HammerHead pipeline replacement systems for pipe bursting.

Mammoth MTS recently supplied a HammerHead 130 mm diameter impact hammer (mole) to Mark Taylor Groundwork which was contracted to install some 300 m of new pipework as part of a project for a company based in the Midlands, which supplies timber products to one of the UK’s major DIY chains.

The project was to replace part of an 800 m long water ring main that was exhibiting severe leakage to the tune of some 18 m$^3$/day which was costing the company around £880 per day.

Investigations as to possible solutions for the ring main installation showed that open cut works for the whole project would impact significantly on the daily operations of the client site, so an alternative was sought.

Horizontal Directional Drilling (HDD) was investigated but estimates put the cost of the works at around £46,000 to complete the 300 m long section. After enquiries with Mammoth MTS, it was believed the project could be completed for around £10,000 by using the impact hammer installation technique. This much reduced cost not only covered the cost of the mole and the crew but also the ancillaries that are required to operate the mole effectively and safely.

PIPELINE INSTALLATION

After further consultation with Mammoth MTS to ensure that the correct mole was selected, Mark Taylor, owner of the contracting company, opted for a new HammerHead 130 mm diameter mole for the job. On delivering the mole to site the Mammoth engineer also undertook full training on the safe operation and capabilities of the mole with the Mark Taylor crew.

A standard excavator was used to establish start and receive pits across the 300 m run of the installation with the mole working from one pit whilst others were being excavated.

The size of the mole led Mark Taylor to look at how site efficiency could be improved, thereby limiting crew numbers and time on site. To this end Mark designed his own launch cradle for the mole which enabled the crew to set up and launch the mole without the need for personnel entry into the start pit, a major safety aspect of the project for Mark, as well as ensuring good alignment of the mole on the desired line and level prior to starting the moling run.

The technique used for the moling runs is known as ‘stitching’ with each small mole run feeding into the next ‘start pit’. The launch cradle is then simply moved from one pit to the next, the mole is resettled on to the cradle aligned, the pipe connected as required and launched.

The project took a total of four (4) weeks to complete given the pit excavations and the other works necessary to establish the ring main. However, over this time scale the mole was only in operation for a total of 5 working days. In practice some 21 pits were excavated, each spaced about 14 m apart. The mole was then used to install the ring main pipe which comprised 90 mm diameter butt-fused PE pipe.

By the time the work was completed and the new ring main was operational the leakage from the client’s site had fallen from the peak of 18 m$^3$/day to around 0.8 m$^3$/day, measured as a loss of just 8 m$^3$/over a ten day period.

The PE pipe being installed for the new section of the water ring main.
Commenting on the project Alexander Holt, Sales Manager - Trenchless Technology for Mammoth MTS said: “This was first time Mark had used this technique for such a job as this, but he took to it with great enthusiasm and designed his own launch cradle to make the site more efficient for him and his crew. It was great to see such a keenness for the technology.”

Mark Taylor further commented: “This technique was really useful and both our client and I have been well impressed by the speed and accuracy achievable with the moling system. Further to this the cost saving it offered was huge compared with other possible trenchless options. It became a no brainer to use the stitching technique for this project with the impact mole.”

For the client, the site manager said of the works: “Mark’s team caused no distribution for the site what so ever and we were very pleased that he kept the site tidy. No efficiency was lost throughout the installation of the water ring main. These points were very important to the smooth operation of a national distribution centre business.”

On completion of the project, Mark Taylor was approached by a local farmer to find out what had taken place. He said he was asking because since the works has been completed his fields, which lay adjacent to the works site, had dried up, something which had not happened for some 25 years, the wet soil making his fields unusable at times. The farmer was very pleased with the outcome and this shows some of the positive impact of the works for the local community. Website: www.mammoth-mts.co.uk
MTS Suction Systems UK Ltd, the Cambridgeshire based subsidiary of specialist suction equipment manufacturer MTS GmbH in Germany recently announced that its German-based parent company, MTS GmbH has faced the COVID crisis head-on with the intent of minimising disruption to its clients throughout the crisis.

The German factory was forced to effectively shut-down production for a period of 6 weeks with only a skeleton team of support and production staff remaining on site on a rota basis over the closure period. This was to ensure vital spares and service support was maintained and to allow some production works to be completed. With the relaxation of lockdown in Germany, the production team and support staff are now back at work and MTS GmbH is pleased to announce that all production lines are up and running.

As would be expected, the supply chain for parts and equipment for all outsourced products utilised on the MTS production lines has been disrupted but the company, in association with its supply partners have worked together to minimise delays to orders and deliveries caused by this unprecedented worldwide situation.

Despite the pandemic, MTS clients across the globe have all remained positive about their marketplace, which is reflected in the fact that no orders have been cancelled. Indeed, even in the midst of the pandemic clients have continued to place additional orders extending out the forward order schedule for the group well into 2021 and beyond.

All clients have accepted the inevitable delivery delays in the knowledge that MTS and its distribution partners are striving to complete new equipment builds as soon as possible.

With all the necessary safety protocols regarding COVID-19 in place, MTS UK and MTS GmbH production is fully operational with all factory and office based sales, spares, technical support and design personnel back at their desks and ready to help fulfil client requirements. The company’s Senior Management Team would also like to thanks all staff for their efforts in getting the operation fully functional again in such a relatively short time-frame. Website: www.mammoth-mts.co.uk
Atkins has over 20 years’ experience in the planning, scoping and data review of CCTV surveys through to the development, management and site supervision of rehabilitation schemes. During this time, the company has worked with several UK water companies, airport owners and highways operators understanding their problems and developing appropriate solutions, some of which have involved the development IT systems/digital tools to manage the CCTV and sewer rehabilitation process.

CCTV surveys of sewers and drains are costly and disruptive activities generating large datasets which require time consuming, manual review to determine the improvements required. Subjective decisions can lead to inconsistency and repetitive decision-making has the potential for human error. In these days of needing to do more for less, the ability to quickly and accurately extract value from CCTV surveys has never been greater. Recognising the opportunity to generate up-front efficiencies in scheme development Atkins has now largely automated the rehabilitation scheme selection process with its digital tool RATS (Rehabilitation Automation Tool for Sewers/Stormwater).

RATS automatically reviews CCTV survey data (.XML files or similar), coded in accordance with the Manual of Sewer Condition Classification (MSCC) (or Pipeline Assessment Certification Program (PACP)), and recommends appropriate rehabilitation schemes based on critical modes of structural failure. It is built up from a series of logic statements which have been compiled into a decision tree and programmed for automation. This determines whether a pipe requires isolated repairs or manhole to manhole remediation. For a complex combination of defects or visual reviews of specific defects (for example holes), the surveys are selected for Engineer Review.

Following a successful trial, Atkins was subsequently appointed by Connect Plus Services (CPS) in late 2019 to review the CCTV survey data associated with over 600 km of highway drainage on the M25 orbital motorway around London, UK. Connect Plus Services (CPS) is a consortium of Balfour Beatty, Atkins and Egis Road Operation UK, which has a 30-year DBFO (Design Build Finance Operate) contract with Connect Plus to undertake servicing on behalf of Highways England. CPS is responsible for the operation and maintenance of the M25 motorway and adjoining roads (motorways and all-purpose trunk roads. The purpose of the review was to better understand the structural condition of the highway drainage, to allow rehabilitation to be proposed for the worst defects and investment plans developed. The main drivers for the work were:

- Exfiltration from pipes that could cause subsidence.
- Flooding on the carriageway as a result of pipe failure.
- Defective pipes located adjacent to geotechnical features.

Initially RATS was configured to process HADDMS (Highways Agency Drainage Data Management System) CCTV data and export full length reline, patch repair and excavation rehabilitation proposals, together with recommendations for intruding connections and root removal and infiltration prevention. Checking and verification of the output was carried out through the interrogation of over 200,000 lines of defect coding to identify specific defects, various spellings of technical terms (eg collapse) and duplicate, overlapping or repeat surveys. As part of the Engineer Review a QA check on the quality of the CCTV coding was undertaken to feedback to CPS and its sub-contractors.

Of the 602 k of CCTV survey data, 88% had no significant structural defects. For the remaining 12% various schemes were developed which were prioritised against defect severity, operational
severity, pipe diameter, strategic location, proximity to geotechnical features, accident/collision data and flooding severity. In addition, a full assessment of operational problems was undertaken to understand where planned maintenance is needed. This looked at trends in data to help identify cause/effect relationships to enable better network management.

RATS was chosen to undertake the work to allow a programme of improvements to be generated for investment planning. The data was processed, schemes developed, and a report prepared in just four months at this than 30% of the cost to undertake the work manually. With all results generated in GIS, the output was linked to other datasets such as land use, traffic flows, lane usage and topography to further refine the output and prioritise improvements for implementation during planned lane closures to avoid reactive work.

Quintin Viljoen, Professional Head Linear, Connect Plus Services commented: “Having trialled this tool we have implemented it over a much larger scope. We were able to demonstrate that we could automate elements of our drainage design process, for example the pipe network’s structural and surface defects, prioritise assets as well as recommend potential renewal treatments. The recommendations made by RATS concurred well with our own engineering recommendations. The use of this tool now provides notable design efficiencies. We will continue to calibrate this tool for our network to enhance its capabilities as this has become an indispensable part of our drainage review, analysis and prioritisation of works.”

As demonstrated, RATS can easily be configured to suit different coding standards or client requirements to quickly interrogate all CCTV data to maximise the value generated for maintenance and operational activities. Website: [https://rehabilitationautomationtoolforsewers.com/](https://rehabilitationautomationtoolforsewers.com/)

**NEW STREAM UP GPR AND PROCESSING SOFTWARE FROM IDS**

IDS GeoRadar, along with its UK distributor Drilline Solutions, recently announced the launch of the new state-of-the-art Ground Penetrating Radar technology, STREAM UP, which is multi-channel, multi-frequency, double-polarised and lightweight. This system is dedicated to utility mapping across extensive areas which facilitates the whole process before, during and after data acquisition. The company also released the latest IDS GeoRadar IQ Maps Software.

**GAME Changer**

The Stream UP is easy to assemble directly on site with as few as two people. To transport it and assemble it, with just one person is also an option. Furthermore, the total absence of contact with the ground dramatically reduces the stress on the equipment and consequently, the relentless maintenance often involved with these systems.

The Stream UP has an acquisition speed up to 150 km/h (with a suggested acquisition speed of 60 km/h) and the data quality is higher than ever, with the new control unit - Embedded Digital Antenna Driver – Stream (eDAD-S).

The new control unit which includes the dense array antennas and the dynamic stacking, means that the data quality is excellently maintained even at high speed. The system is compact, keeping the IDS GeoRadar dual polarised antenna concept.

“Stream UP is the cutting-edge product for extensive utility mapping. Nothing has existed like this before,” said IDS GeoRadar President Alberto Bicci. “The innovative suspended modular frame is safer than ever thanks to shell structure and embedded anti-collision system. Furthermore, Stream UP is compliant with traffic regulations and there is no need for escort vehicles.”

**The vehicle-mounted Stream Up GPR system.**
IQMaps enables the end user to perform a quick, step by step, data analysis with the help of customisable processing and analysis tools. This new piece of software is now available for both for skilled and non-skilled users for utility mapping of large size projects, archaeological and environmental surveys.

“For our clients, their project managers and data processors, the new IQMaps software will enable them to transform vast amounts of complex data faster than ever before.” said Colin Tickle, Drillline Managing Director, a beta tester of the new software.

“We know IDS GeoRadar has a high level of commitment to research and innovation, which is why we are confident that this new system and software is at the forefront of modern utility mapping and data processing technology.”

IQMaps is available to use with all the IDS GeoRadar Stream range. It allows operators to easily process, analyse and inspect data from dense array radar systems. The new software provides a smart target management for producing the output. With its high responsiveness, IQMaps offers a tailored user interface for specific application with 3D visualisation.

“IQMaps must be considered as a game changer.” said Davide Morandi, IDS GeoRadar Director GPR Product Manager, who followed the software evolution. “I am delighted to present this software to our customers knowing that it has no close competitors in terms of data visualisation speed, usability and data analysis.” Website: www.idsgeoradar.com or www.drilline.com

IQMaps, the latest Ground Penetrating Radar (GPR) data analysis software that dramatically improves productivity and provides real time processing and visualisation.

Support the UKSTT - Join the Trenchless Army: www.ukstt.org.uk

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EXPANDING OPTIONS FOR OPERATORS OF PICOTE SYSTEMS

Picote Solutions has always looked to minimise the necessary equipment needed by pipeline engineers and drainage operators. With this in mind the company recently launched a new range of pipeline cleaning chains that are designed to swap set-up time on site for working time in the pipe.

Picote's 3D Cleaning Chains are self-adjusting so that within different diameters they can effectively clean the pipe without the need to keep multiple cleaning chains on-board the support vehicle. The new 3D Cleaning Chains are available in three sizes with the smaller Cleaning Chain being capable of cleaning pipe from 50 to 75 mm diameter, the mid-range Cleaning Chain working in pipes from 70 to 100 mm diameter and the larger Cleaning Chain having the capacity to clean pipes from 100 to 150 mm.

The capacity to clean pipe with differing diameters means less tooling to carry and fewer chain changes or adjustments during the course of a job as pipe diameters change, either from site to site or within the same pipe length.

CHAIN OPTIONS

The new 3D Cleaning Chain range is available in two models including the Premium Version and the PVC Version.

The Premium Version utilises the tried and tested unique Picote Premium u-carbide teeth configuration for where more aggressive cleaning may be required and the structure of the pipe is known to be stable and secure.

The PVC Version without carbides is less aggressive and maybe the more practical and safer choice where the condition of the pipe is less stable or unknown due to the inability to survey it prior to the cleaning operation. Even then the PVC Cleaning Chain will effectively and efficiently remove blockages and remove detritus from the pipeline inner wall.

CLEANING OPERATION

According to Richard Swan, Director of Technical Client Services at Picote Solutions: “These new 3D Cleaning Chains are taking pipeline cleaning to the next level and are the next stage in Picote’s drive to bring innovation and greater efficiency into the market.”

Each 3D Cleaning Chain comes with a built-in leader making them easier to use and reducing shaft wear during operation. They are self-adjusting, depending on the speed of rotation applied, in that the design allows the chain to continue expanding during the cleaning operation up to the maximum diameter of the chain model being used as scale and detritus is removed from the pipe wall, without the need for operator intervention.

All Picote products are extensively tested prior to release to market to ensure they are fit for purpose, safe and effective.

The chains come pre-fitted with leader shafts of 8 mm or 12 mm diameter. The speed of rotation applied will depend on the condition of the pipe with higher speeds being available for the more structurally sound pipes.

Richard went on to say: “We feel that these new chains will be a game changer for the pipeline cleaning sector. The efficiency they will bring in terms of minimal downtime will be significant and with the drive to minimise vehicle weight in the drive towards a cleaner climate, any reduction in the amount of tooling that needs to be carried by the operations team will be more than helpful in reducing fuel consumption and vehicle wear. It may not seem a lot but over time it may be surprising the difference such a small tooling change can make.”

ENHANCING VISION IN THE PIPELINE

In addition to the new chains and just one year on from when Picote Solutions launched its latest high-speed pipeline cleaning system on to the drainage market, the Mini Cleaner a new version has been launched.

Aimed at the domestic drainage and plumbing markets in particular, the Picote Mini Cleaner is the company’s first machine specifically designed for cleaning and cutting operations through P-traps and multiple bends in pipelines in the DN32 to DN75 (1¼ in to 3 in) range.

With typical waste pipes being as small as 32 mm (1¼ in) diameter in many countries, this machine offers the ideal solution for pipeline cleaning.

As with other Picote machine designs the Mini Cleaner has a flexible two-part shaft with a rotating inner core to which the cleaning heads are attached and a stationary outer casing that ensures the operator’s hands do not make contact with rotating parts during the cleaning operation, which

The new Picote 3D Cleaning Chain at rest and in action.
The recently released Picote Mini Cleaner+C machine with the new CCTV camera system.

improves operator safety and flexibility compared with other typical cleaning machines currently on the market.

The new highly flexible spring outer casing is revolutionary and has changed the plumbing market. The spring casing is also durable, flame, abrasion and chemically resistant with a high continuous service temperature.

Designed for high speed descaling, reinstatements and blockage removal, the Mini Cleaner also has the flexibility to handle multiple 90° bends even in the smaller diameter pipes. Furthermore, safety has been a core aspect of the design with the unit boasting as standard a Safety Clutch, 16 m (50 ft) of 8 mm (⅜ in) rotating shaft housed inside the specialised outer casing and a shielded foot pedal control that allows the operator to start and stop the machine without the need to remove a hand from the shaft during operation.

The company’s Mini Miller system is a well-established workhorse in the pipeline cleaning, cutting and liner reopening market and works in pipelines from DN50 to DN 150 (2 in to 6 in) diameter.

Both units can also be utilised for application of the Picote Brush Coating™ System for pipeline rehabilitation.

Working with Picote’s specialist cutting tooling the systems have established a reputation with contractors for efficiency and speed on site.

Feedback from contractors both globally and in Finland, where Picote Oy offers major contracting services to hire and sales and services, showed a demand for both systems to have the capability to observe the operations in action without the need to utilise a separate CCTV system, possibly requiring a second access point for camera usage.

Therefore, Picote has recently launched upgraded versions of the two machines known as the Picote Mini Miller+C and the Picote Mini Cleaner+C.

The camera systems comprise a full colour camera mounted on 30 m (98 ft) of umbilical which will enable all operations to be observed fully. On both Millers the colour self-levelling camera also carries an integrated 512 hz sonde to enable the unit to be tracked and the pipeline mapped as and when necessary.

The Picote Mini Cleaner+C utilises a slightly smaller colour camera than the Picote Mini Miller+C to enable negotiation of the smaller diameter pipes in which the system generally operates, including DN50 ‘P’ Traps and bends.

Commenting on the development of the camera systems for the two Picote systems, Richard Swan said: “Working together with contractor clients and in-house contractors in Finland has long meant that innovations for our systems come from those working at the sharp end of the industry. Their feedback is invaluable as it enables us to not only make the best machine available but also to meet the needs of our end-users in the most efficient and effective way. The fact that we have a contracting company in Finland and operations in UK and USA also means that we have extensive international test facilities and expert knowledge to ensure that the changes and innovations we make to the product lines are tested thoroughly before they hit the global market.” Website: www.picotesolutions.com
TIME TO GIVE BACK

In the late 1980’s, there were only a hand full of individuals and manufacturers producing horizontal directional drilling equipment for the utility construction industry. One of those early companies was Straightline Manufacturing and co-owner Mike Young. Over the next decade, several larger manufacturers threw their hat in the ring including Charles Machine Works and Vermeer Manufacturing. These companies are today the dominant players in the HDD drill rig industry. With the advancement of drill rigs over the past 30 years there have also been several companies that produced the electronic guidance systems which are vitally important to the success of the HDD industry. Without these HDD locators, there would be no ‘directional’ in Horizontal Directional Drilling.

For the last 25 years, there has for the most part been only two companies supplying HDD locators to the industry. These locators have become very advanced giving contractors the ability to log bores and within minutes of finishing the project, send that information directly to the home office. All these advancements now come with a big price tag. Early locators cost less than US$10,000 but today many of the locators sell for close to US$30,000. With only two manufacturers in the US offering these systems, there has been little pressure to offer customers a less expensive product. That however has change in the last five years said Mike Young President of Underground Magnetics. Mike, after 30 years in the HDD industry, owning and working for many of the well-known drill rig manufacturers and HDD guidance system producers, is still helping innovate new products for the HDD industry today.

The UM Mag 8 on a demonstration bore in the UK.

Mike Young President of Underground Magnetics with the new Mag 8 HDD locator.
SIMPLE YET COST-EFFECTIVE

In 2019 Underground Magnetics introduced the new Mag 8 locating system which is simple to use, powerful around active interference and affordable. That combination is long overdue said Mike Young. “Underground Magnetics, with a core group of three who combined, has over 70 years’ experience in servicing, engineering and producing HDD locating equipment, is shocking the industry.” said Mike.

The new Mag 8 locating system was developed from the ground up to be simple, powerful and affordable. The UM group believed that the locators being offered, while very good systems, had become way too expensive. Most of the contractors Mike spoke with during the development of the Mag 8, felt they had no choice but to purchase more than they needed because there were not any other options. UM’s philosophy was to offer a common sense locator that was developed to be easy to use but powerful. Many of the first users of the Mag 8 expected a lessor locator because the price was so reasonable. The new Mag 8 has more than exceeded their expectations however. The system includes a 10 frequency transmitter that has a real depth and data capability of over 200 ft (60 m). The ‘Drill to’ function allows contractors to set the locator ahead and drill to it over a distance of up to 100 ft (30 m). The simple part comes in once drilling starts, said Mike Young. This is the simple powerful Mag 8 and Mike believes it is about time to give back to the industry. Website: www.UMagHDD.com

The UM Mag 8 in action on a street bore in Israel.
UKSTT NEWS

TRENCHLESS TEA BREAK WITH JEREMY HEATH, SES WATER
An amazing 200 people attended the inaugural Trenchless Tea Break on the 17 June 2020. Presented by SES Water Innovation Manager Jeremy Heath, the topic proved to be of great interest to a diverse group of people.

In his capacity as the Programme lead for the UK Water Industry Research (UKWIR) Leakage Big Question, Jeremy has recently completed a water company wide exercise to map out the research currently been carried out into leakage reduction. The purpose of this exercise was to generate an innovation heatmap that captures the current research programmes; to assist in the development of the UKWIR Leakage Big Question by identifying those areas where there is little research currently taking place; and to foster collaboration between Companies by highlighting those areas where multiple companies are working on similar projects. The research has shown that whilst there is a wealth of investigation into leak awareness, with a number of Companies working on solutions, there is far less research into leak prevention, and only a small amount into leak repair. This study will enable the industry to focus the UKWIR and Company research into those areas which are currently lacking and develop the programme routemap going forward, as well as providing innovation and collaboration opportunities.

The Leakage Innovation Heatmap was published on the UK Water Industry Research (UKWIR) website on the 17 April 2020. The Trenchless Tea Break webinar series is a joint venture with Westrade Group Ltd, continuing to work together to support our industry.

WELCOME TO WATERWAYS DRAINAGE SPECIALISTS LTD.
Waterways specialise in the renewal and maintenance of sewer pipelines offering services such as blockage clearance, CCTV surveys, reports, repairs & maintenance.

Being an emergency blockage responder for Devon County Council, an accredited contractor for Cornwall Council, Trading Standards approved and a member of the National Association of Drainage Contractors, you can be sure to get a professional job completed, with no call out fee and free unbiased advice during site visits. Website: www.waterwaysdrainage.co.uk

‘MINI’ MASTERCLASS
The Mini Masterclass Series was introduced in April 2020 to promote awareness in trenchless technology and offer training to as many people as possible during a time when we are unable to run our usual biannual events in person.

The mini masterclasses are delivered via the UKSTT’s Zoom webinar platform and last approximately 1 hour with time afterwards for a Q & A session with the presenters.

The first ‘Mini Masterclass – Sewer Rehabilitation’ was very well attended and plans are currently being finalised for the next one on ‘Underground Utility & Mapping’. A date and link to register will be issued shortly, however if you would like notification when registration is open please email Lynn: admin@ukstt.org.uk

UKSTT TECHNICAL ENQUIRY SERVICE
Have you ever considered using trenchless techniques within your project but not sure if they would be suitable?

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

UKSTT has a team dedicated to answering the enquiries submitted and if further assistance is required, whether it be needing a team to complete a project or a company who manufactures or supplies a product or equipment, then we have an extensive list of Corporate members only too happy to help.

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

UKSTT AWARDS 2021
The UKSTT Awards are the premier opportunity to showcase your achievements in trenchless projects and innovative products and technologies. If you have an interesting trenchless project or have developed innovative solutions for use in trenchless works, entering for the USKTT Awards provides the opportunity to show the industry and its customers what you have achieved. You do not have to be a UKSTT member, entry is free and open to all. Project entries may be in the UK or Ireland, or overseas if undertaken by a UK company. International companies may enter their UK or Irish projects.

There are eight (8) Award categories. Seven (7) are judged by a panel of independent experts with significant experience and knowledge of the industry. The remaining category, the very special Young Professional Award, is judged by the UKSTT Chair. This Award is open to young professionals from any part of the industry and it is a great pleasure to see the quality, ingenuity and enthusiasm of the candidates for this Award – they are the future of our industry. For more details see below.

The Award categories are:

- Young Professional
- Innovative Product
- New Installation Project – Energy & Communications Sector

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UKSTT NEWSLETTER

Brought to UKSTT Members by:

- New Installation Project – Water & Wastewater Sector
- Renovation Project – Energy & Communications Sector
- Renovation Project - Water & Wastewater Sector
- Environmental
- Application of Digital Technology

UKSTT welcomes entries in all the categories but would like to encourage more entries into the newly introduced Energy & Communication and Application of Digital Technology categories. Entering an award is free and may be submitted online at any time until the closing date of 18 November 2020. More information about the Awards, and how to enter, can be found at: https://www.ukstt.org.uk/ukstt-awards/ Be in it to win it!

YOUNG PROFESSIONAL AWARD
And the £2,000 bursary prize for ‘Young Professional’ goes to?……
Will this be you?
Every year, the UKSTT presents the winner of the ‘Young Professional’ category with a £2,000.00 bursary to help fund their travel and accommodation to any part of the world, allowing them to undertake further research into their chosen area of Trenchless Technology.

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

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

Deadline date for entries to be received is Wednesday 18 November 2020. An application form and judging criteria can be found on the website https://www.ukstt.org.uk/ukstt-awards/

WEBINAR FACILITY – MEMBERSHIP BENEFIT
A new initiative, incorporated at the beginning of the year, was the inclusion of a corporate membership benefit that provided members with the free use of the Society’s webinar platform for free! The member webinars are designed to promote the product and services of our members and UKSTT will assist with the set up and promotion every step of the way to help make each webinar a success. For more information email Lynn admin@ukstt.org.uk or call 01926 513773. Details of the webinar offer include:

UKSTT Trenchless Webinar Series
- Available to Corporate members
- Free of Charge
- Suggested timings, between 30 to 45 minutes allowing between 10 to 15 minutes for Q & A

Member Commitment
- Topic
- Synopsis: Highlighting the purpose of the webinar including the content that will be discussed
- Selection of dates and times
- Presenter(s) information
- Own promotion of Webinar with the link for the invitee to register their attendance

UKSTT Commitment
- Provide the platform for the webinar
- Schedule the webinar and provide the link to the member
- Promotion via the website, email, newsletter and social media
- Record the webinar and make available for everyone to view on the UKSTT YouTube Channel and the webinar archive page on the society’s website

UKSTT MEMBERS NEWS
JET AIRE MANAGING A CRISIS AND STILL WORKING
As circumstances continue to develop in the COVID-19 pandemic, Jet Aire wanted to give you an update on our operational plans, our social responsibility and the measures taken to ensure that we keep our people, our customers and the general public safe.

This is a complex, evolving situation and its impact is being assessed daily. From the outset, Jet Aire DC Ltd has acted quickly to follow government guidelines, helping to prevent the spread of the virus in our offices, work sites and supply chain. Maintaining everyone's safety is our number one priority.

We are slowly ramping back up to full operational capacity to cope with the demand for essential works and in line with supporting the construction industry as it remobilises. However, we continue to maintain strict standard operating procedures on
site, adhering to all safety measures including social distancing. Staff who are able to work from home are continuing to do so. The below adjustments to our operations came into effect in March and they remain in place.

Site Operations
Our site engineers are observing increased hygiene and social distancing measures. As a matter of course, our site teams wear suitable protective clothing and equipment to maintain safety in everyday operations and the nature of their work requires a clear understanding of infection and contamination control. Procedures, cleaning and PPE are provided in line with industry best practice for working and keeping safe in this environment. These include gloves, masks and goggles. As keyworkers, our drainage engineers are providing essential front-line services to prevent pollution and keep utilities functioning for the UK’s industries.

Office Operations
When the COVID19 pandemic broke, Jet Aire set up teams of office and remote workers to ensure that all of our business functions remain intact and that the risk of contracting or spreading the virus has been minimised. However, from 25 March our Leeds and Middlesbrough depots will operate solely as a hub for our operational team and a base for our fleet. All office and administrative staff are working from home, avoiding non-essential travel and movement. All office functions will be carried out off-site with remote staffing. Only absolutely essential visits will continue and one Operational Manager will remain in each site. The usual numbers will still apply for telephone enquiries regarding works: Leeds 0113 393 5500, Middlesbrough 01642 690045. Emails will also be monitored and answered remotely: enquiries@jetaire.co.uk (Leeds), enquiriesNE@jetaire.co.uk (Middlesbrough), reactive@jetaire.co.uk (all reactive work)

Essential Services
Our services feature in the UK’s ‘Key Workers List’ and we are still available to carry out ‘essential’ work (only) if required. We have a duty to provide front-line services in these extremely challenging times and we will continue to attend and carry out essential reactive cleansing, remedial and relining works to keep oil, gas, electricity, water and sewage networks in full operation. We will be working diligently and above all safely, to ensure the prevention of pollution incidents and the protection of our country’s infrastructure.

Jet Aire’s senior management is meeting daily to assess the ongoing situation, discuss the latest government guidelines and communicate any new developments to all staff. Regular reviews and Risk Assessments carried out to ensure all areas of the business operate in accordance with government guidelines. We will update you further should anything change over the coming days and weeks.

We would like to take this opportunity to wish you well during this very worrying period. We hope that you, your family and your colleagues remain safe and well. Thank you for your continued loyalty and support.

In The Field
The severity of drainage problems can vary enormously, but when an issue becomes protracted or difficult to surmount, it can quickly escalate into the nightmare scenario of a pollution incident.

That is an unthinkable outcome for many organisations, but it is also an inevitable risk for those in charge of managing regional or national estates which, as a natural consequence of their size and complexity, are subject to an immense variety of potential contributing factors. Having an effective trouble-shooter brings valuable peace of mind for these organisations and it’s one of the reasons why Jet Aire has become a go-to maintenance contractor for many of the biggest names in the UK’s utilities sector.

An example of Jet Aire’s value in these circumstances recently occurred in Brotton, where its client, Northumbrian Water, called upon its team of engineers to solve an extremely challenging problem.

Northumbrian Water had suffered a blockage in the network which was impacting on the Combined Sewer Overflow and was taking a long time to resolve. The predicament was largely due to issues surrounding the structure of a 6 m manhole chamber, requiring further works to address structural issues, with the added complication of extremely difficult traffic management conditions.

Dave James, Technical Support Advisor, Northumbrian Water, wrote to Jet Aire to praise our work in averting a much worse issue: “The three-man team from Jet Aire worked tirelessly throughout. Their knowledge, experience and dogged determination ensured that, with a great deal of persistence, we managed to resolve the issue and more importantly avoided a pollution incident. This crew always gets involved when we have a pollution or pollution risk incident. They understand the importance surrounding the severity of pollution and the work required to try and resolve the incident as quickly as possible, as safely as possible and with minimum impact to the environment. I cannot stress enough how hard they have worked over the last few days at Brotton. They have run on every night without complaint, worked tirelessly throughout, offered help and support when needed and basically been an absolute pleasure to work with. Also, the task in hand meant we had to arrange multiple traffic management attendances due to emerging risks. We had to make arrangements with Redcar and Cleveland County Council to have traffic lights turned off on multiple occasions. Jet Aire have made these arrangements each time without fuss or complaint, and ensured we had what we needed on every attendance to ensure works could be completed safely. I just wanted to highlight the hard work and effort that has been put in by all involved to ensure we avoided a pollution incident and eventually got the issue under
control. I know the guys are paid for what they do, but I felt on this occasion they needed to be recognised for going above and beyond, ensuring the outcome was a successful one, which sometimes isn’t always the case if not tackled in this manner.”

**SCHUR EXPANDS RANGE**
Welcome to the future of hand & surface disinfection. Schur now offers a product with proven effective against Coronavirus and all enveloped viruses.

Oxyl-Pro, a new generation of environmentally friendly food safe stabilised Hydrogen Peroxide disinfectant has no Silver, no Chlorine and is harmless to aquatic life and is NSF approved. It is also used within the NHS and government buildings as well as public areas/swimming pools etc.

Sterzi-Klenze, using Oxyl-Pro, is a one product, total disinfection which means that operators can clean hands, vehicles and offices using the same product.

Benefits of using this system include:
- No Silver
- No Chlorine
- No Smell
- No Taint
- Food Safe – No need to rinse off
- Not harmful to aquatic life
- Kind to Hands
- Can be used for Fogging & Spraying
- Plug and Play application for large areas
- 100% Biodegradable

Further this Schur also claims to have the worlds first innovation A.V.O.S System which it is claimed is a game changing automatic launching of the coating head. Having personnel in the excavation during pipe coating is now history.

The Schur A.V.O.S System is an automatic valve operating system for use with its In-Situ Pipe Coating Rigs.

Benefits of the System include:
- Smaller excavations
- Safer operation for personnel
- Zero exposure to spray
- Removes human error
- For 4 in (100mm) diameters upwards
- Reduces coating wastage
- Can reduce operator numbers

For further information contact: Tel: 01706 222 822 or email info@schurltd.co.uk

**DRAIN FORCE PROJECTS**
Drainforce has been awarded a contract with Vale of Glamorgan Council to complete maintenance improvement works on the council-owned surface water drainage systems.

The nature of the maintenance works will include relining of the surface water drainage system, and the removal and disposal of tree roots and silt, all in order to ensure that the surface water drainage system is fit for purpose and thus reducing the likelihood of flooding incidents within the Vale of Glamorgan.

David Evans, Drainforce Managing Director said: ‘This is a great news that we have been awarded this important contract to carry out the maintenance and rehabilitation on the council large diameter drainage system, the solution we will be using on this contract will be state of the art no-dig drainage techniques that includes cutting out roots using our specialist robotic cutting equipment, removal of silt and debris using our high volume dirty water recyclers. Also our bespoke 4x4 UV lining rig will be used to cure the liner which is essentially a new pipe within an old pipe. The last stage of the work is a complete CCTV drainage survey of the pipe rehabilitated drainage system to hand back to the client with a 70 year guarantee’.

On another project, Drainforce was tasked with rectifying defective pipes on various gravity drains under London Underground Tracks at Highgate Depot for Skanska.

Due to the amount of root infestation the design was to install 105 m of Channel drainage to aid future maintenance and to UV Line sections where excavations proved too difficult due to the above signals and tracks. Though Pre-Site Meetings and planning a Method Statement and Safe Working System was confirmed and signed off.

Before Works commenced Pre-Site Meetings and Briefings were completed Daily ensuring the details of the Method Statements were filtered through and that Daily Dynamic Risk Assessments were completed monitoring Weather and any variable conditions.

Drainforce firstly cleaned the lines with their recyclers. After cleaning CCTV identified tap and mass roots. Due to the poor service condition of the drains further jetting would have caused more damage to the pipes and risk collapse.

Drainforce deployed its robotic cutter to cut the roots in readiness for the UV Lining. Once the Cutting and cleaning was complete Drainforce UV lined 5 sections of Drainage Runs downstream of the channel drainage installation.

Drainforce’s Civil Engineering division complete the Channel Drainage upstream of the UV lining simultaneously. The old Drainage pipe was dug out and catchpits removed. Geotextile was laid with shingle and ballast following a level line to the existing lined sections downstream. Due to the amount of staff on site and work activities shared site protocols were confirmed and agreed and a accurate programme and method statement followed with regular updates.

Drainforce Made use of its portable UV system to allow for a set up on Track distances to far away for the UV Rig to use.
company also utilised its Main Line UV Mega Rig which has a 500 m air-conditioned cable. This would not have been possible with Standard Equipment.

Track Trolleys and Excavators were used to install the Channel Drainage. All Equipment was less than 80 db complying with Council noise regulations.

**MUS SECURES THAMES WATER AMP7 CAPITAL PROGRAMMES FRAMEWORK**

Morrison Utility Services (MUS), one of the UK’s largest dedicated utility service provider and part of M Group Services, has extended its long-term partnership with Thames Water after being awarded a place on the AMP7 Capital Programme Thames Wide Framework.

The framework has been awarded in two lots, with MUS awarded a place on Lot 2 – Infrastructure, covering underground works that span water and wastewater infrastructure (network) and assets across Thames Water’s operational region.

With an estimated overall value of £170 million, the Lot 2 programme of works will be awarded to the successful contractors on a package by package basis and includes the rehabilitation and replacement of potable and wastewater pipelines through to the inspection and maintenance of pumping assets, aqueducts and tunnels and supporting more complex emergency projects.

The framework will run for an initial duration of five years to support Thames Water’s AMP7 delivery phase (April 2020 - March 2025) and includes the option to extend for a further five years through to the AMP8 regulatory period.

Thames Water Capital Delivery Director John Bentley said: “This is a really difficult but exciting time for us and our suppliers as we mark the start of the delivery phase of AMP7. We know we have some tough challenges to get through now and lying further ahead, but we are all set to work together in providing resilient and reliable clean and waste water services to our 15 million customers across London and the Thames Valley.”

Executive Director Lawrence Summers commented: “This is a great win for Morrison Utility Services. We look forward to supporting Thames Water in successfully delivering their capital programme in AMP7 and beyond and further strengthening the excellent relationship we have established with them over more than twenty years.”

MUS Contract Director Kevin Parcell added: “We are delighted to extend and expand our long-term partnership with Thames Water following our appointment to this Framework. Over many years, we have worked closely and collaboratively with Thames Water and we look forward to applying our experience and expertise on the delivery of essential water and wastewater infrastructure services to support this key client during the AMP7 investment period.”
FIRST EUROPEAN NO-DIG CONFERENCE 2021
The First European No-Dig one-day Conference will take place on Wednesday 24 March 2021 at Peterborough, UK, in conjunction with the biennial No-Dig Live event. It will be a high-level Technical Conference focused on the topic ‘Rehabilitation Design for Pressure and Gravity Pipes’. The Conference language will be English.

Interested speakers are invited to submit extended Abstracts (not more than 400 words) in English by the submission date shown below, together with a brief biography of the Author. Abstracts will be reviewed by the Conference Technical Committee.

Important Dates and Deadlines are:
- Final date for Abstract submission: 30 September 2020
- Notification of acceptance to Authors: 12 November 2020
- Final date for submission of Conference presentation file: 19 February 2021
- Submission of Papers for publication: 1 March 2021

When submitting a paper, the organiser requires each author to upload an Abstract (maximum 400 words), a Presenter high resolution photo and a Presenter biography (maximum 80 words).

To submit a paper proposal, Authors will need to be registered within the organiser’s system. After you have registered you can then login to submit your paper proposal(s). Submit your papers to: www.1steuropeanconf2021.nodiglive.co.uk. For any further assistance email: trenchless@westrade.co.uk
1st European No-Dig Conference

Rehabilitation Design for Pressure and Gravity Pipes

CALL FOR PAPERS

This inaugural one-day Conference will take place on 24th March 2021 at Peterborough, UK, in conjunction with the biennial No-Dig Live event. It will be a high-level Technical Conference focused on the topic “Rehabilitation Design for Pressure and Gravity Pipes”. The Conference language will be English.

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Final date for submission of Conference presentation file: 19 February 2021
Submission of Papers for publication: 1st March 2021

CONTACT: Paul Harwood – pharwood@westrade.co.uk

POTENTIAL THEMES

Potential themes for the programme may include, for example:

- Comparison of convergence and differences between the main design methods used in Europe for gravity pipe lining.
- Case histories showing investigation to obtain data for design and the subsequent design process to achieve a solution.
- Design of non-circular linings.
- Design methods and key considerations for pressure pipe lining – gas and water.
- Advances in design methods.
- Durability and long-term performance of liners – how to accommodate in design.

Abstracts focused on all aspects of the primary topic (design of liners) may be submitted using the link above. All Papers presented at the Conference will be published online in a Proceedings document after the event with open access via a website. Submission of an Abstract will be considered acceptance that copyright permission has been granted to publish the Paper as described. Copyright of the Paper remains fully with the Author.
Westrade Group Ltd is an independent company specialising in trade exhibition and conference organisation. Events include the 'TRENCHLESS' and 'NO-DIG' series across Europe, the Middle East, Asia and Africa.

Kuala Lumpur Convention Centre, Kuala Lumpur, Malaysia

The twelfth event in this outstanding series returns to Kuala Lumpur and for the first time, features the ISTT International No-Dig.

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- Over 100 exhibiting companies in 2018
- In-Hall Seminars

www.nodiglive.co.uk

For more details regarding exhibiting and sponsorship opportunities please contact: Gary King at gking@westrade.co.uk or +44 (0)1923 723990

The UKSTT Awards 2021

UKSTT Gala Dinner & Awards Ceremony in Association with Westrade
Wednesday 24 March 2021

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If you have an event, course or meeting scheduled and would like to add it to this listing please forward details to: ian@nodigmedia.co.uk