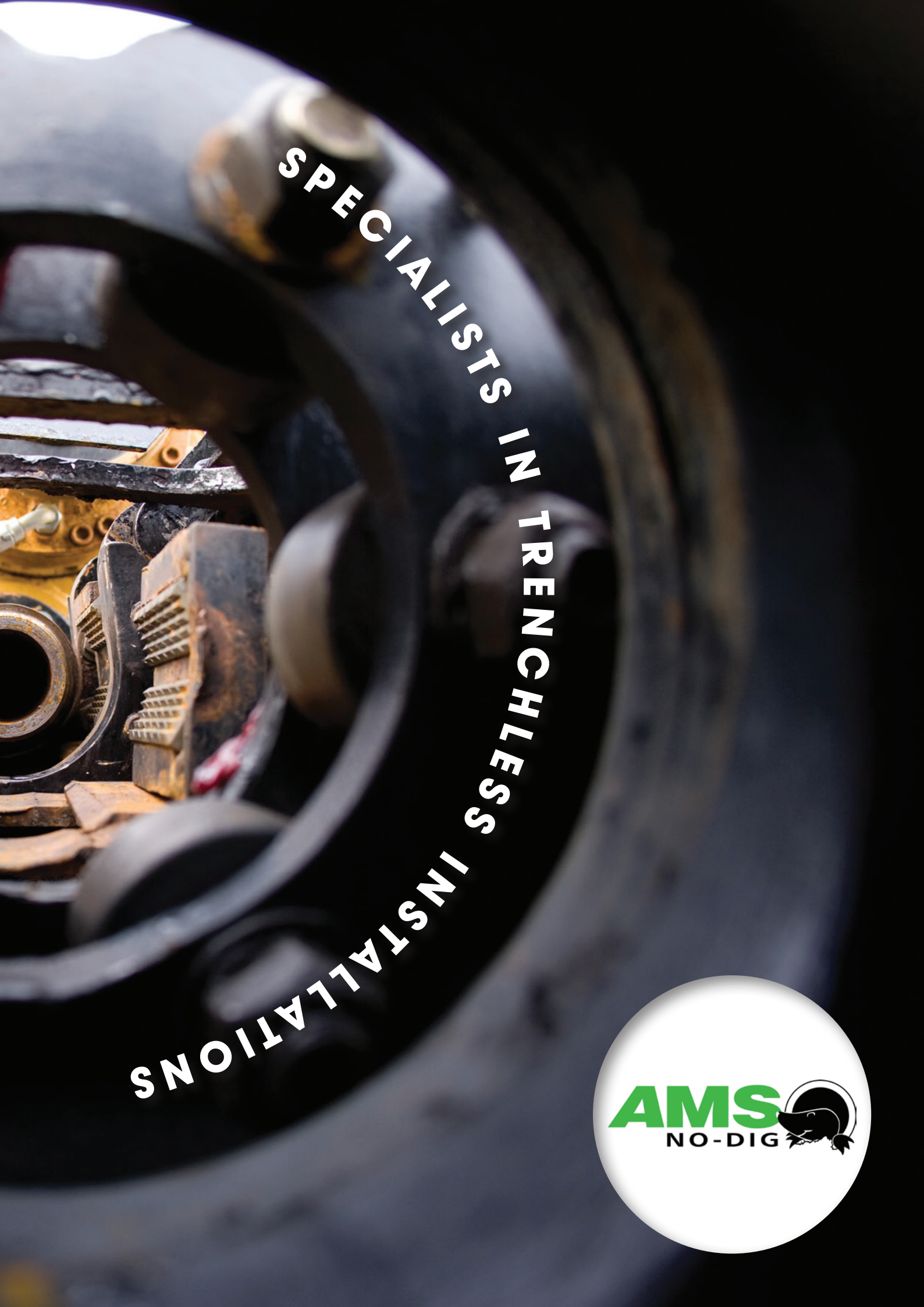
SPECIALISTS IN TRENCHLESS INSTALLATIONS
AMS
NO-DIG

AMS No-Dig

Market leaders in trenchless installations

With more than 15 years in the industry, AMS No-Dig is the largest privately owned horizontal directional drilling and guided auger boring contractor in the UK, boasting the highest expertise from engineers and technicians

As a respected market leader in the industry, the Company has clients that include all the major household names associated with construction and utilities.

The position as market leader has been achieved thanks to continuing investment in the latest technology.

Its services include horizontal directional drilling (HDD) – a technique that allows pipe, duct or cable to be installed underground without disturbing surface structures, which therefore avoids disruption caused by traditional open trenching methods.

This drilling allows installations under motorways, waterways, railways, airport runways and SSI sites – all of which are cost effective.

Fast, efficient and environmentally friendly, the AMS comprehensive fleet means there is capacity to install product up to 800mm in diameter and up to 600m in length, subject to ground conditions.

HDD can be installed in a number of ways, due to the capabilities of the Company. One such method is trenchless pipe installation, which uses the directional drilling process.

What happens is a pilot bore is drilled from a launch pit at one end of the planned trenchless installation, to an exit pit at the other end of the installation.

The drill head has a transmitting device so that the position, depth, pitch and roll of drill head can be monitored and adjustments made throughout.

When the pilot bore is complete, the drill head is removed from the drill string and replaced with an appropriate hole opening device.

The pipe is then attached and installed once the bore is of sufficient size, and the pipe installation is completed when the drill string is retracted.

AMS's comprehensive fleet has continued to expand, with the HDD fleet now benefiting from the purchase of a new maxi drilling rig together with mud processing, pumping and recycling plant.

Offering 250 tonnes of thrust and pullback, this prime drilling rig is the most powerful currently based in the United Kingdom.

To work alongside this, AMS has purchased a comprehensive mud processing and recycling facility – a high performance recycling unit designed to process 3,000 litres of high viscosity drilling fluid per minute, which comprises two Derrick Equipment FLC-504 shale shakers for primary screening and a Derrick FLC-504 mud cleaner.

The Derrick 504 units are mounted on a base tank that incorporates integrated centrifugal pumps to feed the de-sander and de-silter cones, while screening is carried out using the revolutionary pyramid screening system.

AMS also offer auger boring to customers, both guided and non-guided.

Guided auger boring is useful at providing solutions in situations where HDD can't be used, set up room is limited or where levels are critical.

This technique has been previously used for installing vitrified clay gravity sewers, though is now being increasingly used to insert steel sleeves used to carry utility installation.

The fleet at AMS has the capacity to install product up to 900mm in diameter and up to 90 metres in length, all of which depends on ground conditions.

Generally, this technique is installed between two prepared shafts, such as manholes. The auger boring rig is set up in the launch shaft and the laser guided probe is jacked through the ground to the reception exit shaft.

Steel casing pipes are put into position, following the guided probe pathway and as jacking progresses, the spoil is cut from the face and removed by the auger flights that are rotated within the steel casings.

On completion, product pipes are pushed into position from the drive shaft with the augers and steel casing progressively removed at the reception shaft.

In terms of the non guided auger boring process, ground conditions, pipe diameter, length and bore precision are decisive factors when choosing machinery and equipment, as well as the correct process for completing the connections.

Protective steel piping is jacked into the ground from a launch shaft, and the bore head loosens the earth at the drill head that is conveyed back to the launch shaft by the auger.

With non guided boring, the alignment of the machine is more important; the longer the jacking shaft, the more accurate the borehole.

When connections are being bored from a launch shaft to a target shaft, the product pipes push out the steel casings containing the auger sections.

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AMP6

Water companies making partnership announcements

With the Asset Management Programme 6 (AMP6) starting in the next 18 months, many UK water companies are moving ahead with their plans.

Anglian Water announced its six partners for the £1.3Bn programme in May 2014, with Balfour Beatty, Barhale, Grontmij, MMB (the joint venture between Mott MacDonald and JN Bentley), MWH and Skanska chosen for the capital delivery scheme. Black & Veatch is a reserve partner.

The contracts, proposed for 15 years, will have a review after each five-year AMP cycle to maximise collaborative working and efficiency.

All six companies will form Anglian Water's new Integrated Main Works Capital Alliance (IMWC), which will deliver the type of work previously undertaken by the @one Alliance and Special Projects team.

IMWC is the first of four delivery vehicles that will focus on the large scale and complex projects.

The remaining three will follow the same procurement process, and will be completed throughout this year.

The contract is being divided into four lots covering metering; repair and maintenance (water and wastewater infrastructure capital works, and water and wastewater non-infrastructure capital works); medium capital (water and wastewater infrastructure capital works, and water and wastewater non-infrastructure capital works).

Anglian Water supplies water and water recycling services to more than six million domestic and business customers in the east of England and Hartlepool.

The population has grown by 20% in the last 20 years, but the Company still provides the same amount of water as it did in 1990 – almost 1.2 billion litres every single day.

The region stretches from the Humber north of Grimsby to the Thames estuary and then from Buckinghamshire to Lowestoft on the east coast.

Anglian Water's 112,833km of water and sewer pipes could stretch a quarter of the way to the moon.

They supply and transport water across an area of 27,500sq km, and it is the largest water and water recycling company in England and Wales by geographic area.

The IMWC will be characterised by its focus on ten key outcomes such as satisfied customers, a smaller carbon footprint and fair profits.

To drive efficiency, IMWC contractors will commit to Anglian Water's key outcomes, and will work on a total outperformance basis; only recovering head office costs and earning profit when they outperform business plan targets.

The partners have also signed up to a jointly developed benefits plan for the AMP, including a new approach to industrialised construction and provision for migrating to totex incentives.

Jason Tucker, head of Capital Delivery and Supply Chain Management, said: *"Confirming our partners is a big and positive step forwards in our procurement process for AMP6.*

"We are determined to deliver maximum efficiency and satisfaction to our customers by working closely with partners to drive innovation to transform our business.

"Our procurement for AMP6 has been developed to ensure we select partners who share our vision and are committed to the same outcomes as our AMP6 business plan.

"We're looking forward to working together with these partners to begin delivering what will exceed £3Bn of investment over the next three AMP periods."

It is the first time Anglian Water has put every aspect of its capital investment out to tender at the same time, ranging from large new treatment works to small leakage repairs and new property connections.

Yorkshire Water has decided to retain its current partners, which include: Bzak, Black & Veatch, Mott Macdonald Bentley, Entac, Earthtech Morrison (ETM), Morgan Sindall Grontmij (MGJV), Barhale, Morrison Utility Services and Balfour Beatty Utility Solutions. Consultancy providers for Yorkshire Water include Arup, MWH, Turner and Townsend.

As a chosen service partner for the Yorkshire Water AMP6 framework, Morrison will support the delivery of an investment programme, designed to continue to guarantee a resilient and secure supply of safe drinking water to almost five million people and 140,000 businesses across the Yorkshire region.

Morrison will continue to work on Yorkshire Water's clean water infrastructure assets, carrying out investigation works to design and deliver appropriate totex solutions.

This contract will operate alongside Morrison Utility Services' existing water services agreement contract, undertaking repair, maintenance and meeting services on Yorkshire Water's networks.

The partnership between Morrison Utility Services and Yorkshire Water has seen many projects already undertaken, including essential water quality improvement on Adel Lane in Leeds.

Part of Yorkshire Water's capital investment in the pipe network, this will maintain high standards of drinking water and prevent discolouration of the water supply.

Work lasted seven weeks and involved excavations along a section of Adel Lane to enable access for the water pipe to be re-lined.

United Utilities awarded its AMP6 engineering design services framework contract for industrial process and production in March, which is valued up to £50M.

Known as the Operational Technology (OT) Design and Build Framework, the scope of the contract runs into AMP6 and covers a range of services.

These include the provision of specialist OT front end design services for projects, as required between approval stages one to three to meet the various business requirements for end-to-end operational data, investigation of suitable technology and develop solution feasibility studies, and define solutions with user requirements, construction scope, interfaces, constraints estimates and project management services.

United Utilities currently spends approximately £600M a year maintaining and improving its water and wastewater networks. The Company is splitting up its traditional two areas into 16 separate tendered locations.

Successful contractors for this scheme will also undertake turnkey delivery of implementation phase, including detailed solution design, functional design specification, ICA panels, PLC's scada equipment and communications networks field instruments.

In addition, work will involve the procurement of software licences and systems integration delivery, construction management including principal contractor role and installation work for retrofitting at existing works.

Suppliers will also be required to carry out factory and site testing, commissioning and hand over training, together with optionally carrying out testing, repair and planned preventative maintenance on ICA equipment and networking components.

A maximum of three companies have been appointed to the framework, which runs for a period of three years with a possible two year extension option.

Elsewhere, Southern Water has divided its work into two separate lots: non-infrastructure programme and infrastructure.

The non-infrastructure programme will cover works to Southern Water's water and wastewater assets such as water extraction and treatment works, water storage facilities, wastewater and sludge storage tanks, transfer pumping stations, pumping stations, wastewater and sludge treatment works, small package plant, and planned replacement equipment programmes.

Infrastructure covers Southern Water's water assets, including:

- Water supply and distribution pipework, service pipes, valves, meters, chambers.
- Wastewater sewer pipework, sewer rehabilitation, valves, penstocks, manholes.
- Mechanical and electrical plant and equipment.
- Instrumentation, control and automation equipment.

Southern Water separately tendered the lots but the utility reserved the right to combine the Lots if necessary and is also reserving the right to appoint one or more delivery partners under each Lot, which may include separation between geographical regions within the Southern Water operational area.

As part of the agreement, Southern Water may include an option to extend the agreement by up to a further five years beyond the AMP6 period.

Any company that was interested in the non-infrastructure had to demonstrate a minimum annual turnover of £165M from their financial accounts for the past three years, while those interested in infrastructure had to show a turnover of £120M.

In the run-up to AMP6, Southern Water is also separately seeking to appoint Strategic Solutions Partners (SSPs) under one or more framework agreements.

Core capabilities to be provided under consultancy services will include engineering to support the development of build and non-build projects during the definition, feasibility, preferred option identification and outline design stages of the project lifecycle.

The SSPs may support all programmes of work including water infrastructure, water non-infrastructure, wastewater infrastructure and wastewater non-infrastructure.

Each day, Southern Water supplies 529 million litres of drinking water from its 90 water treatment works along 13,735km of water mains to its customers' taps.

Almost 70% of the water is taken from underground sources in the form of aquifers, 23% from rivers and seven per cent from storage reservoirs.

In addition, Southern Water also treats and recycles 730 million litres of wastewater each day at 368 treatment works after it is pumped through a sewer network of 39,000km.

AMS can provide casings with a threaded connection, and the product pipe can be pulled back from the target shaft by retracting the protective steel casings-auger sections into the launch shaft.

Such is the success and reputation, AMS has worked with many major utility providers and construction companies, including the likes of Anglian Water, United Utilities, Severn Trent Water, Scottish Power, the National Grid, and countless others besides.

The Company has also worked on Southern Water's multi-million pound scheme to replace 30km of sewers across the UK.

Contracted by Clancy Docwra, AMS installed the new 500mm sewer pipe from Medina Road in Cowes to The Esplanade in East Cowes, Isle of Wight.

Traditional tracking methods could not be used to track the drill head's progress so AMS instead used a hit-tech gyro steering tool.

The DrillGuide GST system is an optical gyro tool that doesn't require surface wire girds to guide the drill bit.

It was a challenging project because of the limited space available at the drill entry point on Medina Road, consisting of a single carriageway and a slipway down to the water's edge.

But AMS was more than capable of getting around this and used the power bore 70t drilling rig, which has 70 tonnes of thrust and pullback.

Due to the large footprint of the recycling centre, solids removal had to be carried out at the exit side of the drill in East Cowes.

Any logistical problem of transferring the drilling mud from the exit side back to the rig was countered by the use of running a number of tankers.

Balfour Beatty enlisted the expertise of AMS last year to install 14 180mm cable ducts across the River Tyne in Newcastle, from Wallsend to Hebburn.

The scheme, which was in planning as far back as 2005, was necessary to replace existing cables positioned 30 metres below the river bed, within an existing cable tunnel that was hand-dug over 100 years ago.

Balfour Beatty approached AMS to undertake work in early 2012, who accepted despite the challenge of installing ducts in close proximity to the existing tunnel, while remaining within the existing easement corridor.

Construction started on site in December 2012 but the first pilot drill encountered an underground obstruction that resulted in the drill being aborted.

A subsequent investigation found that the cause was the foundations of a large building and four cast iron pipeline, all associated with an old power station previously on the site.

It meant a number of test pilot drills were undertaken around the foundation to the edge of the river, which were successful and completed to an acceptable horizontal radius.

Drilling recommenced in January 2013, and was completed after eight weeks thanks to AMS's largest drilling rig – the Prime Drilling PD250.

The capability of AMS means that these are just a couple of significant projects worked on, and many more have preceded this.

On behalf of Global Rail Construction, AMS has furthered its already flourishing track record with the design and build of a HDD crossing under a Grade II listed building, the Ouse Road, the Great River Ouse, and the main railway line in the town centre of Selby.

The problem solving skills of AMS were tested to the maximum because of the various challenges that were encountered throughout. There were land access and easement issues, and the drilling passed underneath a sheet piled flood defence and railway lines, which are areas of high magnetic interference.

AMS worked with Global Rail to ensure the most cost effective and technically sound engineering solution was found.

As a result, the DrillGuide GST system was used because it is not affected by any external magnetic interference, and therefore it could be positioned closer to the drill bit. This resulted in more accurate hole data.

The pilot drill was completed in a five day period to within four per cent tolerance, which Network Rail was very pleased with.

Reaming and pipe installation were then carried out for five further days, using a combination of hole openers and hole stabilisers.

AMS has received rave reviews from many of the utility providers it has undertaken work for in the past.

In 2009, Kyle Wood, who was Construction Engineer on National Grid Gas, thanked the AMS team for its directional drilling operations and was pleased with the attitude of the team members, who he found *'to be very professional. They showed extensive knowledge and communicated well with all other third parties on site.'*

Carillion said that AMS had *'proven to be an extremely efficient contractor in delivering their part of works ahead of programme',* and on a previous project for Balfour Beatty, to implement trenchless installations, they declared: *'Throughout the works, AMS staff worked proactively to meet the tight deadlines that had been set. The drilling has proved to be a huge success.'*

It is this high reputation within the industry that will ensure the success of AMS for many years to come.


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