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# **RAIL LIVE** **2023** Long Marston Rail Innovation Centre

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**W**elcome back to the time of year when preparations for the UK's largest outdoor rail show are once again in full swing.

Returning to Porterbrook's Long Marston Rail Innovation Centre (Warwickshire) on June 21-22, Rail Live 2023 is on course to be even bigger and better than ever.

In this 48-page supplement, you'll find details on all the major attractions that are planned for this year. And our in-depth preview feature (pages 4-7) provides a handy guide for all you need to know about what's on offer over the two days once you get there.

This includes a regular shuttle service from Honeybourne to our very own on-site private platform. There's also an impressive programme of seminars and keynote speakers planned for the Rail Live Theatre, plus the usual wide range of rolling stock, live demonstrations, and much more.

The 5,000+ visitors expected to travel to Warwickshire will also be particularly pleased to see the return by popular demand of annual fixtures including Network Rail's Air Operations Team, plus firearms and dog units from the British Transport Police.

Elsewhere, we preview some of the best products and innovations that will be on offer from more than 270 exhibitors representing all parts of the supply chain, as well as companies both large and small.

Rail Live 2023 is the biggest plant show of its kind, and the extensive array of yellow 'plant' along the main avenue at LMRIC (worth tens of millions of pounds) will once again be at the very heart of the show.

If you work in the rail industry, then we hope to see you there!

**PAUL STEPHEN**  
Acting Deputy Editor

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# Rail Live: unmissable

*RAIL* previews some of the highlights from what's on offer at Rail Live 2023

## Long Marston Rail Innovation Centre

Rolling stock owning company Porterbrook took over the management of LMRIC in June 2021.

Formerly known as the Quinton Rail Technology Centre (QRTC), the 135-acre site in Warwickshire includes a two-mile-long circular test track and almost 12 miles of sidings for secure train storage. It is linked to the national network via a two-mile branch line to Honeybourne.

Since taking over the site, Porterbrook has invested more than £10 million to upgrade LMRIC - including hard surfacing the roads, refurbishing buildings, and providing improved signage.

On a part of the site not open to Rail Live visitors, more than £3m has been invested in a three-road, fully-pitted shed that can accommodate a six-car set, with 460 metres of new rail.

In the future, the intention is to also upgrade the test track to higher-speed running with electrification and European Train Control System (ETCS) Level 2.

Prior to its current use, the site was purchased by the Ministry of Defence in 1940 as a centre for military operations and as a central engineers' depot. It was sold to St Modwen in 2004.

The branch line to Honeybourne is the surviving stub of a through route to Stratford-upon-Avon (itself part of the Great Western Railway's main line between Birmingham and Cheltenham) that was closed following a derailment in 1976.

It is currently the subject of a reopening campaign that has received development funding from the Government's Restoring your Railway scheme.

# seminars and demos



## Rail Live Theatre



### Wednesday June 21

1030-1100

**John Larkinson**, CEO, Office of Rail and Road  
*Next steps in rail regulation: PR23 and beyond.*

1115-1145

**Andrew Haines**, Network Rail Chief Executive and Great British Railways Lead  
*Where next? The future of Britain's railways.*

1200-1230

**Ed Akers**, Principal Programme Sponsor, East Coast Digital Programme  
*Digital signalling: The next generation railway.*

1315-1345

**Mark Thurston**, CEO, HS2 Ltd  
*Update on HS2: Overview and insights.*

1400-1430

**Emma Porter**, Managing Director, Story Contracting  
*Why diversity and inclusion matters.*

### Thursday June 22

1000-1030

**Milda Manomaityte**, Innovation Director, Railway Industry Association  
*Innovation - the supply chain perspective.*

1045-1115

**Huw Merriman**, Rail Minister  
*Giving back control: Letting TOC MDs manage and direct.*

1115-1145

**Lord Henty of Richmond Hill**, Chairman, Network Rail  
*Rail reform as a catalyst for the future.*

1200-1230

**Ian Prosser CBE**, HM Chief Inspector of Railways  
*Health and safety challenges in CP7.*

1315-1345

**Speaker to be confirmed**  
*Commercially enabling CP7 delivery.*

1400-1430

**Rikke Carmichael**, Head of Air Operations, Network Rail; **Bradley Sparkes**, National Drone Manager; **Sean Leahy**, National Aerial Survey Specialist  
*Aerial derived data - reaching new heights.*



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## Rail Live direct from Honeybourne

An ex-Great Western Railway Class 769 tri-mode will be operating this year's passenger shuttle service from Honeybourne directly onto the Rail Live show site.

Owned by Porterbrook, the '769s' are converted from a Class 319 dual-voltage electric multiple unit, with the additional capability to run on diesel.

Subject to confirmation, the shuttle services are expected to depart on both days from Honeybourne for LMRIC at 0850, 0950, 1050, 1150, 1250, 1430 and 1530. Return services from LMRIC to Honeybourne are scheduled to depart at 0915, 1015, 1115, 1215, 1400, 1500 and 1600. Please check the Rail Live website for the latest updates.

Connecting with regular GWR services to

London Paddington and Great Malvern, the shuttle services will take approximately 20 minutes to traverse the short branch line to LMRIC.

They will run from a temporary platform at Honeybourne, built by Dura Composites and installed in collaboration with Sisk and Network Rail.

Constructed using Glass Reinforced Plastic (made from recycled material) and featuring an advanced tri-tone surface for optimised anti-slip endurance, the



PORTERBROOK

lightweight, portable and fully sustainable platform will be reused following Rail Live at other temporary high-demand locations.

## Britain's top model

HS2 Ltd, exhibiting at Rail Live for the first time, will be bringing a large-scale model of Tunnel Boring Machine (TBM) *Dorothy*.

Its giant 125-metre-long, 2,000-tonne namesake started its journey at Long Itchington Wood Tunnel's North Portal site in Warwickshire in December 2021, and broke through the wall of the reception box at the South Portal site in July 2022.

*Dorothy* and its huge cutter head, weighing 160 tonnes with a ten-metre diameter, was then relaunched in November last year. It took four months to complete its one-mile second bore - making this the first complete twin-bore tunnel on HS2.

Work has now begun to dismantle the TBM, ready for transportation to Birmingham, where it will begin a 3.5-mile tunnel bore between Water Orton and Washwood Heath in early 2024.

You can view the model version of *Dorothy* in S Zone, stand 61, where an HS2 expert will be on hand to explain

## Rolling stock

A key element of the Rail Live offering is the display of new, innovative and otherwise popular rolling stock, enabling visitors to get up close and learn more about their important roles on the UK network.

Once again, we have an impressive range of on-track features at Rail Live 2023 with new, traditional and low-carbon technologies all showcased.

### Class 756

A Transport for Wales Class 756 FLIRT unit will be among the main rolling stock attractions.

Once completed, some 24 of the Stadler tri-mode units will be introduced on South Wales Metro services, powered by electricity to the lines north of Cardiff and diesel to the south, to provide cross-city connectivity.

Seamless travel will be promoted through use of overhead lines at 25kV, and through on-board battery power on non-electrified lines. Diesel power is limited to specific areas, to keep emissions to a minimum.

Low flooring ensures level boarding, making it simpler for passengers to get on and off, and thereby reducing dwell time. Air-conditioning, new passenger information systems, WiFi, and areas for wheelchairs, bikes and pushchairs also feature.



TFW



GBRF

### Class 50

50007 *Hercules* and 50049 *Defiance* are owned by the Class 50 Alliance and maintained to main line standards at Kidderminster TMD on the Severn Valley Railway.

The locomotives currently carry GB Railfreight livery to reflect the close partnership with the freight operating company, which uses the '50s' to operate passenger charter trains and a range of other rolling stock movements.

For further information about the Class 50 Alliance and its supporting organisation The Fifty Fund, visit [www.class50alliance.co.uk](http://www.class50alliance.co.uk) and [www.fiftyfund.org.uk](http://www.fiftyfund.org.uk)

## Rail Forum

Rail Forum will be hosting a series of focused mini-networking sessions to give members across the supply chain the opportunity for barrier-free, fast networking with major buying organisations, Tier 1 contractors and other stakeholders.

Pre-registration for the five sessions - on SME engagement, on-track plant, level crossings, seasonal delivery, and overhead line equipment - is essential. Tickets are free, although Rail Forum members and Rail Live exhibitors will be prioritised.

For more information visit: [railforum.uk/events/rail-forum-at-rail-live/](http://railforum.uk/events/rail-forum-at-rail-live/)

### Class 230

Great Western Railway has confirmed it will be showcasing a Fast Charge Battery Train at this year's show.

230001 features a Fast Charge system which unlocks the use of battery trains across the network.

The Fast Charge engineering team will accompany the train ready to discuss the technology and the future potential of the system - including the rapidly approaching trial on the West Ealing-Greenford line.



GWR

## BTP dog demonstrations and drone team

Now a regular fixture at Rail Live, the British Transport Police will be bringing its Citizens in Policing Team and the DOCU (Designing Out Crime Unit), its drones team, and the much-beloved Dogs Display Team, with several demonstrations taking place over the two days.

The Citizens in Policing Team will be on hand to offer an insider's view on becoming a Police Support Volunteer, a Cadet Leader, or a Special Constable.

The Railway Dogs Benevolent Fund is being supported for another year by Rail Live. In association with the BTP, the charity provides financial assistance for the ongoing medical care, rehoming and rehabilitation of retired railway dogs.

Their remarkable alertness and obedience skills demonstrate the critical role that BTP dogs play in ensuring rail network safety, responding to terrorist incidents and tracking down criminals.



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## Go live with Network Rail

A Track Demo Viewing Platform and giant video screen will form one of the centrepieces in the Network Rail Village, providing visitors with a clear view of what's taking place during track demonstrations from NR's Wales and Western Region. The demonstrations and associated displays have been developed with three Rail Systems Alliances.

Rail vehicles on display will include a Mobile Maintenance Train, a track tamper, rail-road vehicles (RRVs), and a UMH universal material handling vehicle that is able to receive materials from either MFS+ or MFA and distribute material via a series of conveyors.

As part of Project FRoOG (Freight Resilience of Operational Geometry), NR will also be displaying a new SRS vehicle that has been developed with geometry measurement kit on it, to dynamically measure infrastructure. It means that NR can measure all areas of track under load, in places where its TVR fleets don't run, and measure high-risk derailment sites.

Examples of NR's road vehicle fleet will also be present, including a range of electric vehicles from large transit vans to much smaller variants.

Within the main marquee in the NR Village, the Sentinel team will be available to meet

customers and users, and to answer any questions about how the core safety system allows users to check authority to work before going trackside. Visitors can also experience Sentinel's recent digital makeover, the biggest enhancement to the system in a decade.

Members of NR's Commercial and Procurement, Intelligent Infrastructure, and Research and Development teams will also be on hand, as will experts in Project SPEED (Swift, Pragmatic and Efficient Enhancement Delivery), which has been designed to empower the industry to be revolutionary in its thinking and to challenge how things are done.

Another attraction for visitors will be NR's team of station hawks. Provided by Rentokil, specially trained birds of prey (such as Harris's hawks) are flown to deter gulls and other pest birds without causing them harm.

Rentokil's bird handlers use their experience and expertise to identify the most appropriate vantage points from which to fly the raptors, in order to achieve the best results.

Meanwhile, in the Air Operations field, the NR Air Ops team will have a drones unit, and two helicopters will be on display. And there is the opportunity to meet those who fly them, to



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learn more about the valuable work they do.

NR will also have a large presence in Rail Live's Signalling Zone, including a stand for the East Coast Digital Programme.

Rail Live is hosting a tent on behalf of NR, which will be running various workshops in Zone S, next door to HS2.

### NR Events Programme - Zone K (same for both days)

**1030-1100**

*Making people safer at height and on the road.*

**1100-1130**

*Modernising track renewal.*

**1200-1230**

*Mobile Maintenance Train.*

**1230-1300**

*Tamper with a retrofitted tamper bank.*

**1300-1330**

*Dura GRP Platform.*

**1330-1400**

*Operational control of the future.*

**1400-1430**

*FRoOG (track recording vehicle for sidings).*

## Register today

If you work in the rail industry, then there is still time to register to attend both days of Rail Live for free. Simply visit: [raillive.org.uk](http://raillive.org.uk)



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# Turnkey OLE capabilities

## SPL Powerlines UK

Visiting SPL Powerlines UK on stand F26 at Rail Live offers several benefits for the rail community. Its exhibition includes advanced machinery such as the Zeck wiring unit, new RR19 long reach MEWP, and Doosan long reach, which all showcase cutting-edge technology in the rail industry. Additionally, the company's experts will be available to discuss various topics related to electrification, power and distribution and more. Engaging with SPL Powerlines UK provides a valuable opportunity to learn about the latest advancements in its fleet and services and solutions.

SPL Powerlines UK operates a large fleet of specialist rail plant vehicles and supply of skilled operators. Its fleet can be supplied with different attachments that ensure clients can deliver a variety of works. It operates nationwide to exceed clients' expectations. SPL Powerlines UK has made significant investments in rail plant vehicle and will continue to do so to ensure it is consistently able to support clients' needs. The Plant Team will be happy to assist in selecting the correct vehicle for any project.

SPL Powerlines UK Limited is the leading overhead line electrification provider, with both a

Principle Contractors Licence and a Plant Operators Licence. SPL Powerlines UK provides

turnkey OLE capabilities from design through installation and commissioning to final testing.

SPL Powerlines UK currently offers the following services across the UK:

- OLE Design – High, Medium, Low Speed Systems

- Isolations and Planning
- OLE Installation
- Testing and Commissioning of OLE Systems
- Supply of plant
- Full project management OLE services
- Labour resource of rail personnel

SPL Powerlines UK has a vast portfolio of work, both as a Principal Contractor and Sub-Contractor that demonstrates a proven track record of delivering projects to time and to budget, while maintaining safe standards of work. SPL Powerlines UK is a subsidiary of Austrian based Powerlines Group.

Over the last six years SPL Powerlines' Plant Department has grown significantly with large investments of plant, equipment, and staff this now gives it the infrastructure to allow the company to self-deliver its own projects, reducing the amount of hired-in equipment.

With this investment its vision has been to look at innovation options with the mission of keeping the plant fleet modern, and also look at phasing out old equipment for more fuel efficient and more eco-friendly machinery.

As a plant business where possible, SPL Powerlines UK has invested heavily in energy saving solutions, purchasing 30 new eco-site accommodation and welfare units, two hybrid MEWPs, 30 solar tower lights as well as five electric telehandlers to work in nationwide depots.

SPL Powerlines Plant Department has also been looking at ways to reduce its carbon footprint, including making plant maintenance paperless by issuing tablets to all its engineers. It has also made POS packs and site documentation paperless.

As a company, SPL Powerlines UK has worked on various projects and as a Plant Department, it has looked at the equipment hired in and looked at issues that have been had with certain types of equipment. To



support projects going forward it has invested in the following equipment:

- One Doosan crane
- Two Chieftain trailers
- Six 19-metre-long reach RRV MEWP 500kg baskets
- Four 12m JCB telescopic handlers
- One modular crane body to fit on the base unit of the ZECK unit to allow better utilisation

SPL Powerlines UK is also venturing into the world of piling to self-deliver its own projects and has recently ordered two Colmar T10000FS and Movax vibrating units plus hammer. This will allow greater versatility to the Plant Department, allowing it to keep down the cost restraints of project work.

To keep the SPL Powerlines fleet maintained to a high standard, the Plant Department moved into a larger premises to maintain and store the growing fleet. Keeping in line with a commitment to reduce its carbon footprint, it has purchased four large electric vehicle hoists which have the capability to lift the heaviest vehicles. SPL Powerlines UK has also added electric vehicle charging points on all sites to meet the demand of a growing fleet of electric vehicles that are now being utilised throughout the company.

One example from the SPL Powerlines fleet is the RR19/500. This brand-new purpose-built road and rail access platform is designed specifically for railway works, with a class-leading cage capacity and outreach. The RR19-500 model incorporates the latest Euro-Tier 5 clean-burning diesel engine and reduced noise levels. Incorporating the latest



ties


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design features, the RR19-500 provides an increased travelling speed and puncture-proof tyres as standard plus four WD and four-wheel steer for improved manoeuvring and radio control for safer operations, including loading and unloading. The three-person, 500kg cage capacity provides an ample work platform to enable fast and efficient work to be completed.

The latest Tier 5 engine provides:

- Increased power, performance, efficiency and torque
- Reduced fuel consumption, weight, maintenance, emissions, vibrations, noise, wearing parts and carbon footprint.

The RR19/500 can be used at speeds of up to 15 kph on rail and 5 kph on road. Power is provided by the latest 55.9 kW Euro V diesel with an additional auxiliary engine, which can carry out all operational functions, for safety back up.

The upper structure consists of a rotating turret with automatic levelling of the basket and

the turret on cants up to 200mm. This feature allows optimisation of the working diagrams and greater comfort in using the machine.

Operations on the road, loading/unloading the machine from transport and placing it on the

track can be controlled either from the on-board controls or via the radio control console by the operator on the ground.

The ergonomically designed machine controls are easy to use by means of joysticks, levers and an intuitive display system,

providing a user-friendly operator experience.

The all-steel large work cage offers sufficient working space for three people plus equipment, to a maximum weight of 500kg.

### Power & Infrastructure Resourcing – stand M99

SPL Powerlines UK also has its sister company Power & Infrastructure Resourcing showcasing its services on stand M99. The company provides contract and temporary staff at all levels, as well as services such as project management, consultancy and accredited training.

Power & Infrastructure Resourcing is a RISQS accredited supplier of personnel and services to the rail sector. Its rail division is one of the leading suppliers of contingent labour within the UK, providing experienced,

competent staff from safety critical track (PTS) and plant personnel to engineers and project managers.

One of its unique factors is that it has its own training department, ensuring Power & Infrastructure Resourcing delivers high standards of rail competence to the NSAR and Sentinel standards. This ensures it always has availability and can maintain the standards of work that deliver the highest levels of service in the rail industry.

### Contact

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# Concrete on a Roll

## Concrete Canvas

Concrete Canvas (CC) is a flexible, concrete-filled geosynthetic that hardens on hydration to form a thin, durable and waterproof concrete layer. CC combines the robustness of a precast or poured concrete solution with the ease of installation and reduced permeability of a geomembrane. CC allows concrete construction without the need for plant or mixing equipment, offering a rapid, lower carbon, environmentally sensitive solution for erosion control and weed suppression applications. Essentially, it's Concrete on a Roll.

CC is manufactured in South Wales and exported to over 80 countries worldwide from its purpose-built headquarters, incorporating state-of-the-art R&D laboratories and a demonstration park.

The speed and ease of installing CC means it is well suited to time-critical trackside work, reducing line possession and improving safety. Eliminating issues associated with rebound from shotcrete and the large plant and equipment required for traditional concreting methods means rail works can continue without line closures. CC is certified with a durability of over 120 years when used in erosion control applications - HS2 requires a 120-year design life for products; this provides vital accreditation to the physical properties,

design and installation guidance of CC, enabling designers to ensure they are specifying a quality material.

With tightening budgets and a greater focus on increasing the efficiencies of current assets rather than building new ones, CC offers a unique solution for the remediation of existing infrastructure. CC can improve the industry by utilising existing assets, reducing waste and contractor burden. One bulk roll of CC equals two ready mix trucks; therefore, one 40ft vehicle movement would cut down on 32 mixer trucks.

CC is an industry-accepted alternative to conventional concrete that has been widely used by Network Rail across the UK for over 14 years and is one of a few products included in the Network Rail Standardised Task Portal. Route Directors, Senior Asset Engineers (Drainage) and minor works teams across the five Network Rail regions and their 13 routes have specified the geosynthetic.

CC has been extensively used through CP4, CP5 and CP6. Most route network framework contractors have installed CC, including QTS, Balfour Beatty, BAM Nuttall, Costain, AmcoGiffen, Alun Griffiths and Story Contracting. CC has been specified on numerous projects for Network Rail, Transport for London, Translink NI Railways and others. Typical applications for Rail in the UK include channel lining, culvert repair and weed suppression.

During three control periods, the company

has been fortunate to be involved in over 600 Network Rail schemes across the UK. Some recent standout projects include the installation of Concrete Canvas for the rapid lining of crest drainage channels across several Network Rail routes, including work at Slochd, Charfield and Bath Road Cutting. It was specified over ST4 poured concrete to line crest perimeter drainage channels on different compounds at HS2; this application is typically required to prevent saturation of embankments and potential slip onto a track below as a result. For all projects, the ease and speed of installation allowed contractors to increase workers' health and safety by minimising the time on site, reducing line possession during the works and providing a lower carbon alternative to conventional concrete lining methods.

As a supply chain partner with Network Rail since 2009, CC has worked and collaborated with most Tier 1 and Tier 2 consultants and contractors in the rail sector across the UK. As a manufacturer, CC can provide expert support at all project stages, from pre-design to completion, with regional technical sales support, specification and installation guidance.

### Contact

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# Premium welfare vehicles

## SM UK

**S**M UK has built a reputation for designing and building superior welfare vans considered by many to be the best in the industry. The vans can accommodate up to seven people and include everything that an on-site rail team would need. Described by VanUser as “the complete, turnkey solution” the van has a full canteen facility, hot water on tap, a full-sized sink, a drying room and a unisex toilet. In an innovative move, reflecting the fact that a vehicle battery can be quickly discharged when a van is working on-site for much of the day, SM UK has developed a roof mounted solar panel which can provide sufficient energy for all the ancillary equipment on the van to be powered independently from the vehicle’s battery. It also has the added advantage of the fleet user being able to demonstrate its green credentials in an increasingly eco-sensitive environment.

SM UK has expanded beyond the welfare vehicle. And with increased demand for other solutions, the company moved to new premises on the outskirts of Leeds. The 40,000m2 building, combined with facilities in Tamworth and the recently opened Dartford workshop, allows SM UK to convert around 300 vehicles per year.

Steve MacDonald, chairman of SMUK, said:

“With production facilities in the North, the Midlands and the South, we are now perfectly placed to cater for customers located throughout the UK.”

The Ford Transit Custom is Britain’s best-selling vehicle – an impressive statistic that includes cars. The van provides a perfect base for a SMUK crew van conversion, providing additional seating (with under seat storage) allowing a team of up to six people to be taken to site while retaining a good size load space and payload. The passenger compartment is separated from the load space by a full height and width bulkhead, ensuring the safety of the occupants. Single or twin load doors are glazed, and as the van retains a payload of over 1000kg it should retain its status of being a commercial vehicle for taxation purposes. If the driver is permitted to operate the vehicle for personal use, the extra seating will be appreciated for leisure activities with friends and family at weekends.

“Our conversions are built to OEM standards such as FORD and are ‘tested’ and ‘type approved’ and priced competitively,” added MacDonald

Other, bespoke conversions can be undertaken such as the NHS emergency blood van (a recent SM UK conversion). In each case, it liaises with the customer to ensure that the engineering solution is practical, legal, and within budget. In every case, SM UK aims to ensure that modifications merge perfectly

in-line with the original vehicle design using bespoke components designed in house, so that the end product has a uniform appearance to the customer. Once delivered, a van is usually put to use immediately so the finishing touches are often neglected, a typical example being the application of customer livery. But SM UK can facilitate this and offers a design and fitting service, so the completed vehicle is actually that, complete!

“We provide the whole package from the acquisition of the vehicle to full conversion and livery... with a vehicle ready to work,” explains MacDonald

The Ford Transit is a popular van for conversion, and can be equipped with racking, usually sourced from top quality suppliers such as System Edstrom or Sortimo.

A well-designed racking system provides the driver with a safer, easier access to find that otherwise elusive part or tool that much quicker. All of these vans are available now – enquire today!

Other options include Mercedes, VW, Vauxhall, Citroen to name just a few.

## Contact

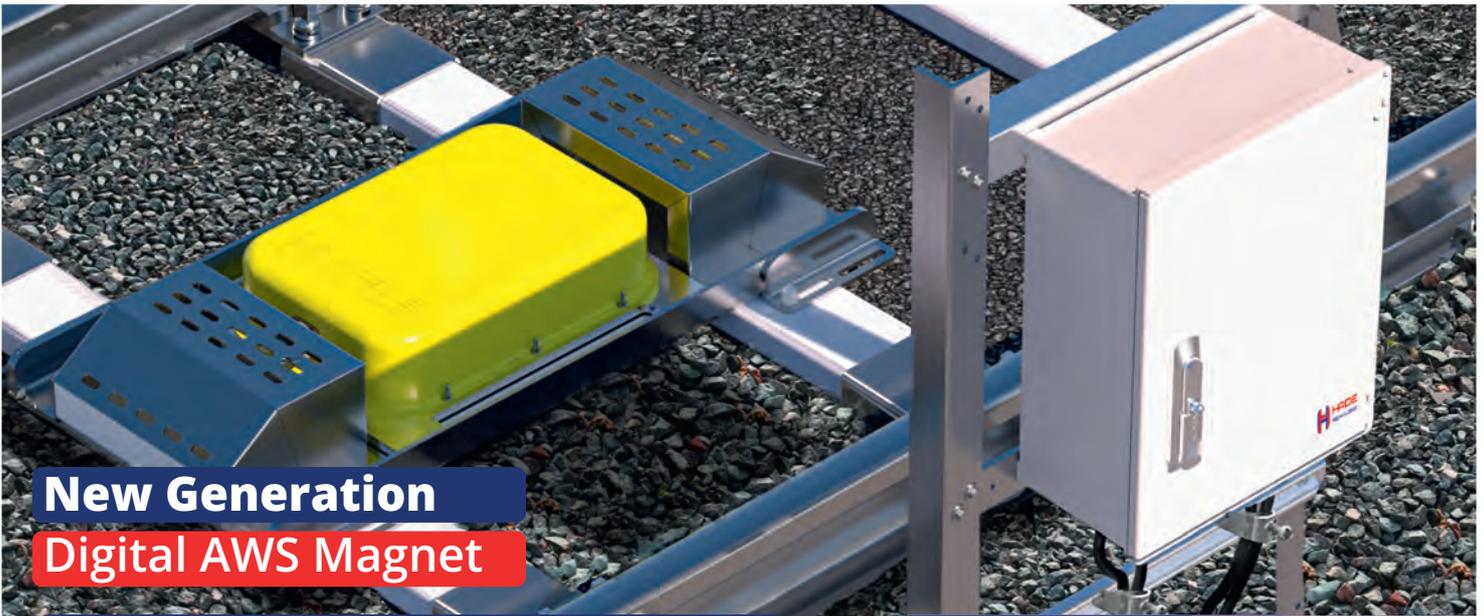
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# LEMUR-AG15

## Haide Technologies

**W**ith a clear UK objective to achieve net zero by 2050, power systems will be required to both decarbonise themselves and support the decarbonisation of other sectors.

And reducing emissions is not the only challenge we face. Even if global efforts to mitigate rising CO<sub>2</sub> are successful, we will still face the impacts of climate change as a result of past emissions, including hotter than average and peak temperatures.

The power system has traditionally been designed to be reliable to expected abnormal conditions but coping with the catastrophic impacts of such extreme temperatures was never a design consideration. This is now clear within asset temperature related failure data.

Different resilience strategies have been developed over decades to maintain high levels of continuity of supply through the current climate and credible, known events, however, extreme. But potentially unknown events are forecasted to leave many critical systems without power and the current passive solutions give little to no benefit.

Increased temperatures during summer months will disrupt the network across the UK as they have the last few years, dependent systems on the network will not be so quick to recover – train services, hospitals and airports will be disrupted for long periods of time while equipment is replaced. As extreme temperatures become more frequent with climate change and electricity underpins more and more of the UK's energy services, it is critical that solutions are found.

LEMUR-AG15 (Low Emissivity, Magnetic UV Reflector) from Haide Technologies is a novel solar shielding product which protects assets from the impacts of solar gain and has been successfully supporting the transition towards solar resilient equipment across the rail network with unprecedented results over the last three summers. Inspired by the thermal regulating practices of ring-tailed lemurs, this technology is helping solve an array of heat related failures, significantly reducing delay minutes and Schedule 8 costs for projects.

LEMUR-AG15 is a patented, university tested, deployed and verified technology comprising of structural adhesive backed solar shielding composite materials designed for use on external equipment structures. The material diffuses and reflects the sun's transverse electromagnetic waves away from any protected asset by virtue of its unique external and internal composite materials and structure.

LEMUR-AG15 can be applied to any legacy or new metal housing quickly and efficiently. The material is supplied pre-cut from the factory to a specific enclosure profile and can be modified manually on site with standard scissors. A typical signalling location case kit weights under 6kg within briefcase sized



packaging and is therefore easily carried to the asset by the installer.

The adoption of an application specific adhesive backing introduces additional installation efficiency, requiring only a low skill element for installations. With the benefits of Haide Technologies' developed high-performance textile and structural adhesive tape, LEMUR-AG15 can be applied to all outdoor structural steel and composite enclosures.

The application of LEMUR-AG15 secures long asset life, reduced internal housing temperatures during summer months, thermal insulating and resilience building to existing and new apparatus housing/building assets. A significant reduction in overheating assets with a reduction in required air conditioning in the summer periods.

LEMUR-AG15 is affixed in such a way that it clads the outer surface of the housing and or panels/parts reflecting the sun's

electromagnetic radiation away from the asset during those hours of the day when the sun's energy is most intense.

LEMUR-AG15 can be installed easily and without the need to open the enclosure doors and does not require the system to be de-energised and taken out of operational service. There is no requirement to drill or remove panels of the housing nor a requirement for any specialist tools to satisfy an installation.

LEMUR-AG15 protected assets will be present throughout the Rail Live signalling zone and on stand SIG4.

### Contact

**Haide Technologies**

- 0161 643 3885
- info@haidetechnologies.co.uk
- www.haidetechnologies.co.uk

# Cutting the cost of electrification

## Siemens Mobility

Cost-effective electrification relies on more than just technology, it requires each stage of delivery to be designed and delivered in a way that provides value for money. That's why at Siemens Mobility we take a holistic approach to electrification, from initial feasibility testing through to entry into service and beyond.

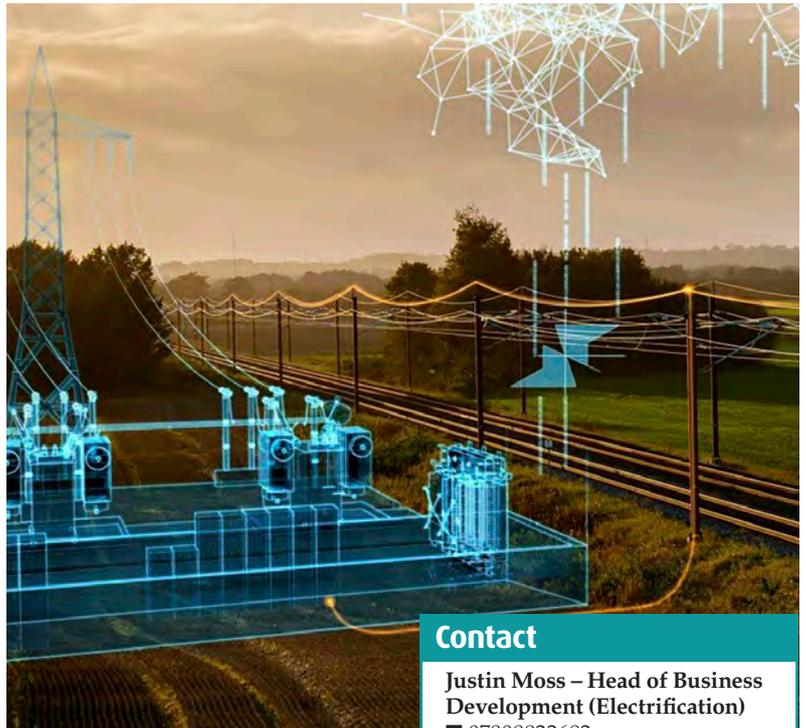
At Rail Live, Siemens Mobility's team of electrification experts will be exhibiting our technology and demonstrating our unique approach to delivering cost-effective electrification for a low-carbon UK rail system. This approach covers in-house design, UK manufacturing, delivery and installation.

We'll be showing how our innovative product portfolio optimises the use of energy across the network, including AC and DC traction power supply equipment, as well as contact line and network systems.

Visitors will be able to see demonstrations of our latest overhead line innovations including the SICAT SX and surge arrestors which have been developed to affordably electrify over 1,800km of Denmark's railways. We'll also be showing our air insulated switchgear, which is currently used in the UK, with a model of the compact version in development.

The Electrification team won't be the only part of Siemens Mobility's whole system offering exhibiting at Rail Live, you'll also be able to speak to our Customer Services team about how we support robust, reliable rail operations.

Come and speak to our Electrification experts at stand F20 and our Customer Services team at stand M66 to discover how we can help support your part of the UK's rail network.



**SIEMENS**

### Contact

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- [www.mobility.siemens.com](http://www.mobility.siemens.com)

# InTeEx RCI/RCL-system



## InTeEx

The InTeEx RRCS Rail Road Control System is more than just a RCI/RCL-system as well as a Movement Limiting Device. It can be used to control a wide variety of different machine functions, for example rail gear control.

The system is adaptable and the InTeEx team is continuously improving the system as well as adding customer-desired functionality.

The system is fully approved by Network Rail for RIS-1530-PLT Iss. 6 technical requirements for on-track plant.

The InTeEx RRCS-system is a new generation of safety system, built using mostly standard parts with a minimum need for cable wiring. All valves are proportionately controlled to give a smooth user experience. A user-friendly interface with all necessary information available at a glance completes the overall experience.

Installation and calibration is comparably easy and fast for the installer of the system.

The previous version of InTeEx RCI/RCL-system has been installed in over 100 excavators around the world. RRCS is a further developed system and fulfils all current regulations.



In addition to the RRCS, InTeEx also provides a pure Movement Limiting Device without RCI/RCL, called EC-S. This can be installed to almost all type of construction machinery, both on and off rail, in use of a Movement Limiting Device, for example excavators, wheel loaders, and MEWPs. If there is a need for a more basic and cost-efficient system without high safety features, the InTeEx EC-B would be a good alternative

option.

Visit stand S30 for a demonstration of the systems installed in a mini excavator.

### Contact

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- [info@inteex.se](mailto:info@inteex.se)
- [www.inteex.se/en/home/](http://www.inteex.se/en/home/)



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Visit us to find out more about the Signal® footwear range and our many other carbon neutral safety products!

**SAFEAID**

# PlatformZERO

## Plura Innovations

**P**lura Innovations, Taziker and ECSL have a proven track record of collaborative innovation and are pleased to release another new innovative solution – PlatformZERO.

PlatformZERO represents a breakthrough in platform construction technology. Designed around a 2.7-metre-wide repeating modular section, it uses an innovative piling and sliding GRP sub-structure that allows all first-phase construction work to be completed behind a Vortok barrier and away from a live track environment, ensuring complete safety and eliminating any disruption to train operations. It is a unique nine-step build approach that significantly reduces costs and construction time with a typical 40m platform extension capable of completion in under two weeks.

### Advantages

**ZERO Possession:** Avoid hard to plan and costly, disruptive possessions as the whole structure can be fully and rapidly installed behind the Vortok safety barriers by day or via rules of the route line blocks at night. Very low passenger disruption.

**ZERO Clutter:** Seamlessly incorporates fencing, lighting, CCTV, cable routes and

drainage.

**Zero Negative Environmental Impacts:** Inclusive of manufacturing, construction, on-site and over its functioning life. It is all made in the UK, with a 60-year design life. It eliminates heavy plant, road rail vehicles and equipment due to its light weight. It is simple to transport and store with a full sustainable drainage system.

**Zero Maintenance:** Will not corrode and deck surface is near diamond hard class leading GRIPfast, which far outlasts all other rolled of paint applied finishes.

**Zero Public Risk:** GRIPfast eliminates surface wear which could lead to future slip hazards unless applied surfaces are regularly reapplied.

### Why is FRP the perfect choice?

**Durable:** Fibre-reinforced plastic (FRP) offers high durability and strength, which means that little maintenance is required over the lifespan. The National Composite Centre is currently conducting testing to provide the industry with accurate life expectancy details for FRP materials. With extremely high-impact resistances, the platform elements will keep their shape and form even with heavy usage.

**Cost effective:** By using FRP, costs can be kept to a minimum due to quick and easy modular installation, low material costs and

little future maintenance.

**Lightweight:** The FRP sections can be assembled and transported to site for safe and simple installation, with less need for heavy lifting on-site. Due to the lightweight nature of the FRP materials, transportation and crane emissions are reduced which results in a lower-carbon footprint.

**Quick and Easy Installation:** This brings benefits to the railway due to limited disruption to passengers during the short possessions that are required for the installation. This also reduces the need for a full site compound, further minimising project costs.

**High Strength:** FRP has a high strength-to-weight ratio compared to metal, wood and concrete. This ensures its resiliency to damage and long-lasting performance.

**Longevity:** FRP will stand the test of time as it is resistant to corrosion, rot, mildew, mould and insects. A long life expectancy gives the client peace of mind with regards to minimal future maintenance and the associated costs.

### Contact

- 0151 522 0535
- [plura.sales@plurainnovations.com](mailto:plura.sales@plurainnovations.com)
- [www.plurainnovations.com](http://www.plurainnovations.com)



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# Heavy Vehicle Engineering

## Atkinson Vos

**A**tkinson Vos is a well-known independent Unimog specialist and has supported customers in the rail industry for over 30 years.

Its experienced team has a wealth of experience with Unimog and other heavy trucks.

A competitive hourly rate means that the company's workshop is often more cost-effective than using main dealers.

Atkinson Vos carries out all work from straightforward maintenance and servicing to complete overhauls. It consistently gets good feedback our customers, including this from Chris Brayne of Super Rod (operator of 7 Unimog RRVs): "They always accommodate us when a machine is out of action, and we know that they try to work in a cost-effective way."

Atkinson Vos offers original parts as well as aftermarket, reconditioned or used parts, often on a next day delivery service.

To complement its traditional strengths, Atkinson Vos has developed its in-house engineering and design team expertise.

Certified Solidworks engineers are ready to take on projects of any size and can create detailed designs which can be used for visualisation, prototyping and manufacturing.



With Finite Element Analysis (FEA) simulation, designs can be optimised for performance and efficiency, to minimise failure risks and reduce costs associated with physical testing.

Atkinson Vos' extensive subcontractor and supplier network allows it to ensure high-quality production and timely delivery of products or solutions.

The company has recently designed and constructed custom three-way tipping bodies, PTO systems and three point linkages as part

of a Network Rail Contract.

For more information, visit stand L65 to discuss how Atkinson Vos can solve your engineering and vehicle maintenance problems.

### Contact

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■ [www.unimogs.co.uk](http://www.unimogs.co.uk)

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RaisE Business Centre is an exciting partnership between industry, public sector and academia with excellent and welcoming conference and catering facilities conveniently located at the heart of Junction 36, off the M62, Goole.



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[raise@eastriding.gov.uk](mailto:raise@eastriding.gov.uk)



VISIT US AT  
RAIL LIVE 2023  
**STAND M14**

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  - Fully approved for use by Network Rail, LU and Irish Rail.
  - Creates a continuous position of safety (CPOS).
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*Providing the rail industry with robust corrosion-resistant platforms.*
- **asset Steel Bridges and Concrete Arches**  
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# Innovative rail millin

## Linsinger

Linsinger Maschinenbau GmbH is an Austrian company that specialises in the development and manufacture of machinery for the rail industry. The company was founded in 1946 and is headquartered in Laakirchen, Austria. Linsinger has a global presence, with offices in Europe, UK, Asia, and North America.

The company's product range includes rail milling and surface finishing machines. Linsinger also make sawing and drilling equipment and static rail machining plant. Linsinger's machines are used by railway operators and maintenance companies around the world to improve the safety and efficiency of rail operations.

Linsinger is a leading supplier of rail milling technology and has a reputation for innovation and quality. The company's products are used by some of the world's largest railway operators, including Deutsche Bahn, Network Rail, and TTC-Toronto.

Linsinger is committed to providing its customers with the best possible products and services. The company invests heavily in research and development and has a team of experienced engineers which is dedicated to developing new technologies that can improve the safety and efficiency of rail operations.

Linmag GmbH is the sister company that specialises in the operation of Linsinger rail milling machines. The company was founded in 1997 and is headquartered in Steyermühl, Austria. Linmag has a global presence, with offices in Europe, Ireland, Asia, and North America.

Linmag Ireland is a subsidiary of Linmag GmbH, founded in 2016 and is headquartered in Dublin, Ireland. Linmag Ireland is a leading provider of rail milling services in Ireland. The

company has a team of experienced engineers which is dedicated to providing high-quality, safe and efficient rail milling services.

Linmag is also committed to providing its customers with the best possible rail milling services. The company has a team of experienced engineers which is dedicated to providing high-quality, safe and efficient rail milling services worldwide by using the Linsinger high performance rail milling technology. Linmag offers an extremely fast rail head re-profiling treatment for new or worn rail. The resulting long stretches of refurbished track are as good as new, or even better at a fraction of the cost.

Linmag can also reset your clock for re-railing.

Rail milling is a process of removing material from the surface of a rail using a rotating cutter head and eliminates the risks of changing the material composition of the rail. The cutter head is made up of a series of carbide teeth that shave off small pieces of the rail as it rotates. The milling process is used to remove defects from the rail head, such as head checks (RCF), squats, corrugations, and pitting. It can also be used to reprofile the rail head, which helps to improve the adhesion between the rail and the wheel. Rail milling is a more efficient and effective way to maintain rails than traditional methods, such as grinding. Grinding can only remove a thin layer of material at a time, which can make it difficult to remove deep defects. Rail milling, on the other hand, can remove much larger amounts of material in a single pass. This makes it a more efficient way to remove defects and improve the condition of the rail. Rail milling is also a safer process than grinding. Grinding can create sparks, which can be a fire hazard in tunnels and other areas where flammable material is present. Rail milling does not create sparks, making it a safer option for these areas. Rail milling is a valuable

tool for railway operators who want to improve the safety and efficiency of their rail network. It is a more efficient and effective way to maintain rails than traditional methods, and it is also a safer process.

In summary, rail milling has many advantages.

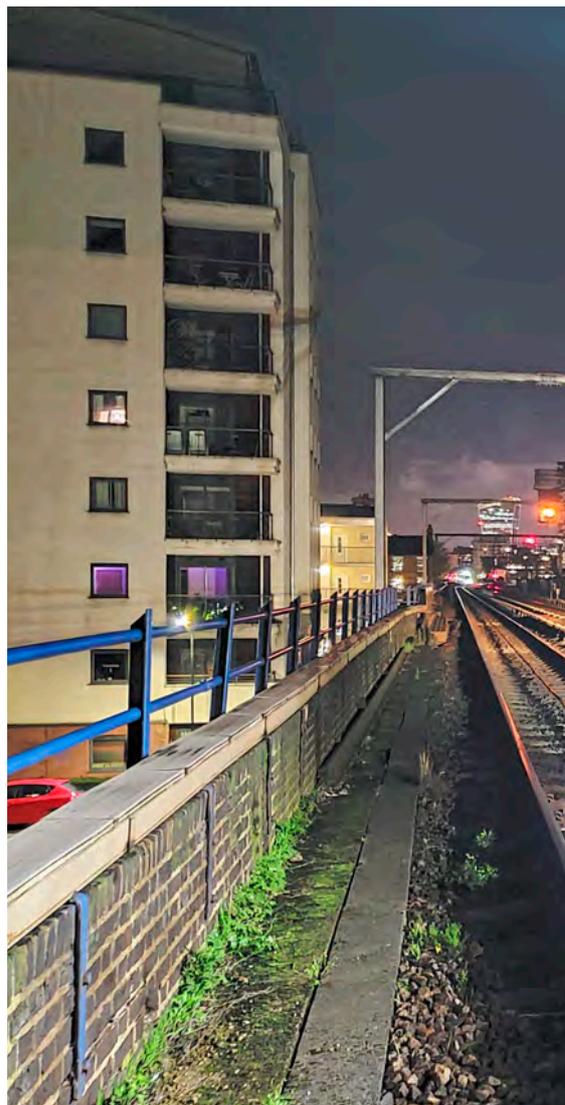
■ **Clean Technology:** Linsingers' milling technology enables it to deliver a rail service free from flying sparks and ecological pollution. This smooth process does not have any adverse effects to the structural integrity of the rail material. There is no excessive noise during processing.

■ **Full Profile Restoration and Defect Removal:** Rail milling restores the profile so that the optimum conicity is achieved, this delivers savings on energy (fuel) and reduces premature wear compared to part treated infrastructure.

■ **Positive External Effects:** Saving on Maintenance of Rolling Stock is further CO2 saving for the Network.

■ **Recyclable:** Waste is not just waste, but in this case a 100 % recyclable resource that is also saving actual CO2. Selling the collected metal chips as a reusable resource is an additional benefit for our customers.

■ **CAPEX Saving:** Preventive and corrective surface maintenance removes rail defects,



# g technology



which occur due to train operation. Restoring the correct rail profile increases the smoothness of train operations, reduces undesirable forces and extends the rail life enormously. This reduces the Whole Life Cost and prolongs the intervals between expensive re-railing interventions.

Linmag Ireland provides rail milling services to Irish Rail and other railway operators in

Ireland. The company's rail milling machines are used to remove defects from the railhead, such as squats, corrugations, and pitting. This helps to improve the ride quality of trains and reduces the risk of derailment.

Here are some of the benefits of using Linmag Ireland's rail milling services:

- Improved ride quality
- Reduced risk of derailment
- Improved adhesion between the rail and the wheel
- High output quality and performance

#### ■ Safe and efficient

If you are looking for a rail milling service that can help you improve the safety and efficiency of your railway operations, then Linmag Ireland is a great option. The company offers a wide range of high-quality services that are built to last.

Here are some of the projects that Linmag Ireland has worked on:

- Cyclical maintenance of the Irish Rail network
- Reprofile of the rail head on the Dublin-Cork line
- Removal of squats on the Dublin-Belfast line

Network Rail carried out a trial on some defective rails to explore the benefits of rail milling before its introduction on the UK network. Rails were having to be replaced due to the volume and severity of RCF defects within them after ten years of service life in main line track. During the ten years of service the rails vertical rail height only decreased by 3mm.

These rails were treated on a static rail milling plant to see if all the defects could be removed by Linsinger milling technology. After removing 6mm of material the rails were free from defects. This left 3mm of material above the vertical wear limits, therefore proving it would have extended the rail life a further 10 years.

Do not wait and hesitate to get your rails in shape, the sooner you start milling:

- The longer your rails will last
- The better your passenger ride quality will be
- The less you will affect rolling stock
- The safer your network will become
- Your funds saved by avoiding exchanging of rails can be invested somewhere else and
- Protect your passengers, rail workers and residents living close by the track as well as infrastructure from pollution and noise
- You will reduce your carbon footprint.

#### Contact

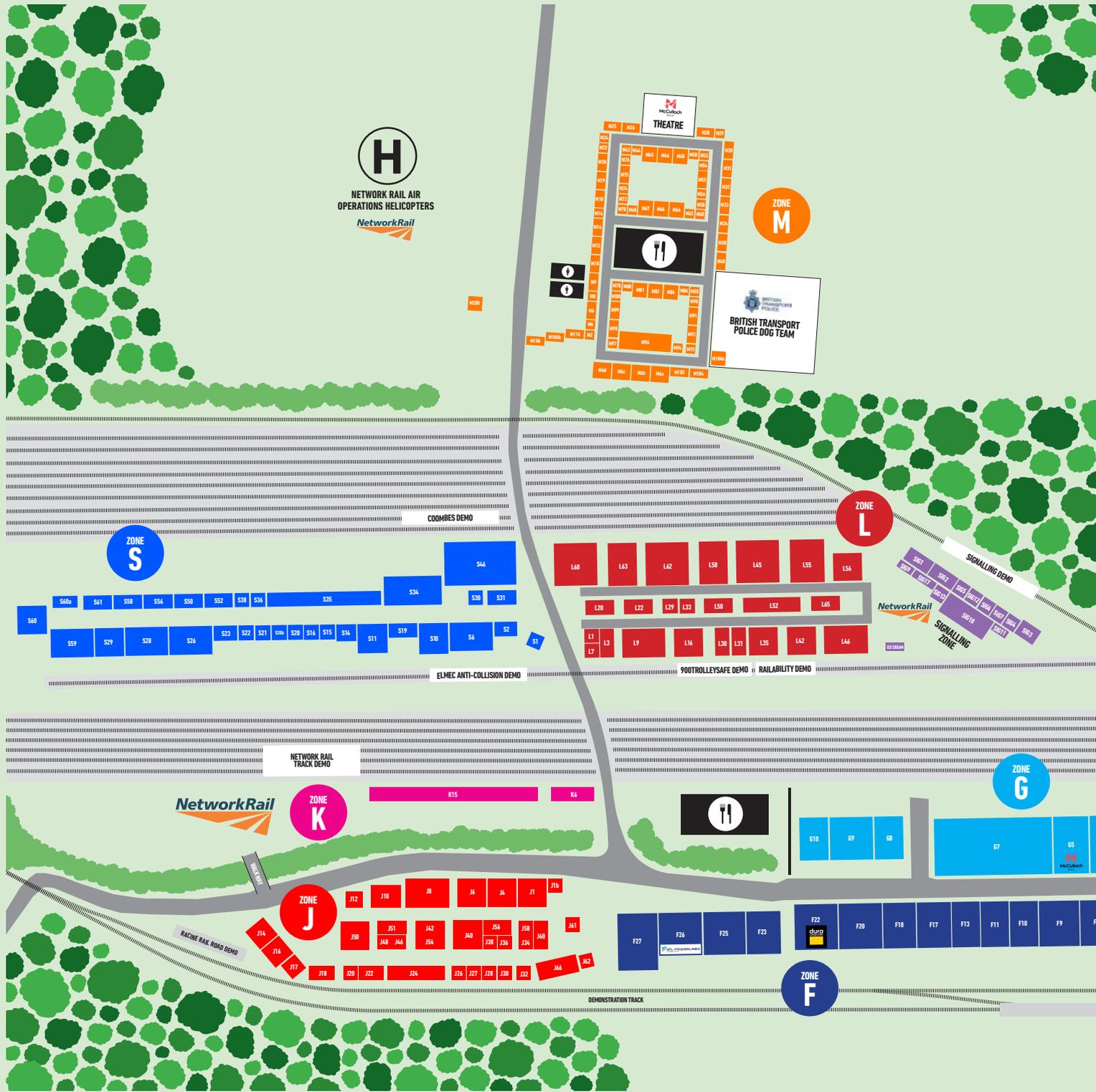
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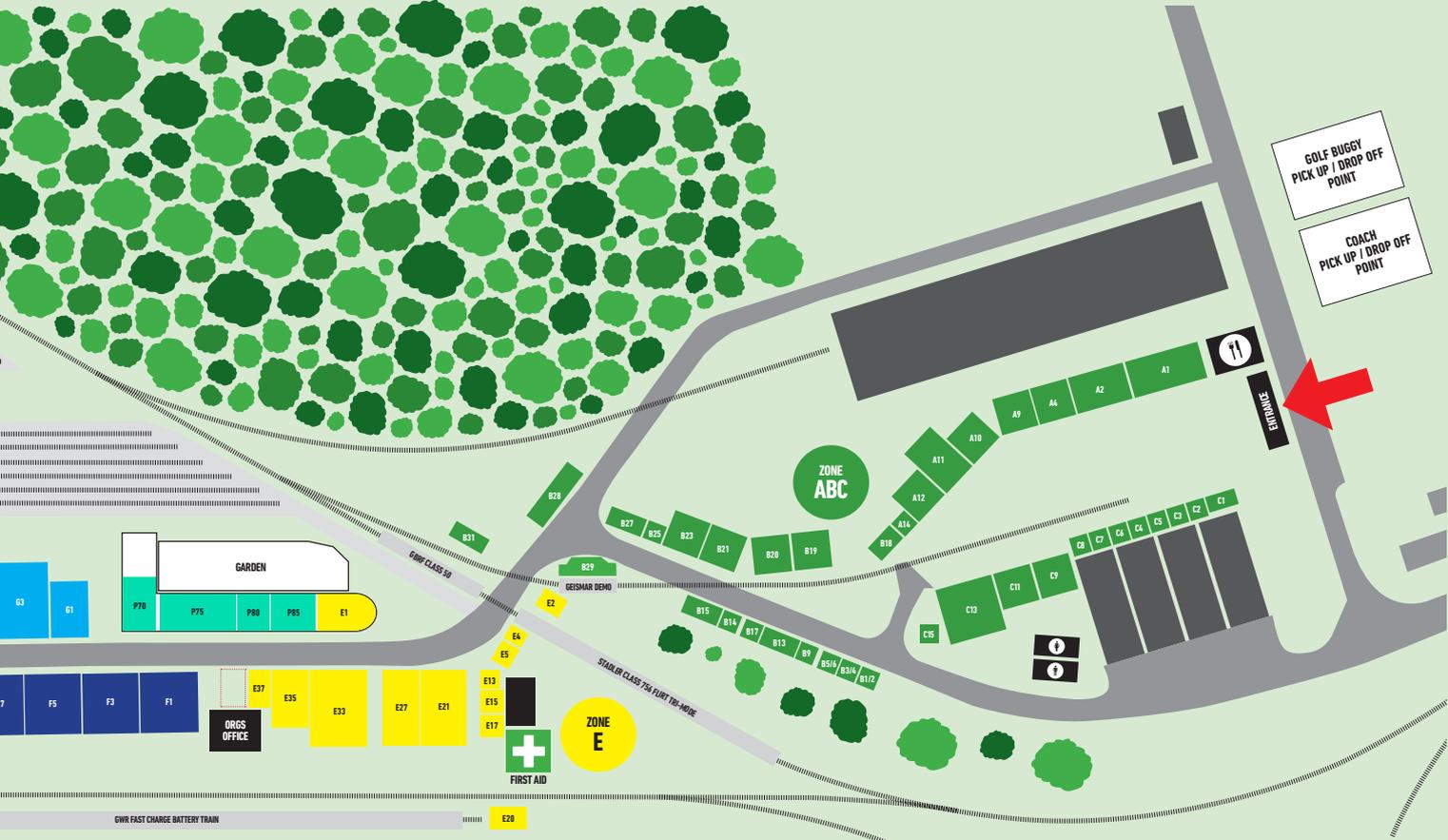




# Welcome to Rail



# Live 2023



For an A-Z list of exhibitors, visit:  
<https://www.raillive.org.uk/exhibitors>





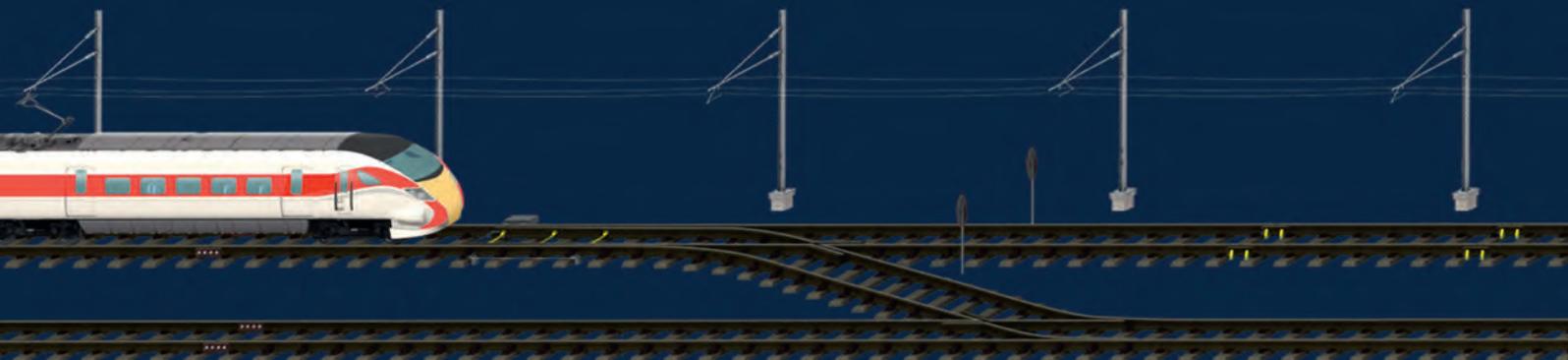
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# Hardlock Nuts

## Staytite

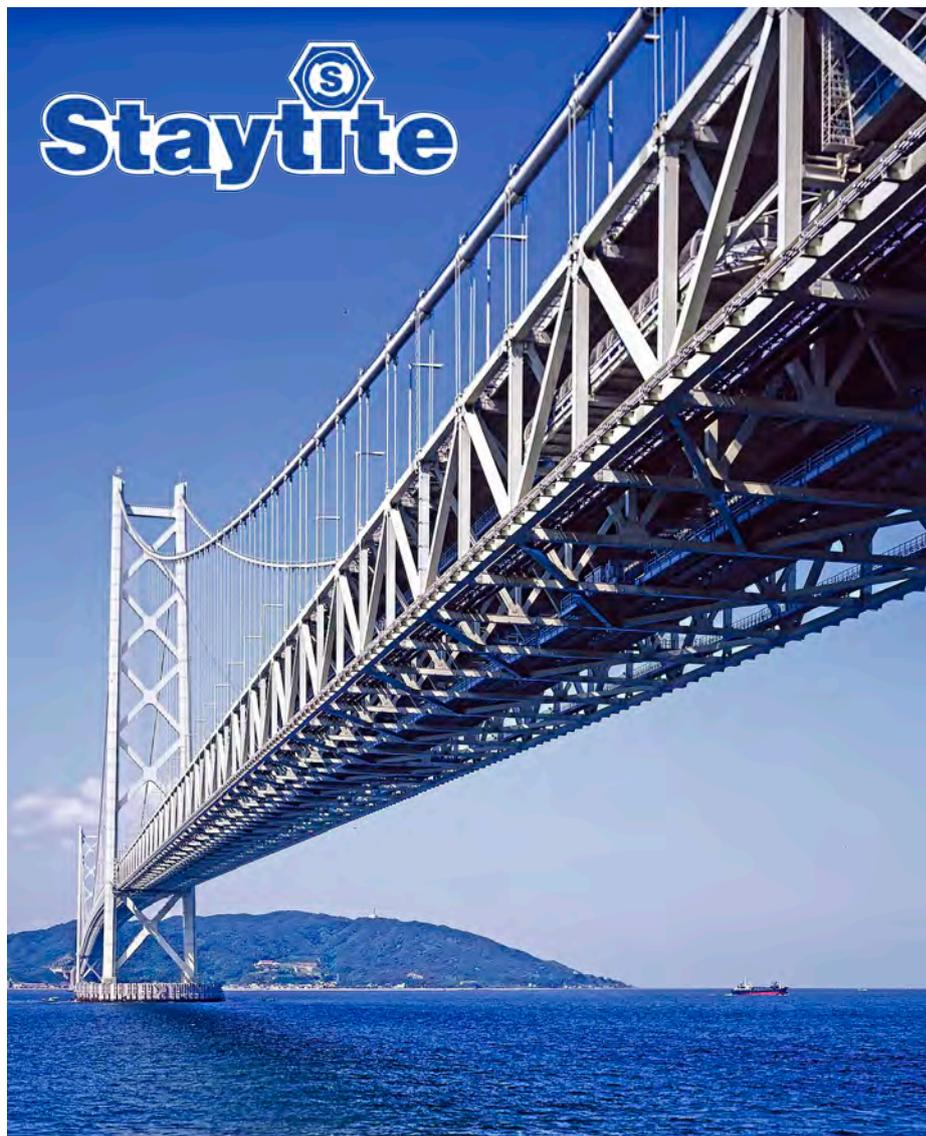
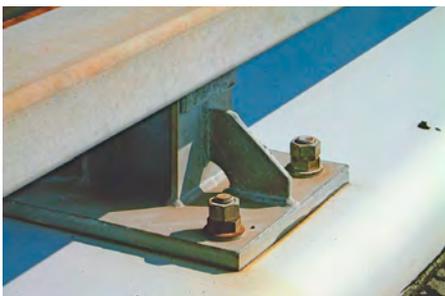
Throughout the world, Hardlock Nuts are specified where there is a risk of **fasteners loosening** as a result of vibration and shocks while in use.

Inadequate locking security means increased inspection and maintenance costs, plus potentially **expensive failure** repair action. Personal safety of engineers can be put at risk.

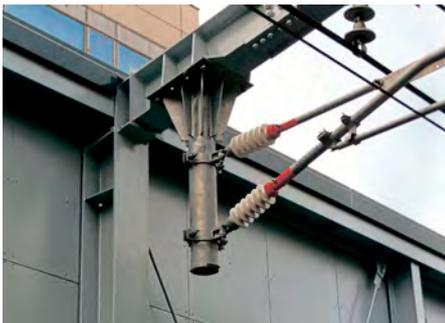
Some of the railway applications are shown below.

**How can Hardlock deliver better solutions for you?** Come and see us at B1 – right by the entrance.

## Used on bridges and steelwork



## Installed on overhead line equipment



## Contact

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■ michael@staytite.com

■ www.staytite.com



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# GRP embankment staircases, anti-trespass panels and walkways

## HR Kilns

**H**R Kilns, trading as HR Fibreglass, specialises in GRP/FRP (glass reinforced plastic) and is a leading supplier of moulded and pultruded gratings, pultruded profiles, stair treads, step cover, anti-slip sheets, landing covers, handrail platforms and walkways, fencing, manhole covers and brackets.

HR Fibreglass also provides a bespoke GRP service from its production department to suit all customers' requirements.

Its prefabricated embankment steps and staircases are an ideal, rapid-fit permanent solution to provide safe maintenance access to works staff on mounds and embankments. They are designed as a modular system, fabricated from HR's GRP pultruded profiles and gratings, with anti-slip stairs. They are lightweight, non-conductive, quick to install, require little or no maintenance/repair costs and easy to maneuver into place. HR supplies full CAD designs to meet all the NWR specifications.

Also, if you need a way to keep people safe around rail tracks or other hazardous areas, then look no further than GRP anti-trespass panels. Designed for use on the railways, with full Network Rail acceptance (certificate PAO5/



O6081) in the UK, the trespass panels act as an excellent safety measure to deter people from straying into the path of potential danger.

Meanwhile, GRP flooring requires minimal maintenance while simultaneously offering maximum safety and efficiency. Its strong, durable and can manage just about anything that is thrown at it. Some of the most common uses for GRP flooring include industrial flooring. HR Fibreglass offers GRP gratings for this use as they are incredibly lightweight and easy to fit with no welding necessary, as well as being heat, chemical and corrosion

resistant.

GRP mould gratings are an ideal solution for safe roof walkways as they can be made to measure, easily customisable and cut into awkward shapes and sizes.

## Contact

**Colin Weston – Director**

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- sales@hrkilns.com
- www.hrfibreglass.co.uk

# A trusted design partner



**WHITFIELD CONSULTING SERVICES**

## Whitfield Consulting Services

**W**hitfield Consulting Services provides creative and effective engineering solutions across the infrastructure sector, with expertise in rail projects gained from a wealth of experience in the industry. Its longstanding partnerships with public entities and Tier 1 contractors as well as commissions from private clients means WCS has the expertise to navigate any infrastructure environment. WCS focuses on understanding and recognising its client's needs first, so that it can adapt its service and provide tailored engineering solutions to fit any infrastructure project. WCS' collaborative approach to design and willingness for early involvement has helped ensure success on a wide range of rail projects since the company's start in 2007. WCS' expertise is in providing civil engineering solutions to the rail sector, with extensive experience in the following areas:

### Civils and structures

- Bridges and structures
- Lineside services and structures
- Platform extensions
- Drainage and earthworks



- Stations
- Depot buildings and structures

### Power and electrification

- Substation design
- HV & LV cable route design
- Under-track crossings

The following case studies show where WCS' services have been used successfully:

- Midland Mainline (power and electrification)
- Reading West (civils and structures)

- Doncaster Depot (power and electrification)
- CAM Anglia Footbridges (civils and structures)

WCS knows that its experience and collaborative approach makes the difference in ensuring designs are optimised to recognise opportunities, mitigate risks and support successful project outcomes. Its proven track record across a wide range of complex civil and structural design projects in the rail sector is a testament to WCS' status as a trusted partner for delivery.

The WCS CAD and BIM team maintains advanced 3D and 4D software capabilities as well as expertise in the use of Common Data Environments (CDEs), for example ProjectWise, to ensure detailed drawing packages and document control interface are second to none.

Please see the WCS website or visit stand M16 to obtain capability statements which detail further case studies and testimonials.

## Contact

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- info@wcs-consult.co.uk
- www.wcs-consult.co.uk

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# Digital SSI Monitoring

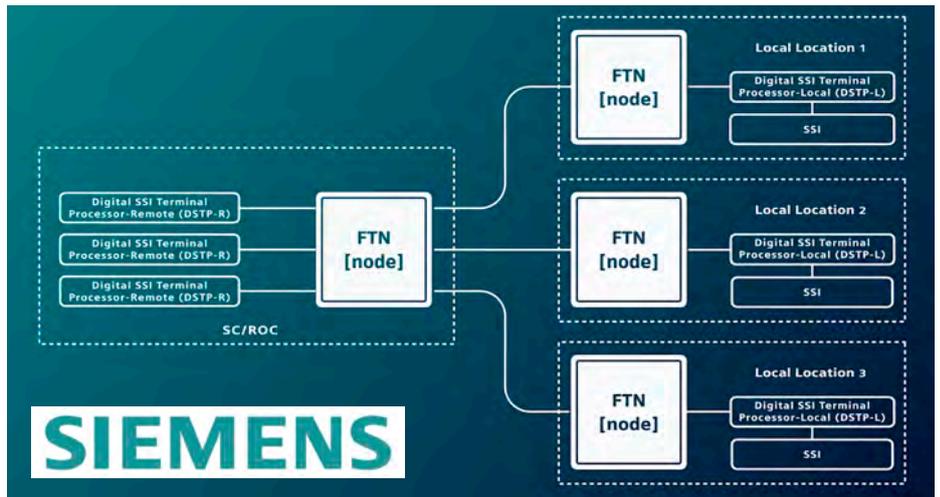
## Siemens Mobility

Siemens' Digital Solid State Interlocking (SSI) Monitoring is a convenient solution which provides the maintainer access to the SSI technician menu and control menu from a centralised control centre which can control the local interlocking remotely.

Currently if a fault occurs, the maintainer must travel significant distances from the control centre to the local site before any interventions can be made which is a time-consuming process. However, with Digital SSI Monitoring the maintainer can cut out this process by enabling early intervention and access to multiple SSI Technician Terminals (Diagnostic and Technician Control) from a central operating area.

The Digital SSI Monitoring solution will be replacing the Terminal Processor. This provides backwards and forwards compatibility (compatible with CTF programme), which mitigates obsolescence issues. The Terminal Processor will be networked, providing a wider view from a single/multiple sites. This enables an integrated view so quicker preventative actions can be taken.

In summary, the Siemens Digital SSI



Monitoring solution enhances personnel safety and improves sustainability due to reduced travel time to local site. It also saves a considerable amount of delay to the travelling public and reduces the associated train delay costs to the operator due to early intervention.

Siemens has successfully completed the trial for Digital SSI Monitoring to provide remote access capability to the SSI Technicians Terminals at Tweedmouth and Morpeth from the IECC at Tyneside. This solution is now

available to order.

To find out more, visit stand M66 or Siemens' Electrification team at stand F20.

### Contact

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- tom.blythe@siemens.com
- www.mobility.siemens.com

# Rail Lubrication System

## LB Foster

Innovative design modifications to a proven trackside friction management dispenser now allow LB Foster's new Rail Lubrication System to be installed in restricted spaces, providing rail network owners with significant cost savings by extending the life of switches and crossings and reducing track maintenance costs.

### Features and benefits

LB Foster's PW series hydraulic lubricator is a proven, cost-effective, reliable and low maintenance method of lubricating rails. The design includes a vertical lubricant reservoir that means it can be installed trackside and the latest innovation is to embed the system within the ballast. This makes it particularly suitable for restricted spaces due to tight gauging, such as station approaches where there is a high concentration of switches and crossings, and tunnels.

### Network Rail approval

The in-demand PW series hydraulic lubricator currently features in a successful pilot installation at London Waterloo station, delivering major cost economies for Network



Rail.

Neil Cassidy, Network Rail's project manager at London Waterloo, said: "It is easy to see the cost savings over time and also the Maintenance Standard Task reduction in the trial area alone. There are 24 automatic point lubrication systems at Waterloo on a 28-day replacement frequency, so we would look to fully complete the area, installing eight LB Foster PW units on a 42-day refill frequency. This affords an exceptional return on investment, as well as reducing the need for boots on ballast.

"Initial feedback from the trial is extremely positive and it looks like the LB Foster units are possibly the solution to the complicated and onerous lubrication problem at London Waterloo."

### Contact

**Jonathan Paragreen – General Manager FM (Europe)**

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- www.lbfoster.eu



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# Concrete Train

## TSO

**T**SO, rail subsidiary of the NGE Group, is present in 17 countries as a global specialist in the maintenance, design and construction of all types of railways: conventional, high-speed and urban. This includes the tunnel network for the Elizabeth line, for which TSO formed part of the ATC Joint Venture with Alstom and Costain.

As part of what was then Europe's largest construction project, TSO deployed its innovative 465-metre-long Concrete Train. This is the train designed to produce concrete for the pouring of the slab track in tunnels.

Comprising 17 wagons plus two welfare wagons, it carries all the components of a mixing and batching plant, aggregates, cement, water, power source, mixer and a pumping wagon.

The concreting train was refurbished and brought to the UK from France via the

Channel Tunnel in August 2015.

The original high-output Concrete Train together with its means of delivering concrete some 400 metres in front of the train by pump and pipeline was itself an innovative idea developed by TSO for the delivery of specific projects in Europe.

This innovation has solved many issues, mitigated changes in the project schedule and work sequence, improved quality control of delivery and reduced the risk of rework, reduced waste by mixing only the necessary concrete and reduced project risk by increasing production capacity to meet the programme requirements.

Indeed, by using the Concrete Train, the logistical issues in an urban environment have been overcome by being able to continue to deliver a high-quality product, in total safety and with minimal ecological impact.

Dry materials were loaded onto the concreting train which then batched the concrete. Concrete pouring took place during

the night with restocking and maintenance carried out during the day.

The ability to mix and batch concrete on the move meant the concreting train was able to deliver a high daily output - at peak production it installed over 300 metres of concrete track slab a day.

According to Crossrail: "The 465-metre-long concreting train was a sophisticated mobile underground concrete batching factory. The concreting train played a key role in installing the permanent track from Plumstead westbound into central London."

For more information, visit TSO on stand J18.

## Contact

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- [www.nge.fr/en](http://www.nge.fr/en)



# Avondale Customised Unimogs

DESIGNED FOR SAFETY AND EFFICIENCY



Machinery is key to operations at Avondale Environmental Services - machinery that has been custom designed and built for the job it does on the railways.

Founder, director and engineer Andy Back is always innovating - he's taken the basic Unimog and given it two advantages; custom-built to better do the jobs it's needed for and with the ability to run multiple operations at the same time.

Avondale's fleet of Unimog machines are all custom-built and unique...because Andy has chosen the attachments and fine-tuned them onto the basic chassis, so that not only do they do the jobs better and more efficiently, but it's safer for the plant operator too.

Using his expertise and practical experience in vegetation management, he has taken the time to look at how jobs are done, what's needed, what works best in terms of efficiency and speed - without compromising on quality or safety.

It took three years to go through the design and build process to create Avondale's current fleet, which works across the UK, mainly for vegetation management and tunnel washing.

The fleet is designed to be multi-task machines.

The Unimog is the power unit - able to run up to 5 operations at the same time.

For washing a tunnel, for example, there will be a low pressure system for detergent, PTO for the brush, high pressure for the jet wash (4000psi), a stabilising system and hydraulics to manoeuvre the arm.

All can be set at different speeds and settings to meet the job requirements.

Exciting new projects to be launched soon include an innovative solution to rail tunnel cleaning using our expertise and experience gained on highway tunnels over many years, and the launch of a new environmental weed killing product and delivery system that will revolutionise traditional methods.

The industry demands more productivity, reliability and the ability to do a job safely and well - Avondale is building the plant machinery able to deliver.

## Purpose-Built, Multi-Functional, High-Performance Road Rail Unimogs



- Approved to travel on all highway networks
- Chapter 8 approved for highway rail access
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innovative by nature

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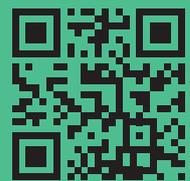
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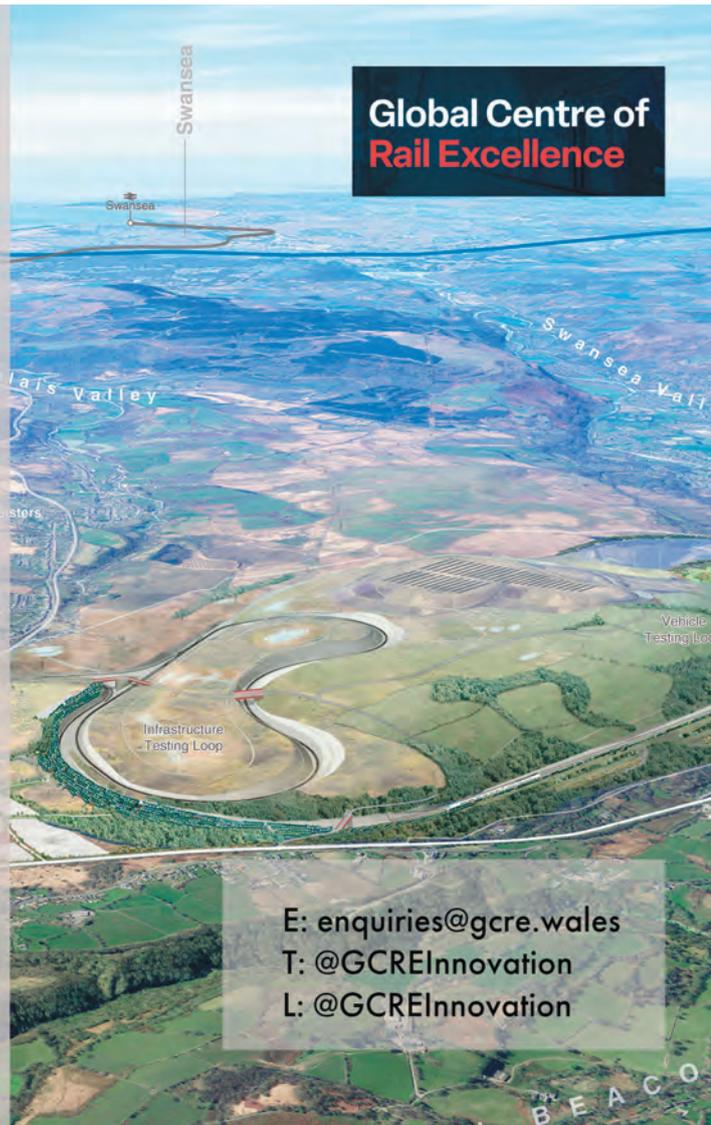
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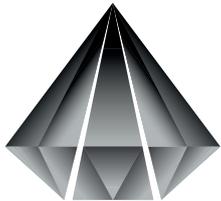


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**11:30am: AI and Machine Learning:  
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**2:30pm: Climate Resilience in  
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**Thursday 22nd June 2023 – Stand J10**

**11:30: Climate Resilience in  
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**1:30pm: BIM for safety and cost  
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