Measuring, Modelling and Engineering the UK’s Railways
Having worked with SEP Rail for a number of months now, I honestly couldn’t be happier with the work they’ve carried out. Their approach and attitude have been second to none with no request being too much trouble. They have been an asset to what is a high profile and high pressure project and I look forward to working with them again in the future.

——— ARWYN ROGERS
CONSTRUCTION MANAGER
AMEY, GREAT WESTERN ELECTRIFICATION PROGRAMME

Rikki (SEP Rail MD) is a delivery machine. I believe he has the ability to grow the delivery capability of his team because he is respected by the people that he has worked with and they are happy to join him wherever he is. He is delivery focused and will do his utmost not to let his customers down.

——— DAVID VAMPLEW
PROJECT MANAGER
HIGH SPEED TWO (HS2) LTD

SEP Rail Services have been working alongside Colas Rail for over six months, carrying out S&C and plain line topo surveys as part of our CP6 Southern Alliance works. At times they’ve had up to ten teams out on track at once. I’ve worked with Rikki (their Managing Director) very successfully for a number of years now and this time is no exception. Both he and his team have been a pleasure to work with. We will certainly be using their services again in the future.

——— LUKE BROWN
OPERATIONS MANAGER
S&C SOUTH ALLIANCE / COLAS RAIL
As I look at the growth we've experienced and the projects we've been involved in since our inception, I can't help but feel extremely proud of how far we've come as a business.

Most importantly, all of this - the value we've added to our clients and the successes we've achieved - is thanks entirely to the truly gifted people who make up our team. From senior management to the most recently-appointed surveyor, every one has had a part to play in making SEP Rail Services the fastest growing rail surveying company in the UK.

To me, this business has always been about quality, integrity and partnership. Above all, however, it’s about the people we work with, be they members of our team, our clients or our strategic partners. I believe this comes across, not only in the quality of our work, but also in the level of client satisfaction and repeat business we receive.

I am genuinely excited to see what the future holds and look forward to meeting and working with some of you very soon.

RIKKI MORROW
MANAGING DIRECTOR
SEP RAIL SERVICES
About Us

A unique pre-construction services company, we work with contractors, consultants, construction firms and more, measuring, modelling and engineering the nation’s railways.

Working hand in hand with our clients and partners, we’ve built our reputation upon the quality, reliability and flexibility of our service, developing innovative solutions to complex problems whilst making tomorrow’s railway a better place. With over 80% of our work based upon repeat business, we must be doing something right…

Part of the SEP group, we’ve been adding value to our clients’ projects for over 30 years. Indeed, as one of the UK’s fastest growing railway surveying firms, each year we deliver yet more projects for rail clients throughout the country.

What do we do?

Far from being your run-of-the-mill surveying company, we support our clients throughout the lifetime of their projects, providing the support and information they need to make the right decisions.

A genuinely diverse organisation, we offer a fully integrated, turnkey solution to our clients’ problems, adding value at each and every stage of the operation. In doing so, we help deliver the safe, compliant and timely outcome that they would naturally expect. More often than not, however, we also save them both time and money in the process, exposing efficiencies they didn’t even know were possible.

✓ Railway track surveys (plain line to complex S&C)  ✓ Railway track and structure monitoring
✓ Gauge clearance surveys  ✓ Access planning
✓ Topographic surveys  ✓ Site engineering
✓ 3D HDS point cloud and BIM solutions  ✓ Ground investigation
✓ Control network installation and verification  ✓ CCTV drainage surveys
✓ Height and stagger OLE surveys  ✓ Utility mapping surveys
People and technology

A forward thinking and dynamic organisation, we know only too well that both people and technology are at the heart of everything we do. It’s no surprise, therefore, that we’re consistently investing in both...

Our in-house training programs help our team to achieve their goals, remaining passionate and at the top of their game. At the same time, with regular upgrades to our survey equipment and software, we remain at the forefront of railway surveying, delivering our clients’ data faster, more cost-effectively and in higher resolution than ever before.

Vision, mission and values

An ambitious but ethical business, we’re guided, not only by a strategic vision, but also by a firm set of values that help determine who as well as what we are.

Our vision?

To become the UK’s leading railway surveying organisation, the survey firm that people aspire to be a part of, be they surveyors, partners or clients.

Our mission?

The following seven commitments – our mission statement, if you will – set out how we hope to achieve our vision...

- We will place the safety, health and happiness of our team above all else, especially profit
- We will never stop investing in our people, putting their personal growth ahead of the company’s
- We will remain a truly ethical business, treating all stakeholders with fairness and integrity
- We will remain at the forefront of innovation, investigating and embracing both new techniques and technology
- We will treat all stakeholders, be they clients, partners or communities, with the utmost respect and consideration
- We will never stop in our quest for improvements in the quality and accuracy of our deliverables
- We will continue to seek out new partnerships and alliances to add even greater value to our clients’ projects
Railway Track Surveys

From simple plain line to detailed S&C, every year our RISQS approved team surveys hundreds of miles of railway track for some of the rail industry's most recognisable firms.

A dedicated rail specialist and the fastest growing company of its type in the UK, our growth is in no small part down to the hard work and integrity of our team. Whilst the accuracy of our track surveys is obviously critical, it’s these two values that help define who we are as a business. With over 80% of our workload being based upon repeat business, we must be doing something right...

The team

Headed up by Rikki Morrow, formerly of Corus and Colas Rail, SEP Rail Services boasts a number of time-served delivery and survey managers. All seasoned professionals, they’ve proven themselves repeatedly, spending years adding value to some of the nation’s highest profile railway track survey projects.

At any one time, they manage a substantial team of rail surveyors and processing specialists, as well as a variety of approved suppliers and subcontractors. All field personnel are PTS / OLEC1 / ICI qualified, also attaining COSS and SWL certifications, whilst all delivery surveyors have a minimum of ten years’ experience in their field.

Certifications held

- Personal Track Safety (PTS AC/DC)
- Overhead Line Equipment Construction (OLEC1)
- Industry Common Induction (ICI)
- Controller of Site Safety (COSS)
- Safe Work Leader 1 (SWL1)
- Safe Work Leader 2 (SWL2)
Clients and projects

From primary rail contractors and design consultants to tier two contractors and smaller firms, we form long-standing and truly meaningful relationships with our clients, delivering precision railway track surveys on time and on budget. Just a fraction of those our people have been instrumental in delivering, notable track surveys have included...

- Great Western Electrification Project
- Midland Metro Alliance
- Merseyrail
- S&C Southern Alliance
- Anglia, Kent & Sussex Plain Line Surveys
- High Speed 2 (HS2) Construction and Enabling Works
- CAF Gauging Project
- TransPennine Route Upgrade
- Nexus Metro

Equipment

Part of the SEP group, we’ve benefitted from a close working relationship with our friends at SEP Products. Thanks to this partnership, we’re able to guarantee that our team have access to the very latest survey technology at a moment’s notice.

Whether that means a 0.5″ robotic total station or a cutting edge HDS laser scanner, our unrivalled access to brand new equipment ensures our surveyors always come properly equipped. Furthermore, by staying at the forefront of innovation when it comes to the techniques we employ, we’re often able to improve safety and performance, all without increasing costs for the client.

Key equipment

- Trimble S9 0.5″ Robotic Total Station
- Trimble GEDO IMS Track Measuring Trolley
- Spectra Precision SP80 GNSS / GPS Receiver
- Leica LS10 Digital Level
- Trimble TX8 Laser Scanner
- Trimble SX10 3D Laser Scanning Total Station
- Trimble TSC7 Data Logger
Remaining firmly at the forefront of survey technology, thanks to our relationship with our partners at SEP Products, we’re able to deploy the very latest innovations within the industry.

Complementing our fleet of cutting edge 0.5” Trimble S9 total stations, we’re also one of a small number of companies in the UK to have invested in the revolutionary Trimble GEDO IMS system.

The ultimate flexible and lightweight railway measurement system, the GEDO IMS employs a ‘capture all’ technique, making use of an Inertial Measurement Unit combined with both geodetic sensors and an ultra-high-speed laser scanner (the Trimble TX8). The system is capable of a range of methodologies for surveying and documenting assets within the railway environment.

SEP Rail Services believe the introduction of the GEDO IMS to be revolutionary for the rail surveying environment. The speed and flexibility of the data capture combined with the ability to validate data will ultimately reduce the requirement for track access / ‘boots on ballast’ and provide added benefits to future projects.
Case study

Working a single Saturday night possession, a 2-man survey team deployed the GEDO IMS at Bletchingley Tunnel, just east of Folkestone, a site identified for a Category 11 track renewal and thus requiring a full topographical and gauging survey. Not only did they complete 1,320 yards of survey – both Up and Down lines – the attached laser scanner also produced a 3D point cloud, allowing gauging and detail extraction to be undertaken.

Typically, a traditional topographic survey of this size would produce approximately 5,000 survey points. The IMS system, however, collected in excess of 3 billion points.

That said, it’s not simply the volume of data captured which proved remarkable. It’s also the time-saving capability. To put things into context, the original survey was carried out over 20 site shifts and, whilst some of the control elements are still required for the IMS system, the whole survey was conducted during a single 4 hour possession. A 75% saving on site-based activities and a much richer data set.

This amazing ‘capture all’ system allows the data to be reviewed back in the office and, should the need arise, be re-visited at a later date without the need for site access.

**GEDO IMS – The Benefits**

- The multi-sensor trolley system captures track position, cant and gauge in a single operation.
- No requirement for a total station during data capture, thus increasing productivity and reducing disruption on site.
- Rapid initialisation of equipment resulting in reduced down time and a dramatically improved data capture rate.
- Continuous high-resolution data collection for flexible analysis with GEDO Scan software.
- Internal quality control carried out in real time within the measurement process whilst still on site.
- The production of a point cloud as a by-product allows further features to be inspected, extracted and modelled in the future without returning to site.
- The ‘capture all’ survey method reduces or eliminates the need for costly return visits to site, making vast quantities of high-resolution data available for other elements of your projects.
From depots and platforms to embankments, car parks and more, our experienced and professional land surveyors deliver precision topographical surveys of the UK’s rail network in accordance with Network Rail Standard NR/L2/TRK/3100.

At the heart of almost every construction or civil engineering project, a topographic survey is usually procured at the earliest stages of a job, providing information vital to both design and construction teams as well as a variety of other stakeholders.

**Precision**

Not simply valuable in isolation, a precision topographical survey can also be used to complement the results of other pre-construction works. From accurately plotting the findings of utility mapping or CCTV surveys to mapping the position of boreholes, a well-considered topo survey can be enhanced to provide significant added value to the majority of rail engineering projects.

Using the very latest survey equipment and backed up by a time-served delivery team, our surveyors hold all certifications necessary for working throughout the nation’s railway infrastructure.

**Certifications held**

- ✓ Personal Track Safety (PTS AC/DC)
- ✓ Overhead Line Equipment Construction (OLEC1)
- ✓ Industry Common Induction (ICI)
- ✓ Controller of Site Safety (COSS)
- ✓ Safe Work Leader 1 (SWL1)
- ✓ Safe Work Leader 2 (SWL2)
Clients and projects

Supplying accurate and user-friendly deliverables on demand, it’s no surprise that we’ve rapidly become the ‘go to’ provider of topographic surveys to the nation’s rail industry. From stations and embankments to access roads and depots, our team have worked on some of the largest and most recognisable rail projects of the past decade, including…

- Great Western Electrification Project
- Midland Metro Alliance
- Merseyrail
- S&C Southern Alliance
- Anglia, Kent & Sussex Plain Line Surveys
- High Speed 2 (HS2) Construction and Enabling Works
- CAF Gauging Project
- TransPennine Route Upgrade
- Nexus Metro

Equipment

Part of the SEP group, we’ve benefitted from a close working relationship with our friends over at SEP Products. Thanks to this partnership, we’re able to guarantee that our team have access to the very latest survey technology at a moment’s notice.

Whether that means a 0.5″ robotic total station or even a cutting edge HDS laser scanner, our unrivalled access to brand new equipment ensures our surveyors always come properly equipped. Furthermore, by staying at the forefront of innovation when it comes to the techniques we employ, we’re often able to improve safety and performance, all without increasing costs for the client.

Key equipment

- Trimble S9 0.5″ Robotic Total Station
- Spectra Precision SP80 GNSS / GPS Receiver
- Leica LS10 Digital Level
- Trimble TX8 Laser Scanner
- Trimble SX10 3D Laser Scanning Total Station
- Trimble TSC7 Data Logger
In areas of limited access or situations where time is of the essence, it may not always be possible to employ conventional methods of surveying.

With this in mind, SEP Rail Services have developed a market-leading airborne survey solution, allowing us to carry out sub-5mm UAV surveys without physically needing to gain access to the railway infrastructure.

Thanks to their ability to cover a vast area in a fraction of the time of more traditional methodologies, our heavy-duty six and eight-rotor platforms lead to dramatic improvements in on-site productivity, thus ensuring that clients receive their deliverables, not just on time, but often ahead of schedule. What’s more, working from a position of safety, they can often be operated during high traffic periods, eliminating the need for possessions, line blocks and safety critical staff.

Key equipment

✓ Matrice 600 Pro, 6-rotor UAV with Ronin-MX gimbal and A3 Pro flight controller
✓ Altura Zenith ATX8, 8-rotor UAV with Altura Cardan gimbal and Altura Ground Control System
✓ Phase One XF IQ3 100MP Camera System
✓ Hasselblad HD6-100c 100MP CMOS Camera

When paired with cutting-edge drone technology, our Phase One XF IQ3 100 megapixel cameras allow us to capture more data, more quickly and in greater detail than almost any other system on the market. Indeed, we’re one of only a handful of railway surveying companies whose UAV-captured data meets Network Rail’s Band 1, sub 5mm specification.
Gauge Clearance Surveys

Working to Network Rail Standard NR/L2/TRK/3203 and using cutting-edge laser measurement equipment, we deliver the profile and vital clearance information your railway projects so desperately need.

Whenever changes are being made to track, surrounding infrastructure or rolling stock, design consultants and railway contractors must ensure there is adequate clearance for trains to pass safely.

**Gauging surveys**

By using the very latest LaserSweep and Abtus RouteScan instruments, our specialist gauging teams can produce supremely accurate profiles of all manner of structures, from tunnels and platforms to bridges and OLE gantries.

For more complex structures, we can combine one of our Trimble GEDO track measuring trolleys with an HDS 3D laser scanner, producing detailed models to aid in the design process whilst also collecting valuable cant, gauge and geometry information. Where required, a calibrated platform gauge will be used for platform gauging and lower sector structures.

**ClearRoute**

Using ClearRoute software, our delivery team can accurately determine the distance between trains and surrounding structures, supplying profiles in .SCO format (or tailored gauging reports) for use by design engineers. Critical to ensure that designs remain compliant once constructed, the structure profiles generated thanks to our gauge clearance surveys prevent clashes between trains and potential obstacles occurring (such as signals, girders and so on).

Not solely for design purposes, we can also carry out post-construction gauging surveys to verify the as-built position of various key elements.
OLE Surveys

The UK’s fastest growing railway surveying company, SEP Rail Services is also one of just a handful with significant experience of working with overhead line equipment.

From height and stagger surveys and HDS surveys of infrastructure to utility mapping and control network installation, our OLE surveys are essential for any client seeking to undertake track or civils design works (including platforms and over bridges) on or adjacent to OLE routes.

Working in accordance with best practice and the relevant Network Rail Standard (NR/L2/TRK/3100 MOD 05), we use the very latest in survey technology to collect vital data relating to overhead line equipment. What’s more, by exploiting the capabilities of our cutting edge 3D laser scanners, it’s often possible to capture the information required at speed and, potentially, without actually needing to access the track. As a result, we reduce both risk and time on site, thus accelerating project deliverables and minimising cost in the process. As an added benefit, a registered point cloud can be created for further design and engineering purposes.

Electrification projects

As one of the UK’s most respected rail surveying firms, it’s no surprise that we have a wealth of experience when it comes to OLE surveys. Just a small selection of the electrification projects our team have worked on, the following should help illustrate our capability in this area...

- Great Western Electrification Project
- Midland Metro Alliance
- Merseyrail
- S&C Southern Alliance
- Anglia, Kent & Sussex Plain Line Surveys
- High Speed 2 (HS2) Construction and Enabling Works
- CAF Gauging Project
- TransPennine Route Upgrade
- Nexus Metro
All projects, regardless of size or complexity, require the development of a reliable control grid to guarantee that all design and construction works relate to the same coordinate system.

An accurate control network is the underpinning foundation of any survey. Put simply, if your control network is of poor quality, all survey, setting out, implementation and verification works that utilise that network will be of similarly poor quality. The impact that a substandard control network can have on both project cost and programme cannot be overestimated. Using a variety of techniques and based upon a local grid, Ordnance Survey coordinates or Snake Grid, we can install fully-verified control stations and networks to millimetre accuracy, providing both you and your client with the utmost confidence in any survey data produced.

**Control network installation**

Whilst robust control is obviously essential for the survey itself, it must also be fit for purpose for any engineering works that follow. From the outset, therefore, any control points we install are...

- Placed in the ideal position, providing optimum sight lines for future use in construction
- Positioned with project staging and construction stages in mind
- Built to outlast the project and installed in locations with minimal risk of disturbance

With vast amounts of experience planning and building complex control networks (including primary, secondary and tertiary control points) our team use the very latest GNSS / GPS receivers, 0.5″ robotic total stations and precise digital levels to ensure both performance and compliance with Network Rail’s NR/L2/TRK/3100 survey standard. Following the installation works, the control network can then be processed using a variety of software packages...

**Control network processing software**

- N4ce
- Star*Net
- Terramodel
- Trimble Business Centre
Utility Mapping Surveys

Every time your team breaks ground, there's a risk of striking a utility. Our utility mapping specialists use the very latest technology to mitigate your risk on site, keeping you, your team and your clients safe.

Indeed, by working in accordance with PAS128 and Network Rail Standard NR/L2/TRK/3100, not only do we keep your projects on track, we also keep you compliant in the eyes of both your client and the regulator.

Utility surveys

With up-to-date statutory undertakers plans having first been procured and consulted, professional utility surveyors will use EML (electromagnetic location) and GPR (ground penetrating radar) to accurately locate and map utilities and/or structures beneath your site.

Using either robotic total stations or GNSS / GPS receivers, the lateral position of all findings will then be captured and, when combined with both depth and diameter information, plotted onto a new or existing topographical survey. If applicable, any GPR data will also be post-processed and analysed before comprehensive and user-friendly reports are produced.

What can we detect and map?

✓ Electricity cables
✓ Gas pipes
✓ Water pipes (clean and foul)
✓ Telecommunications cables (including fibre optics)
✓ Foundations
✓ Pile caps
✓ Voids (including inspection pits and basements)
✓ Railway track
✓ Other obstructions
Utility survey benefits

Here’s just a handful of the potential benefits that could be reaped by carrying out a thorough utility mapping survey...

- Minimise the chance of a harmful and costly utility strike
- Protect your team, other site users and/or the public from serious injury or worse
- Keep your projects on program and on budget
- Excavate with confidence, safe in the knowledge that all due diligence has been carried out
- Safeguard your business’ reputation
- Have access to accurate, up-to-date records – a snapshot in time of buried services on your site
- Reduce inconvenience to other stakeholders (other site users/trades, road users, businesses etc.)
- Remain compliant as stipulated by HSE and EA regulations

Why carry out a utilities mapping survey?

The benefits mentioned above aside, there are legal and regulatory reasons why carrying out a GPR survey is a good idea.

Organisations have a legal obligation to protect their employees, the public and all other stakeholders who could potentially be affected by their work. Indeed, the Health and Safety Executive (HSE) deems an appropriate level of utility mapping activity to be a mandatory precursor to any excavation. Should you experience a service strike after choosing not to carry out a survey, therefore, you could be facing...

- A substantial insurance claim
- Financial loss due to program slippage, compensation payments, fines, insurance excess and increased premiums
- Reputational damage and a loss of confidence
- Criminal charges (gross negligence manslaughter or corporate manslaughter being the worst)

Equipment

When carrying out utility surveys be they on or off the railway, we only ever use Network Rail approved survey equipment. From the seemingly humble (but incredibly powerful) cable avoidance tool to the very latest in dual-antennae GPR, we firmly believe in using the right tool, for the right job, in the right way.

Network Rail approved survey equipment

✓ Leica DS2000 Utility Detection Radar (GPR)
✓ Radiodetection RD8000 Cable Avoidance Tool (CAT)
✓ Radiodetection TX-10 Signal Generator / Transmitter (Genny)
✓ Trimble 0.5” S9 Robotic Total Station
✓ Trimble TSC7 Data Logger
✓ Spectra Precision SP80 GNSS / GPS Receiver
✓ Various Cable Reels and Sondes as Required
Using the very latest technology, our measured building survey teams deliver accurate, intuitive plans and models of your structures, all in accordance with Network Rail standards.

**Measured building survey deliverables**

- Floor plans
- Roof plans
- Sections
- Elevations
- Registered point clouds
- Three dimensional BIM models

In the context of the rail sector, a measured building survey could best be described as a dimensional survey of the internal and/or external areas of a building or civils structure. Such structures could range from station or depot buildings to bridges or tunnels. The end result can range from floor plans to fully-rendered, three dimensional Revit models.

**Accurate, detailed surveys**

Depending upon the project specification, a wide variety of structural and architectural elements can be included within a measured building survey. These can range from simple walls, window and door openings to fenestration, masonry details, light fittings and more. Regardless of the elements captured, however, all drawings will include floor levels, heights and annotations as appropriate.

**Key equipment**

- Trimble S9 0.5” Robotic Station
- Trimble TX8 Laser Scanner
- Trimble SX10 3D Laser Scanning Total Station
- Trimble TSC7 Data Logger
- Handheld, Bluetooth-Enabled Laser Measuring Equipment
- Touchscreen Field Computers Installed with MBS Software
One of the UK’s leading providers of railway track monitoring, SEP Rail Services offers both manual and automated monitoring systems that alert you immediately should any undue track movement occur.

What may appear to be insignificant changes in twist, cant or settlement can lead to disaster should they not be detected and resolved in time. Working in accordance with Network Rail Standards NR/L2/TRK/3100 and NR/L2/CIV/177, therefore, we operate throughout the country, delivering high-accuracy, cost-effective track monitoring data direct to your inbox.

Working with some of the UK’s most recognisable firms, we pride ourselves on the flexibility, responsiveness and accuracy of our track monitoring services. Thanks in part to these qualities, over 70% of our monitoring works is based upon repeat business.

Methodology

Whilst the automated or ‘remote’ systems we supply require considerably less human intervention, the principles under which they operate remain the same. The following process describes our standard methodology for installing and maintaining a conventional, manual track monitoring regime...

- A track monitoring plan (TMP) can be developed and submitted to the client for submission.
- Once suitable targets have been selected, our technicians attach them to the web of the rail at three metre intervals.
- Following the installation of the targets, a series of baseline readings are taken, against which all future readings – and potential movements – are compared.
- During engineering works, the track is monitored on a regular basis with any undue readings (based on a series of pre-determined trigger levels) being reported and acted upon in accordance with the TMP.
- Standard practice then demands that monitoring continues following completion of the work for a specified period, even if no movement has previously been recorded.
- Once the final round of measurements has been taken, the targets are removed from the track.
Structural Monitoring

Employing the very latest in structural monitoring technology, we deliver the essential data your projects need, direct to our cutting edge monitoring portal, your mobile phone or inbox. In doing so, we keep your team safe and your projects on track.

Building bespoke structural monitoring systems, we work with both consultants and contractors alike, providing monitoring systems tailored to the demands of each individual project. Whether manual or automated, physical or optical, these systems provide highly accurate, real time information on a variety of factors affecting your structures, supplying the data your teams need to make properly informed decisions.

Perhaps best described as the continuous monitoring and interpretation of forces exerting an influence upon a structure, structural monitoring can be a temporary or permanent solution to an engineering challenge, providing the data needed to...

- Preempt and thus prevent potentially harmful forces from causing damage
- Mitigate existing problems from becoming far more serious and expensive
- Educate the construction process in real time by providing live insight into the effects of potentially harmful practices (e.g. heavy goods traffic, the use of piling or heavy machinery etc.)
- Protect your team, other site users and the public

From station buildings and retaining walls to tunnels and OLE gantries, our monitoring specialists are ideally placed to support any projects where ongoing measurement and analysis data is a necessity.

What can we monitor?

- ✓ Displacement
- ✓ Inclination
- ✓ Rotation
- ✓ Temperature
- ✓ Vibration and noise
- ✓ Crack monitoring
- ✓ Load
- ✓ Strain
SEP Rail Services takes great pride in its leadership team’s attitude to safety. As with all of our clients, we strongly believe that every staff member must return home safely after each and every shift. From our perspective, therefore, this begins with detailed planning and preparation.

Holders of the RISQS product code C.C.3.4.2.7 (Safe System of Work Planning), our dedicated in-house planning team have comprehensive understanding of all facets of railway planning and operations. Thanks to this, we’re able to offer a fully compliant and professional service in line with Network Rail’s planning delivery safe work process (PDSW). With decades of combined experience, our Sentinel-trained team work across a variety of safety critical competencies, having a thorough understanding of NR/L2/OHS/019. This combination of knowledge and experience, practically unique in our field, allows us to both plan and execute all works internally. The capabilities outlined below can be tailored to suit your project’s individual requirements:

- Plan, input and manage worksite applications via the Network Rail Possession Planning System (PPS)
- Attendance at all long and short-term Network Rail planning meetings
- Arrange short term access requirements using the Network Rail Green Zone Access System (GZAC)
- Production of Safe Work Packs (SWP) and site-specific Task Briefings (TBS)
- Work Package Planning to comply with NR/L2/OHS/0044
- AC & DC isolation planning
- RAMS documents tailored to job specific requirements
- Sentinel approved Person in Charge (PIC) and Responsible Managers (RM) for verification and authorisation of Safe Work Packs
- Competent in various planning packages including P6 and Microsoft Project

Through collaborative communication with our clients we can produce detailed possession plans in varied formats to ensure packages of work are delivered first time, every time.
Site Engineering

The fastest growing firm of its type, SEP Rail Services supplements its market leading geospatial capabilities with a variety of site engineering solutions; services that support our clients in the delivery of their rail projects.

Using the very latest technology combined with tried and tested methods, we’re able to employ a truly diverse range of traditional and more innovative engineering techniques, adding immense value throughout both the construction and post-construction phases of even the most demanding railway projects. Whilst not an exhaustive list, the following services should provide an insight into the level of support our in-house engineering specialists can bring to almost any railway project, regardless of its size or complexity:

Design and Setting Out Support

- As-built and verification surveys
- Setting out – traditional XY / 3D
- GEDO IMS & Vorsys – producing data offset files and live geometry info
- Design for 3D machine control systems
- CRE/CEM duties
- CRT management and monitoring
- UTX design and installation

Engineering Rail Support

- WinALC tamping support
- Stressing level 1/2/3
- Stressing diagrams validation and correlation surveys
- Drainage installation
- 3D machine controller
- Renewals engineering support
As demand for BIM-compliant projects increases, so does the pressure on surveying firms to deliver. Our BIM team supports other firms, either complementing their existing teams or becoming their BIM department altogether.

Using high powered workstations and the very latest data manipulation software, we digitise and model point clouds according to your project’s specification. We can work with existing point clouds or, by employing our own internal HDS specialists, can capture high quality data using our fleet of 3D laser scanning instruments. Unlike more traditional methods of surveying, by using laser scanning technology, we collect vast quantities of data in a short time frame. In doing so, we reduce the time and costs associated with fieldwork and eliminate the need for costly revisits.

Once the point cloud lands, our experienced team of modelling specialists export that data into some of our cutting edge BIM software, processing it to produce incredibly detailed three-dimensional models of your structures or assets. What’s more, thanks to the amount of data available and the flexibility of our software, we can also extract more traditional deliverables such as elevations, floor plans and sections with relative ease.

BIM Software

- Trimble RealWorks
- Trimble Business Centre
- Revit
- N4CE
- AutoCAD
- Descartes

We work for a broad array of clients throughout the railway, civils and construction industries, supplementing their existing BIM resource wherever necessary. Indeed, our point cloud modelling (or Scan to BIM) services are perfect for any organisation requiring a 3D model for design or verification purposes. Typical projects that could benefit from Scan to BIM include...

- Railway and civil engineering
- Refurbishment and renovation
- Demolition
- Facilities upgrades or maintenance (including M&E, HVAC, lift installation etc.)
- Heritage
- Master plan and visual impact assessments
CCTV Drainage Surveys

From initial inspection to diagnosis, jetting and repairs, our specialist drainage team provides a 24/7 CCTV drainage survey service to the rail, construction and civils sectors.

Our CCTV drainage technology is by far the most efficient way of assessing drainage issues with disruption and inconvenience kept to an absolute minimum. We also provide a range of complementary services, supplying the information and confidence you need to make better-informed decisions about your projects. Whilst not an exhaustive list, these services include...

- CCTV float surveys
- CCTV manual entry surveys
- Pre and post adoption surveys
- Detailed manhole surveys
- Sonar surveys
- Drain cleaning
- Drainage connectivity surveys
- Maintenance service plans
- High pressure water jetting
- Drainage mapping and tracing

Equipment and reporting

Working at the forefront of the nation’s drainage surveying industry, we invest heavily in the very latest technology. From mobile drainage and jet vac units to crawlers, cameras and root cutters, these tools allow our dedicated CCTV drainage team to work faster, safer and more cost-effectively than ever before.

Thanks also to this new technology, we’re able to dramatically enhance the quality of our deliverables with simple, user-friendly reports being accompanied by cinema-quality, WinCan footage and a fully marked-up site drawing. The traffic light system (RAG) used by our drainage team is ideal for seasoned professionals and newcomers alike, providing sufficient details whilst, at the same, drawing their attention to those areas of genuine concern.
Ground Investigation

Our specialist drilling teams and geotechnical engineers add value to your railway projects, from initial consultation and desktop investigations to testing, the production of factual reports and, ultimately, recommendations.

Designed to ascertain ground conditions in advance of design and construction, our site investigation services help predict, expose and thus mitigate risk, keeping your projects on track and your stakeholders on board. Indeed, operating throughout the country, our professional geotechnical engineers and drilling teams provide specialist ground investigation support to some of the rail sector’s largest and most recognisable projects.

To keep both your organisation and its projects safe and compliant, we offer a comprehensive and complementary range of ground investigation services to the UK’s rail sector...

Ground Investigation Services

- 🔄 Phase 1 desktop studies
- 🔄 Reporting (both interpretive and factual)
- 🔄 Logging
- 🔄 Laboratory testing of samples (UKAS)
- 🔄 In situ testing
- 🔄 Cable percussive and rotary drilled boreholes
- 🔄 Window sampling and probing
- 🔄 Trial pitting and trenching
- 🔄 Geotechnical monitoring services
- 🔄 Structural coring
- 🔄 Health and safety supervision
Rikki Morrow, Managing Director
riikki.morrow@seprail.co.uk | 07766 731786

A dynamic and visionary leader with a proactive management style, Rikki is responsible for the overall management, growth and strategic direction of the Company.

Tony Jones, Operations Manager
tony.jones@seprail.co.uk | 07557 432935

A time-served professional with a wealth of knowledge and experience, Tony is responsible both for the Company’s operational management and its tender process.

Dominic Keegans, Survey Manager
dominic.keegans@seprail.co.uk | 07384 513923

A highly accomplished surveyor and manager with over 20 years’ experience, Dominic has overall responsibility for the planning and delivery of all site works.

James Wheatley, Delivery Manager
james.wheatley@seprail.co.uk | 07710 089210

A truly talented individual, James is responsible for managing the processing and issuing of all deliverables, ensuring that they meet both specification and expectations.

Sevim O’Connor, Commercial & Finance Manager
sevim.oconnor@seprail.co.uk | 07939 652191

An organised and hardworking professional positioned at the heart of every project, Sevim has overall responsibility for all commercial and financial matters.
SEP Rail's professionalism, cognisance of collaborative working relationships, ability to draw upon their experiences and skills quickly, efficiently, and above all safely, has provided Central Alliance (part of RSK Group) ease in achieving repeatable delivery success and project security. Rikki and Tony are always available to discuss project matters, and provide service comfort through their involved management whilst providing expert understanding of the key requirements for complex Rail survey deliverables. The staff and workforce of SEP have a great working relationship with Central Alliance, which will continue to flourish.

LUKE O'DEA
BUSINESS DEVELOPMENT MANAGER
CENTRAL ALLIANCE

Safeway Contractors appointed SEP Rail Services to carry out railway survey works on the prestigious Great Western Electrification Project. For months now, their work on Route Section 6 has been delivered impeccably; on time and to the specification required. I cannot recommend their services highly enough.

PAUL WALPOLE
DIRECTOR
SAFEWAY CONTRACTORS

Mosaic Rail have completed several items of work in collaboration with SEP as our survey and GI partner. We would recommend SEP to all other companies looking for a robust surveying partner who goes the extra mile to deliver on time and correctly, first time. Communications are a key aspect with SEP as their leadership team inspire confidence and professionalism.

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