



ASSET INSPECTION & ENGINEERING SPECIALISTS

**DESIGNED TO SUPPORT.
MADE TO LAST.**

ABOUT EKSPAN

EKSPAN CARRIES OUT BRIDGE SURVEYS & INSPECTIONS ON NEW BUILD AND EXISTING STRUCTURES THROUGHOUT THE UK.

We carry out detailed specialist reports to assess the service life of complete structures or individual bridge components, such as bearings, expansion joints, concrete, waterproofing, and speciality coatings. All assessments are completed in line with the latest British and DMRB Standards.

Our specialist teams use a wide range of intrusive and non-intrusive techniques to assess overall condition and ensure compliance with current Eurocodes. With a team of highly skilled engineers, EKSPAN delivers complete turnkey packages across civil infrastructure, buildings, ports, and utility sectors.

We also provide live monitoring systems that deliver critical insights into structural condition. These systems give early indicators of potentially severe issues, helping to avoid costly remedial works. Ongoing monitoring allows engineers to wirelessly view live data on variables such as linear and angular displacement, strain, load, temperature, and vibration.

EKSPAN is uniquely positioned with extensive expertise in corrosion control. Whatever the structure or application, we can support all your Early Contractor Involvement (ECI) needs.

EARLY CONTRACTOR INVOLVEMENT

WHAT IS EARLY CONTRACTOR INVOLVEMENT (ECI)

Involving the contractor early in the design stage allows the buildability of a design to be assessed. This approach also helps produce a more accurate construction cost in line with the initial concepts.

THE BENEFITS OF ECI

ECI is well suited to large and complex contracts because it allows an integrated team to gain a good understanding of the requirements, develop innovative solutions, plan and mobilise resources, and manage risks. This approach helps accelerate delivery and reduce costs.

Source: HS2 Engine for Growth

BRITAIN'S ROAD BRIDGES ARE INCREASINGLY BECOMING 'SUBSTANDARD'

THE NUMBER OF SUBSTANDARD ROAD BRIDGES MANAGED BY COUNCILS THROUGHOUT THE UNITED KINGDOM IS INCREASING...



SERIOUS DECLINE

Serious decline in the number of bridges being assessed for damage caused by river flow.



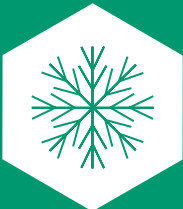
3,105 SUBSTANDARD BRIDGES

Over 1.5m are substandard in the UK.



HALF THE BRIDGES

Over half the UK's motorways & A-roads have sections in poor or very poor condition.



CONSIDERATIONS

As weather gets more extreme & traffic volumes increase, bridge owners need to take appropriate action to protect them.

OUR EXPERTISE:

- **MECHANICAL & ELASTOMERIC BEARINGS**
- **WATERPROOFING SYSTEMS**
- **EXPANTION JOINTS**
- **CATHODIC PROTECTION**
- **GRP STRUCTURES & DESIGN CALCULATIONS**

COSTING ANALYSIS / WHOLE LIFE COSTING

We provide a detailed costing analysis and whole-life costing assessments to help clients understand the total financial implications of a structure over its entire lifespan, ensuring informed decision-making and efficient resource allocation.

STRUCTURAL INSPECTIONS & ASSESSMENT

We conduct thorough structural inspections and assessments to evaluate the condition, performance, and safety of structures, helping clients identify issues early and plan maintenance or remedial works effectively.

STRUCTURAL MONITORING

We provide continuous structural monitoring using advanced systems to track key variables such as displacement, strain, load, temperature, and vibration, giving early warning of potential issues and helping prevent costly remedial work.

CONCRETE INVESTIGATION

We carry out detailed concrete investigations to assess strength, durability, and condition, helping identify defects and guide maintenance or repair strategies.

PAINT & COATING INVESTIGATION/ REPAIRS

We assess and investigate specialist paints and coatings, identifying issues and providing expert repair solutions to ensure long-lasting protection and performance.

TEMPORARY WORKS DESIGN

We provide expert design of temporary works to ensure safe, efficient, and compliant construction support throughout project delivery.

PROJECT CASE STUDIES

MUIRMONT BRIDGE

A detailed inspection of the Muirmont Bridge was undertaken by our ECI team. Following the recommendation of the report, a £300,000 investment was made by Transport Scotland to replace all of the South Abutment bridge bearings.

The team worked with BEAR to develop an ECI package detailing a Bearing Schedule (utilising a Midas Model of the structure to new SOV loadings), a reinforcement design detailing of the abutment shelves and produced

permanent works and a temporary works AIP which employed live jacking to minimise disruption.

EKSPAN were selected to undertake emergency works to support the deteriorated south abutment bearings whilst manufacturing the 28 new mechanical bearings began. Following a successful installation, structural monitoring sensors were installed on the North Abutment to monitor temperature and displacement.

SERVICES

- **STRUCTURAL BEARINGS WERE INSPECTED.**
- **THE BRIDGE BEARING SCHEDULE, INCLUDING A MIDAS MODEL, WAS PREPARED.**
- **TEMPORARY WORKS WERE DESIGNED, MANUFACTURED, AND INSTALLED.**
- **REINFORCEMENT OF THE ABUTMENT SHELVES WAS COMPLETED.**
- **BRIDGE BEARINGS WERE DESIGNED AND INSTALLED.**
- **EMERGENCY WORKS WERE CARRIED OUT.**
- **STRUCTURAL MONITORING WAS IMPLEMENTED.**



TRU PROJECT SPAN 1

The Transpennine Route Upgrade (TRU) is a major, multi-billion-pound programme transforming rail travel between Manchester, Huddersfield, Leeds, and York. Spanning 70 miles, it will deliver faster, more reliable, and more sustainable journeys across one of the UK's busiest corridors.

EKSPAN played a key role on Span 1 in Huddersfield—one of the project's most complex installations—delivering critical structural support works under intense programme pressure.

Working 24/7 over 12 days, our team delivered a range of temporary and precision engineering solutions. Pre-installation of key elements ahead of the blockade saved over 8 hours on the critical path. We developed an innovative stool methodology to manoeuvre one-tonne plinths without overhead lifting, and provided temporary restraint to enable safe deck installation.

In collaboration with Arup and the TRU Alliance, we carried out bespoke jacking operations, making real-time adjustments as small as 0.5mm to ensure accurate load distribution.

The project was completed safely, on time, and without incident—demonstrating EKSPAN's ability to deliver high-precision engineering on complex infrastructure programmes.



WESTQUAY SHOPPING CENTRE

EKSPAN delivered structural remediation and bearing replacement works at Westquay Shopping Centre in Southampton, maintaining full public access throughout. The project involved investigating and replacing defective bridge bearings critical to the structure's long-term performance. Our scope included Early Contractor Involvement, temporary works design, structural strengthening, controlled jacking operations,

and installation of new high-performance bearings. Acting as Principal Contractor, we managed all site activities within a live retail environment. Despite complex challenges, the scheme was completed safely, on time, and without disruption. The works restored structural integrity, extended asset life, and provided a durable solution—demonstrating EKSPAN's expertise in delivering precision engineering within sensitive, public-facing environments.

PROJECT CASE STUDY

NEWHAVEN PORT SHEAVE WHEEL REFURBISHMENT

In late 2019, investigative works began to assess the condition of the sheave wheels and counterweight pit of the Newhaven Hydraulic Linkspan.

The linkspan comprises an approximately 45m long steel bridge with steel deck plates. There are two 20t counterweights on cables designed to relieve some of the weight of the bridge, with two separate hydraulic rams that control the level of the linkspan. In addition, three steel transition flaps on their hydraulic rams lower onto the berthed vessel with free-hanging finger flaps at the end.

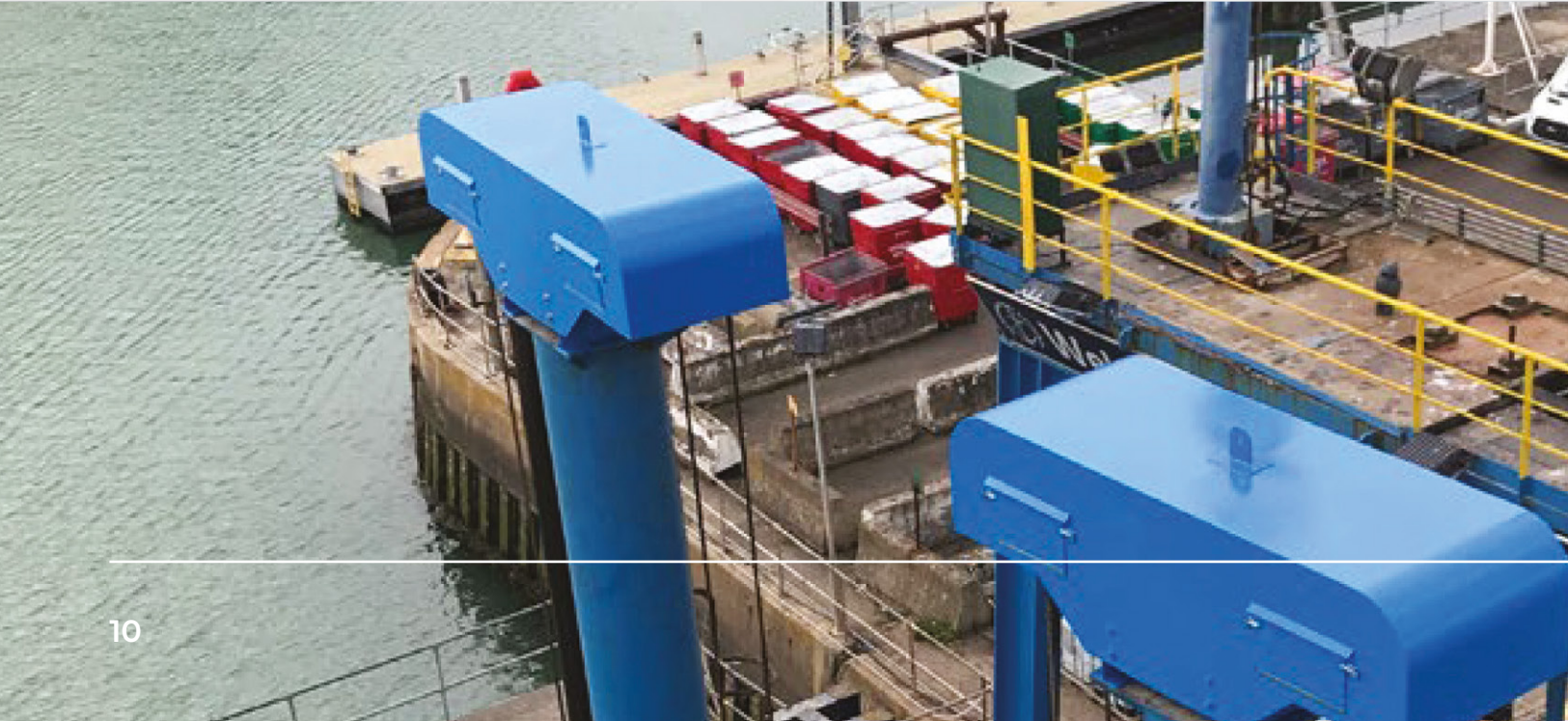
The inspection identified severely deteriorated bearings due to misaligned cables; because of this, the sheave pins, bearings, and wheels all needed replacing, with the works being carried out without causing disruptions. EKSPAN worked closely with Beckett Rankine to develop a detailed methodology and program to allow the works to be broken down into specific time slots. In addition, the team utilised trial test lifts and commissioning to ensure all the major works could be carried out between ferry sailings.

After completing the sheave wheels works, the team began replacing the two main operating rams. With obstacles such as seized connecting pins and limited working hours, a bespoke hour-by-hour plan was designed to divide the work into phases.

During the ECI stage, the EKSPAN team had the opportunity to undertake trial disassembly and reassembly to ensure each phase could feasibly be completed in the allocated time slots.

Innovation is critical to a smart engineering approach; the team proposed dimensional changes to the sheave wheel assembly, retrofitted stainless steel grease lines, added bespoke rain covers fitted with inspection hatches to allow for ease of future maintenance, and developed an emergency ram failure system that allowed a spare ram to be stored locally, with the ability to be installed quickly if one of the main rams developed a fault.

Thankfully, all phases of the work were completed as planned without causing any delay.



SERVICES

- INSPECTION OF THE STRUCTURAL LINKSPAN BEARINGS
- DEVELOPED BY A BESPOKE DETAILED METHODOLOGY AND PROGRAMME
- REINFORCEMENT OF THE ABUTMENT SHELVES WAS COMPLETED.
- BRIDGE BEARINGS WERE DESIGNED AND INSTALLED.
- EMERGENCY WORKS WERE CARRIED OUT.
- STRUCTURAL MONITORING WAS IMPLEMENTED.

PROJECT CASE STUDY

NEWPORT BRIDGE BEARING REPLACEMENT, STOCKON-ON-TEES

EKSPAN was appointed by Balfour Beatty to design, manufacture, and install new rocker bearings at Newport Bridge—a landmark structure and the world's first vertical lift bridge, originally opened in 1934. Although decommissioned as a lift bridge in 1990, it remains a vital crossing and iconic feature of the local skyline.

To secure its long-term future, EKSPAN replaced the life-expired rocker bearings, ensuring the bridge remains safe, functional, and resilient for years to come.

Our scope included the full design, manufacture, and installation of new permanent bearings, alongside comprehensive temporary works to safely support the structure during construction. Existing bearings were removed and replaced

over two consecutive summer periods, carefully planned to minimise disruption to road users and the local community.

The project demanded precise sequencing and engineering expertise. Working within tight programme windows, EKSPAN delivered a high-accuracy installation on a complex heritage structure, supported by robust temporary works throughout.

Completed safely and on schedule, the scheme reflects strong collaboration between EKSPAN, Balfour Beatty, and key stakeholders. The works have extended the lifespan of this historically significant bridge, ensured its continued safe use, and preserved an important example of early 20th-century engineering for future generations.



PROJECT CASE STUDY

LAGAN BRIDGE, BELFAST

The M3 Lagan Bridge is one of Belfast's busiest routes, carrying around 90,000 vehicles daily across the River Lagan. When the original bridge bearings began to fail, urgent replacement was needed to safeguard structural integrity and extend the bridge's service life. Following our previous work on the bridge, EKSPAN was appointed to replace eight critical bearings, carried out over two tightly controlled weekend blockades to minimise disruption in the heart of Belfast city centre.

The project involved the controlled removal of failed bearing units under heavy-lift operations, followed by the supply and installation of new permanent bearings. Each unit was precisely aligned to strict tolerances to ensure correct load transfer and articulation, while reinforcement and

concrete repairs were completed as part of the works. All construction activities, including plant, lifting, and logistics, were carefully coordinated to fit within the weekend blockades, allowing the bridge to remain operational for the thousands of commuters who rely on it each day.

Bridge bearings are vital components, transferring loads from the deck into the substructure while accommodating movement, rotation, and vibration. Without effective bearings, bridges face accelerated deterioration, uneven load distribution, and compromised safety. EKSPAN delivers a full range of bearings, from EN1337 and BS5400 compliant structural systems to bespoke industrial solutions, all engineered for long-term durability, reduced maintenance, and improved whole-life performance.

The project was completed safely and on schedule, with all eight bearings replaced to millimetre precision. The permanent bearings ensure long-term resilience and optimal function of the bridge, preserving this critical infrastructure for years to come. EKSPAN continues to support the UK's transport network, providing engineered solutions that extend the performance, reliability, and safety of essential bridges.





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