ECS WORLD
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Engineering Services
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# ECS refurbishes giant screw pump to keep sewage works operating for decades

**Wessex Water's Avonmouth wastewater recycling, bioresources and renewable energy park is set to serve its 1,000,000+ population for decades to come following a major overhaul to inlet pumping station, which is one of the largest of its kind in the UK.**

The works have been in operation for about 40 years, and the two Archimedes screws at the inlet works have proven the durability of this pump type. These essential pieces of plant each measure 20 metres in length, 3.1 metres in diameter and weigh 21 tonnes with a 3645 litres per second capacity. However, after 40 years' service, one had become so worn that ECS Engineering Services was asked for proposals to replace it.

An inspection showed that the drive gear was still good condition, but the screw body was heavily worn, so ECS developed a plan that retained the motor and the gearbox while the time-expired parts were replaced.

A replacement screw body was made in Holland by partner company Landustrie working to a design that followed that of the original screw. On this occasion Landustrie had to make the screw as a mirror image of their usual practice because the Avonmouth screw rotates in the opposite direction to the Landustrie standard, this allowed it to be utilised with the existing drive train. Made in mild steel, it has a high-performance corrosion-resistant coating that will give it a working life measured in decades in line with the WIMES specification. Once the fabrication was complete, ECS organised specialist shipping to get it to site.


"As part of this contract, we also made new side profiles," says Jake Laughton, who managed the project for ECS. "The replacement pump bodies were almost identical to the original design, but we used finite element analysis techniques to optimise them for withstanding the pumping pressure based on new standards."

While the top bearing was in good condition and could be reused, the bottom bearing needed replacement. ECS installed a free issued bottom bearing that matched the other screw pump at the inlet, thus minimising parts inventory for the works and minimising financial impact to the client.

The first stage in refurbishing the pump was to drain down the pump and remove the old screw. Jake recalls: "We had to make and fit a special stanking plate to the penstock before we could start the drainage to ensure protection of the works. We needed a crane for removing the old screw and fitting the new one so this was also used for installing the plate for the client."

Jake, like many other ECS employees, is a qualified crane appointed person, this allows ECS to plan and undertake crane operations quickly, efficiently and safely without having to bring in outside contractors and keeping costs to a minimum.

With the old screw removed it was time to break up and remove the old screed. For this ECS used a remote-controlled, robotic breaker so that the task was completed quickly and safely.

The new screw then had to be lifted into place. This, due to the size of the screw, required some detailed planning and the application of significant expertise. It was not possible to lift the screw off the ground with it slung at the correct angle for installation - the weight would have caused significant damage to the flights. To overcome this problem, ECS used an air-powered hoist that allowed the screw to be lifted parallel to the ground and then the angle adjusted by lengthening one hoist chain until the angle matched the concrete trough. Once aligned, it was connected up to the existing drive motor and gearbox and finally, the bearing was cast in and new screed hand formed into the trough.

Jake again: "By reusing the existing motor and gearbox, which are in good condition ECS has brought this pumping station back up to a level of reliable operation, while keeping the clients expenditure under close control."

With the screw pump now refurbished Wessex Water's Avonmouth wastewater recycling, bioresources and renewable energy park is set to continue serving its local population well into the future.

Chairman's comments

# Building on successes

**I'm excited to introduce the latest issue of the ECS Newsletter, especially as there are so many positives to report.**

Highways England has recently appointed us as an approved framework contractor, which builds on our partnerships with many other local authorities and government institutions. The Environment Agency has also recognised our exemplary safety record – an aspect which all of you ensure is at the forefront of our operations.

This is further illustrated by our tenth (!) consecutive RoSPA Gold Award, which is an incredible record to hold. I would like to thank everyone for their efforts in this regard, upholding high internal standards is a key element of our continued success.

Thank you

*Bob Nix*

**Chairman**

# Highways England appoints ECS to maintain critical pumping stations

**Highways England has signed a framework agreement with ECS Engineering Services to inspect and maintain several drainage pumping stations in Derbyshire, Nottinghamshire and other parts of the East Midlands.**

The principle purpose of the pumping stations is to provide a resource for surface water management. This includes the relatively rare occasions when there is the possibility of significant flooding, for which reason the agreement makes provision for emergency call out services.

The agreement is initially for three years, with the possibility of extensions beyond that. It is the first framework agreement ECS has signed with Highways England, but the company has considerable experience with other frameworks with, for instance, the Environment Agency.

ECS Engineering Services has built its business on designing, building and maintaining environmental infrastructure for industries such as water treatment, energy distribution and the railways. It has many land drainage projects under its belt, so considerable experience relevant to assets of this type.

As part of the agreement, ECS will make sure that appropriately skilled personnel will attend the site of any emergency within three hours of the initial call-out. Further, to minimise disruption to local traffic, ECS will arrange to conduct inspection and maintenance visits at night with temporary traffic management if required.

Steve Crapper, Business Development Manager for ECS, says: "It is very easy to take the national road network for granted, but in reality, it takes a lot to maintain it and keep vehicles moving. With the M1 and several major trunk roads within the award area, this new framework agreement with Highways England is a major responsibility and one that we are extremely proud to service."



## Inside this issue...


# Environment Agency Award recognises ECS impressive Health and Safety Performance

**ECS Engineering Services has won a prestigious Environment Agency Health and Safety Award for the way it designed and implemented critical safety systems into a project to refurbish the extensive steelwork at Colwick Sluice on the River Trent.**

As a vital part of the Nottingham area's flood control infrastructure, Colwick Sluice consists of five steel vertical river control gates, each nearly 13 metres wide by 6 metres in height. This important structure has been protecting the city and surrounding countryside for over 60 years and ECS has previously been involved in the maintenance of the gates and an upgrade to their control systems.

Thanks to its long history of work on water control infrastructure, ECS was invited to undertake refurbishment of the exterior steelwork structure, a project that required careful consideration and a great deal of planning and preparation.

Some of the steelwork could be removed for cleaning and repainting off-site. However, much of the repainting work had to be in-situ – a lot of it had to be carried out over water, meaning special safety measures in case anyone fell into the river. There were also major environmental considerations to prevent old paint flakes, debris and other items from contaminating the waters, riverbank, wildlife and ecosystem.

In the first stage of the project, ECS erected extensive scaffolding around the sluice, including a section to replace a gantry and walkway that had been temporarily removed. The scaffolding was designed to provide engineers with safe, clear access to all surfaces of the steelwork many metres in the air, and also to catch and contain falling debris. To improve the working environment and minimise the amount of debris dropping into the river, the scaffolding was encapsulated with tent-like walls allowing the operations to be carried out even in extreme weather.

As part of the safety commitment a three-man water rescue team was on site at all times during the works, positioned in a small, highly manoeuvrable rescue boat, equipped for any likely eventuality so that they could deploy instantly to recover a person from the water.

People working on the scaffold wore a double lanyard safety harness so that they could attach themselves to the scaffolding. If they had to move from one section of scaffold to another, they would unclip one lanyard and reattach it to the new section before undoing the second one, thus always remaining secure.

The site teams carried out risk planning and mitigation during the planning phase of the project, identifying that it could be possible for a person to fall, be saved by their lanyard but unable to regain the safety of the scaffold walkway even with assistance. To cover this eventuality everyone was issued with a strap knife that they could use to cut the lanyard and drop into the river if needed – but not until the rescue boat was in position to effect an immediate recovery.

Jamie Wesley, Operations Director at ECS recalls: "In conjunction with our client, ECS ensured that the rescue drills were carefully planned, exercised and that all personnel were correctly briefed on their roles prior to any works being carried out. Once ECS were happy with performance of our safe systems of work we invited our colleagues from the Environment Agency to attend an onsite demonstration where a life-sized dummy, rather than a real person, was dropped into the river and rescued."

The rescue team was on station with a Jason's cradle to deploy over the side of the boat to initiate retrieval. The cradle is a piece of equipment specially developed to be used in retrieval from water which, when positioned beneath a person, is used to easily and quickly haul them into a boat.

ECS had this demonstration filmed so that a training video could be produced and shown to all personnel working on the project. Jamie Wesley again states: "Safety is paramount and our pre-planning and demonstration showed that we had all the assets in place to make this project as safe as possible. We have learned lessons and proved systems that we can take forward into future projects. Winning the award confirmed that we had done our best and proven our capabilities for safety in 'above water' projects."

# ECS on hand to deliver new Brayford Wharf pedestrian rails


**Brayford Waterfront offers a scenic social space for Lincoln's inhabitants, with restaurants, entertainments and events bringing cheer to England's oldest inland harbour. ECS Engineering Services has recently enhanced the safety credentials of the area with the replacement of nearly 100 metres of galvanised hand railings for the convenience of pedestrians along Brayford Wharf.**

Handrails are of great importance for walkways and pedestrianised areas, especially when they happen to be near large areas of open water. After years of service, the existing hand rail on the wharf was beginning to show signs of wear and tear, with several fixings to the concrete copings at risk of failure and needing an urgent repair to maintain safety. To renovate the railings in the area, ECS Engineering Services was contacted thanks to a strong track record in fabrications and carrying out civil works in a variety of different sectors.

To source appropriate railings, ECS Engineering Services took advantage of the expertise of Alpha Rail, a market leader in the manufacture of guard rails and custom metalwork. Together, ECS and Alpha Rail selected a 1150 mm high, galvanised, polyester powder-coated, decorative hand rail in jet black to cover the distance. To further improve aesthetics, finials were specified at the top of each supporting post, ensuring that function was matched by form, a key concern in a popular area of the city.

With the guard rails selected, the challenges of the site itself were brought into sharp focus. The hand rails extend along roads, wharfs, bridges and a section of railway – which presented the ECS team with multiple safety risks. The team also had to take into account changes in elevation and returns along the span of the walkway, which further complicated installation. However, ECS has built a reputation working in demanding environments in the civil and water sectors, which stood the team in good stead when it came to this project. In the event, the rails were installed smoothly and without delay, while preserving the public access to the adjacent footpaths.

ECS was able to provide a turnkey service to further enhance the project timeline. Epoxy repair mortar was utilised to enhance the connection between rail and concrete, as the previous rails had begun to lose rigidity as the mortar deteriorated custom designed base plates for some of the guardrails were included to further improve rigidity were added to further improve rigidity as well. To complete the projects delivery, ECS managed the hire and deployment of safety signage and temporary barriers.

Managing the project from initial drawings to final installation delivers time saving and value advantages to the end customer. With a full host of electro-mechanical services offered under one roof, ECS enables its customers to benefit from a blend of convenience and expertise, helping to deliver the efficiency that engineering projects demand. In this case, it was vital to minimise disturbance to traffic and locals who use the waterfront regularly.

Clark Williamson, Contracts Director at ECS, said: "This project shows that we are capable of delivering civil works in challenging application areas with minimal disturbance. Working closely with Alpha Rail, we were able to specify a solution quickly, while carrying out installation with the efficiency needed in a built-up and populated area. Now locals and visitors to Lincoln can benefit from the increased safety these new rails provide.

As the appointed framework contractor to a number of local authorities and government institutions, we offer expertise in design, fabrication, installation, management and safety for every project."

## ECS Engineering Services maintains CHAS Accreditation

**Building on an exemplary track record for workplace health and safety, ECS Engineering Services has maintained its Contractors Health and Safety Scheme (CHAS) accreditation in 2018. The standard serves as a safety benchmark, assessing the quality of a business' internal health and safety standards and processes.**

The CHAS, a leader in third party accreditations, carries out electronic assessments of safety policy, procedures and records – which if up to standard, result in a business being awarded full accreditation and the opportunity to display the CHAS logo. The standard is useful for customers, as it allows greater assurance that a contractor can perform effectively in potentially risky environments and that safety procedures meet a required quality benchmark. The scheme assessor commended ECS on its 'comprehensive, thorough and well structured' submission, which resulted in the reaffirmation of its CHAS accreditation.

As a full electro-mechanical service provider to the water and fabrication sectors, counting a number of government institutions and authorities among its customers, ECS takes the matter of health and safety very seriously indeed. In fact, the business has held Royal Society for the Prevention of Accidents (RoSPA) Gold Awards for 10 years consecutively. With a capability that stretches from bridge installation to water control projects and fabrications, ECS matches the demanding working environments in which it operates with industry-leading safety standards.

Clark Williamson, Contracts Director at ECS added: "This accreditation is particularly important to us due to the demanding sectors we provide solutions for. Our customers can be sure that our focus on safety is of paramount importance to our business, and that this permeates into every project we undertake. I would like to say thank you to everyone at ECS who has ensured that effective health and safety procedures are properly implemented and well maintained."

# UK's first Infracore FRP stoplog installed for Environment Agency

**As part of its national programme to update and improve water control structures, the Environment Agency has specified a new stoplog design using fibre reinforced polymer (FRP). This has been installed in Wraysbury, Middlesex, by ECS Engineering Services, the new stoplogs will enable maintenance work to be completed on the river level control gate.**

Stoplogs are very important devices that enable engineers to carry out vital maintenance work on water control structures. Once installed, these barriers hold back the water while engineers complete essential repairs. As such, they must be very strong and are usually tailor-made for each location to ensure a perfect, water-tight fit.

In the past, stoplogs have been made from wood, steel and aluminium but each of these has at least one weakness – susceptibility to corrosion, substantial weight and attractiveness to metal thieves. The idea to use composites for the manufacture of stoplogs is not new but FiberCore Europe has developed a dedicated technology, known as Infracore® Inside, that enables FRP to be used in load bearing structures, in many cases without additional steel reinforcement.

ECS has the exclusive rights to install a range of FRP products produced by FiberCore Europe including stoplogs, lock gates and bridges. Offering excellent durability and almost zero maintenance, FRP stoplogs are extremely strong and have an expected design life of 100 years.

In addition, FRP stoplogs are designed with a density just greater than that of water, which minimises their weight but ensures they can be easily installed. Weight is a very important factor since a mobile crane is often required for the installation process and the weight of the stoplogs affects the overall project costs.

In each case, ECS provides all the measurements to the FiberCore Europe factory, where the design engineers calculate the water loading, build in a safety factor and create the design ready for manufacturing. Once complete, the new stoplogs are transported to one of ECS' branches before being taken to site and installed.

Stephen Rumsey, Project Engineer for ECS comments: "For this particular location, it wasn't possible to install stoplogs until now, so we have resolved this with the installation of a new guide on one side of the brook. Once complete, the crane lifted the new FRP stoplog into position and we confirmed a perfect fit. Now the Environment Agency will be able to complete its planned maintenance work."

Watch the video

# ECS upgrades culvert winches at Trent/Soar outfall

**ECS Engineering Services has installed three new winches for opening culvert flap valves or gates at Sawley Bank in Nottinghamshire, part of the Trent Soar Outfall system.**

In an area of essentially flat riverside land, the outfalls are essential for maintaining flow control and minimising the risks of flooding. The new winches were installed and commissioned in September 2017 as part of the Environment Agency's drive to eliminate the practise of lifting the heavy flaps manually or by using a winch mounted on the front bumper of an off-road vehicle.

The flaps are made of stainless steel so that they have the durability to survive and provide a long working life in a wet, outdoor location. This makes them heavy, and while most can be opened manually by a single person, the health and safety issues this creates – especially for lone workers – are considerable.

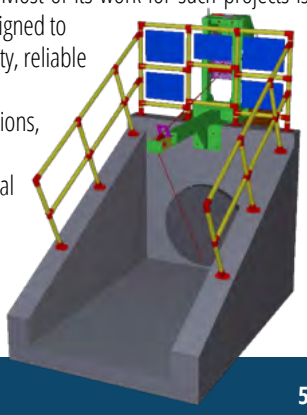
ECS has installed three winch systems at Sawley, all to the same design and each with a safe working load of 1000 kg so that they have the capacity to not only lift their associated flap but are also suitable for other duties that may arise. The main element is of course the winch unit, a Huchez VS 1000 model, which is mounted on a steel winch post. Two of the installations have the winch post mounted directly onto an existing headwall, but the third one, at nearby Clifton Bridge, needed an additional concrete pad laying, onto which the winch post was mounted.

The design of the winch system was agreed by the Environment Agency and includes a worm and wheel drive, selected because it practically eliminates back winding under load should the brake fail. Other types of winch, such as spur geared types, do not offer this level of safety.

A nylon barrel roller and a stainless steel dee shackle complete the winch system, while hand railing along the headwall and wing walls protects operators from falling into the culvert.

The Environment Agency schedules six-monthly maintenance for such culverts, when the flaps are raised for inspection. Naturally they may be raised at intervening periods too for follow-up work or emergency clearance. ECS selected the Huchez winch because it is sealed so that it will work reliably even after extended periods of non-use.

ECS has over 25 years' experience in maintaining water control structures and regularly works with the Environment Agency on projects both large and small and which can be new build, refurbishment, upgrade or maintenance. Most of its work for such projects is bespoke and designed to deliver high quality, reliable and cost-effective engineering solutions, for water, energy and environmental processing and management.



# Drop gate renewal secures Baltic Wharf, Burnham from tides and flood

**As part of a refurbishment and upgrade project, ECS Engineering Services has renewed drop gates at Baltic Wharf, Burnham on the River Crouch in Essex. The gates are based on its innovative stoplogs that are made from durable, high strength fibre reinforced polymer (FRP).**

A vital part of the North Sea trade network, Baltic Wharf Burnham provides a regular ferry service to Riga and Liepaja in Latvia and Pärnu in Estonia. The port has been in operation for about 100 years and continues to thrive mainly on the timber trade with Scandinavia and Eastern Europe. Over 60 small cargo ships dock each year using a deep water passage through the moorings at Burnham on Crouch. The wharf also has 62 acres of storage and facilities including a saw mill to process the imported timber.

The drop gates are made up of a number of stoplogs, the original ones being timber. They are vital for protecting the Baltic distribution wood yard and nearby boat yard and marina from high water in this tidal river and for safeguarding access to two jetties where unloading cranes are located. However, after many years' service they were in need of refurbishment and renewal, so the Harbour Authority commissioned ECS to conduct a detailed survey and suggest remedial solutions.

One of the major findings from the survey was that the existing stoplogs were coming towards the end of their useful life and that their replacement was the best option. It was also noted that the existing concrete wing wall which has grooves for accommodating the stoplogs was also in poor condition.

With these findings and other information from the survey, it was decided to work up a solution that involved ECS designing, fabricating and installing new steelwork log guides which were to fit inside the existing wing walls to secure the stoplogs. ECS was also asked to design and deliver bespoke new stoplogs. ECS suggested that they be produced using long-life fibre reinforced polymer (FRP), for which it works with specialist company FiberCore Europe of Rotterdam.

ECS has an agreement that gives it exclusive rights to install a range of FRP products for water control, including stoplogs, produced by FiberCore Europe. This provides a strategic extension to ECS's steel fabrication services which is particularly useful for large scale water control installations, most of which require items such as stoplogs to be produced to bespoke dimensions.

FRP gives stoplog designers a number of advantages over the traditional steel alternative. These include resistance to corrosion and ultraviolet deterioration, lighter weight reducing the size of the required lifting equipment and effectively zero maintenance over a lifetime that could well be 50 to 100 years. Another very practical advantage of FRP is that it is not at all attractive to thieves; in contrast steel and aluminium stoplogs, especially those stored in the open can be attractive to some scrap metal thieves.

FRP stoplogs can be designed and constructed for almost any combination of width and depth dimensions, in almost any size and in single or multiple sections. Significantly they become more cost effective in comparison with steel, the larger the square meterage used.

Designers from FiberCore Europe and ECS worked together to create optimum dimensions and ECS also made special fork lift attachments for the logs, which were fitted on site in Burnham. One of FRP's many benefits is its light weight, which allows easy handling, but for this project they design team had to use careful calculations in order to avoid positive buoyancy.

With the new drop gates installed and proven effective in use, Baltic Wharf is ready for many more years as a successful, reliable and efficient port for trade with Scandinavia and beyond.

# Olympian effort wins ECS Engineering Services RoSPA Gold 10 years on the trot

**ECS Engineering Services has won a prestigious RoSPA Gold Safety Award for the tenth year in succession. The Nottinghamshire based engineering solutions company is thus indisputably a leader in developing and maintaining safe working practices for its own personnel, contractors and clients who work in the water, utilities, energy and environment sectors.**

Each award recognises the commitment ECS shows to maintaining the very highest safety standards in working environments where potential hazards and danger abound. The unbroken run of ten such awards highlights the fact that safety is at the forefront of all its planning and operational decisions.

The RoSPA Safety Awards are recognised across many industries and sectors, in the UK and internationally, for promoting advances in health and safety management, including practices such as leadership development and workforce involvement. Awarded in Bronze, Silver and Gold classifications, they are the longest running such awards, having been set up in 1956, and receive nominations from companies and organisations not only in Britain but around the world.

Julia Small, RoSPA's Head of Qualifications, Awards and Events, says: "The RoSPA Awards are the most highly-respected in the health and safety arena, with almost 2,000 entrants every year. They allow organisations to prove their excellence in the workplace, demonstrating a commitment to the wellbeing of not only employees but all those who interact with them."

Clark Williamson, Contracts Director at ECS comments: "Receiving this award for ten years in a row year is quite an achievement. It serves as recognition of everyone's determination to maintain the highest safety standards. This would not be possible without the continuing efforts of every staff member to be proactive in keeping themselves and others safe."

Safety is important in all working environments, but in the sectors ECS serves, it is absolutely paramount – the environments can be challenging, the work itself demanding and often the working conditions can change in the blink of an eye. As such, ECS has built up a bank of specialist expertise. "Everyone in ECS is safety conscious, whether they work in-house or on-site," says Williamson. "We put a lot of effort into training and refresher courses and we regularly review actual experiences so that we can constantly update our ideas and standards."


# Lightweight bridge provides fast installation

**Bridge maintenance and repair is essential to providing safe access across obstacles such as rivers and streams. For the Environment Agency, any replacement needs to provide long-term durability as well as being cost effective, which has led to the increasing use of fibre reinforced polymer (FRP) structures delivered by ECS Engineering Services.**

The Environment Agency carefully monitors the levels of rivers and streams throughout the UK, in many cases using level stations located adjacent to the watercourses. From time to time, Environment Agency staff require access to the level stations, some of which have a bridge access that is designed to provide safe passage over the river and also prevent unauthorised access by the public.

A recent audit identified the access bridge in Enfield as in need of repair or replacement, but the site itself is quite small and access to vehicles is restricted, which presented more of a challenge for the project.

As an appointed framework contractor for the Environment Agency, ECS Engineering Services can be called upon to carry out such work, as was the case at this site. The initial request from the client was to appraise a refurbishment of the existing bridge, but the value engineering study carried out by ECS confirmed this would not offer the lowest whole life cost solution; the steel structure was heavily corroded and a considerable amount of work would be required just to deliver a short-term solution.

As a champion for the new generation of FRP products, including bridges, from Fibercore Europe, ECS has considerable expertise in specifying this innovative material for a range of applications. As such, the installation of an FRP bridge would offer excellent durability, negligible maintenance requirements and the installation could be done in just a few days.

Having agreed the design of the bridge, including new handrailing and gates at each end, the project was carefully planned by Project Manager Stephen Rumsey: "We were aware that the confines of the site would rule out using a mobile crane to position the bridge but the lightweight design of the FRP structure allowed us to use an industrial telehandler, which would be much more manoeuvrable."

The new bridge was manufactured by Fibercore Europe in a single-moulded piece measuring 9 metres by 1.5 metres, with an integral, factory-applied, anti-slip surface bonded to the deck to ensure safe passage, even in the depths of winter. At the same time, the new handrailing was manufactured and galvanized ready for installation.

Stephen Rumsey continues: "Removal of the old bridge was quite straightforward, although we did have to disconnect the electrical supply to the level station because it was attached to the bridge structure. The station was only offline for a couple of days while we replaced the bridge and reconnected the supply. This would have been significantly longer if the refurbishment option had been selected."

The new 9 metre-span bridge weighs only 1,000 kg and was easily positioned by the telehandler before being fixed into place. The lightweight construction also allowed the existing abutments to be used again, after validation by a structural engineer. Soon after installation, the new handrailing was fitted and the site was made secure.

The inherent strength of the new bridge is complemented by a minimal requirement for maintenance and an expected lifetime in excess of 100 years, which is supported by a 50-year warranty on the construction and even a 10-year limited warranty on the wear surface.

# Upstream metalwork repainting uplifts Colwick Sluice


**ECS Engineering Services has been continuing its renovation of Colwick Sluice in Nottinghamshire for the Environment Agency, by repainting the aging upstream steelwork at the site. The business has blasted and repainted I-beams and hand railings at the sluice on the River Trent, ensuring that the site is adequately protected from corrosion.**

The work being carried out at Colwick is part of a large infrastructure investment by the Environment Agency, designed to safeguard flood defence capabilities in the area. As an approved framework contractor for the Environment Agency, ECS has been carrying out the works, which have already involved the installation of a semi-automated stoplog system and the repainting of the downstream section of the sluice.

Repainting work at Colwick is of particular importance. As the paint and protective coatings begin to decay as they reach the limit of their design life, debris can fall into the river, posing a risk to water quality and local wildlife if unaddressed. Therefore, ECS and the Environment Agency have acted quickly to ensure this essential work is carried out with minimal impact on the surrounding environment.

Five I-beams used to house the sluices' stop logs and handrails were removed from site by ECS. The sections were then transported off-site for blasting and repainting, ensuring that the process had minimal effect on the site itself. Both the beams and hand rails were triple coated for maximum corrosion resistance, then delivered back to site when ready.

ECS tackled the re-installation of the steelwork methodically and safely. Both land-based and floating cranes were utilised to move the newly painted I-beams into place, with installation teams in constant communication to ensure the work was completed without a hitch. Furthermore, rescue teams were on standby throughout the process in nearby boats, ready to effect a water rescue if the need arose.

Painting the metalwork off-site delivered a distinct cost advantage; otherwise supporting encapsulating scaffolding would have been required for this segment of the project. ECS was able to manage the process with a third-party contractor, providing a full turnkey service for the benefit of the client, including transportation to and from site. The approach also provided safety advantages, as less work was carried out at height and above the watercourse.

The refurbished I-beams are now be ready to support stop logs from the piers between the gates, ensuring that areas of the sluice can be easily isolated for future maintenance work. This will make sure that the upkeep of the site is straightforward and safe, helping to protect those who live and work near the banks of the River Trent.