Swing Bridge Repairs

Lindapter Girder Clamps provided a solution for the installation of temporary bracing supports to the existing bridge.

Project Background

Location: Newcastle Upon Tyne, UK
Product: Type AAF Girder Clamps
Client: Newcastle City Council
Owner: Port of Tyne Authority

The Swing Bridge is the fourth bridge to have been built over the River Tyne on the same site and was completed in 1876. The bridge was designed in such a way as to swing open to allow larger ships to pass through and expand trade to the upper reaches of the river. Today the bridge is a Scheduled Ancient Monument and Grade II listed building.

Client Requirement

Over the years the bridge had undergone several programmes of upgrades and repairs to maintain the bridge in safe working order. In 1967 aluminium troughing and steel stiffeners were installed to the underside of the bridge deck to provide additional structural support.

A recent inspection of the bridge revealed that the end sections of the aluminium troughing had corroded and bracing supports would need to be connected to the bridge.

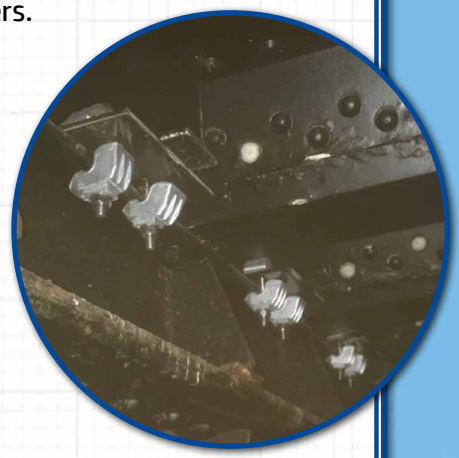
Type AAFs used to connect bracing support beams

Newcastle Swing Bridge after being repaired

Swing Bridge Repairs

Design Solution

Lindapter size M12, Type AAF Girder Clamps were specified to connect steel UB bracing support beams to the existing steel stiffeners. The extra steel bracing was designed to support the aluminium troughing rather than replace it, thereby reducing modifications to the listed structure. The heavy duty clamps provided the necessary slip and tensile loads whilst also avoiding the need to drill or weld at this historically important site.



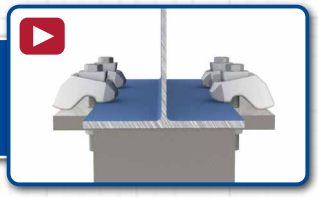
A hot dip galvanised (HDG) finish was specified for the Girder Clamps to provide a high level of corrosion protection. The decision to use Lindapter Type AAFs was influenced by independent technical accreditations, which include the CE mark (ETA-13/0300) and TÜV approvals.

Installation

Before installation of the steel bracing support beams could begin the contractor had to clean the existing beams of sediment, debris and other loose material. Small bottle jacks were then used to slightly lift the deck and support the aluminium troughing while the new beams were carefully lifted into position.

Once everything was correctly aligned Type AAF girder clamps along with stainless steel nuts and bolts were then used to connect the beams to the top of the steel stiffeners. To complete the installation the clamps were tightened with standard hand tools to provide a safe and secure connection.

Click here to watch the installation video >>>



Result

Type AAF Girder Clamps provided a drilling and weld free connection onsite that was quick and easy to install. The clamps are fully adjustable which gave the contractor the ability during installation to manoeuvre the beams into their final positions before fully tightening them. The swing bridge is now fully operational and safe for both vehicles and pedestrians to use.

Girder Clamps provided a drilling and weld free connection

Key Benefits

- ✔ High slip resistance for combined loads
- ✔ Hot Dip Galvanised finish provides a cost-effective and low maintenance solution
- ✔ No drilling or welding required
- ✔ Fully adjustable on-site for easy installation

ESR-3976

Click here for more details