



Case Study

Innovative sewer protection for Euston Street Station ahead of HS2 piling installations

How we supported J Murphy & Sons to complete their works without damaging the underlying Victorian sewer system.

The Challenge

Planned piling works undertaken as part of the new HS2 station upgrade at Euston Street Station meant Network Rail's contractor J Murphy & Sons needed a nearby combined sewer system to be temporarily reinforced to protect the Thames Water owned asset.

Whilst the Victorian sewer section was in a fairly good condition, it was irregular in shape throughout, which made it a difficult task to fabricate a suitable reinforcement solution.

Action

An innovative custom-built solution

We proposed and installed an innovative two-piece steel cage liner, drilling eight bolts fixed with chemfix anchor gel into the sewer structure before installing a TX160 Geogrid material to the sewer soffit and securing using special elliptical reinforcing bars.

The sewer is a traditional brick egg

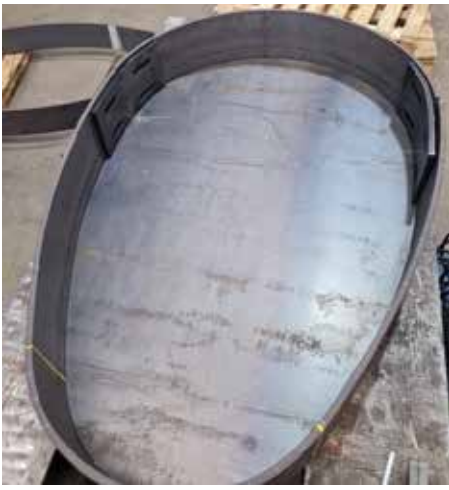
form measuring 1168 x 762mm and the reinforcement caging was installed within an unstable 60m section. Three temporary access shafts were excavated into the sewer, offering safe access whilst minimising any traverse during the cage's installation.

Due to the Victorian sewer's irregularity, we undertook a laser profile survey to ascertain exact measurements to ensure the steel

members were installed correctly throughout. Laser measurements were taken every 2m and issued to our steel fabricator whose Cad drawings ensured the ideal band size for each steel member.

Following installation, SAA equipment was put in place to monitor any movement during the forthcoming piling works. The temporary cage liner will be removed following the completion of the station upgrade.





Results

- Successful sewer protection despite the irregularity and instability of the section
- Safe installation with best practice health and safety procedures and measures
- Large, complex sewer cage liner installed within two weeks and within program timescales
- Enabled the Euston Street piling works to continue to schedule

"Onsite continuously supported ourselves and HS2 in order to find the best solution for the changes being experienced. Quick to assess, cost and programme these changes, Onsite made the final result easier to achieve for the betterment of the overall programme. Once on site, we witnessed an industry leading Health and Safety Culture within their teams and management and a high level of Quality Assurance. Overall, Onsite were a pleasure to work alongside"

- **Joe Alves, project manager,**
J Murphy & Sons

Health and Safety

Due to the nature of the environment, we kept our people safe by deploying our confined space rescue team to undertake a 'dummy' rescue run within the actual asset. This all-important dry run meant that, in the event of a real emergency arising during the works, we were confident that any necessary rescue could be undertaken safely. However, with such careful preparation under our belts, we were pleased to say the works passed without incident.

Final Word

"The essential sewer protection works within the egg sewer proved to be an extremely difficult installation given the very tight working area for the operatives. Three access shafts were installed by J Murphy & Sons to provide effective and safe access and egress for our confined space operatives installing the cage liner. The project called for a collaborative approach with the safety of our team always at the forefront - and the success of the design solution is testament to the hard work of the OnSite team."

- **Paul Tomlin, project manager,**
OnSite Rail Services



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