Regeneration of sluice to extend operating lifetime

Earith sluice diverts flow from the River Gt. Ouse to the Ouse Washes Flood Storage Reservoir. Built in the 1950s, the sluice forms part of the flood defences protecting 262 properties from flooding. After an inspection the Environment Agency decided a refurbishment was necessary to ensure the sluice operates effectively for at least the next 25 years.

The works involved refurbishing the concrete platform that the sluice stood on and installing new anchor piles to support the sluice structure. A cofferdam was installed upstream of the sluice to enable the works to be completed. It was installed to allow the sluice to function as normal in case a flood occurred during the works schedule. This project provided us with a number of challenges as the works had to be completed over 3 years during times when the area was not flooded.

Year 1
- Construction of a temporary cofferdam across the river
- De-water
- Excavation to new formation
- Fill voids with concrete
- Concrete blind / seal formation
- Lay mesh reinforcement
- Concrete new apron
- Divert existing services
Earith Sluice Gate Replacement

- Install new wailing beams on abutments
- Install new ground anchors
- Grit blast and paint existing piled abutments
- Install new stop logs

**Year 2 & 3**
- M&E Design and Build
- Refurbish existing flap gates
- Removal
- Grit blast and paint off site
- Replace new seals
- Install refurbished flap gates.
- Install new stop logs
- Install new control panels
- Underpin existing control building
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Safe
Our focus on site was to make sure everyone went home safely, whilst minimising disruption to the local community. This was achieved via:

- Site specific inductions
- Site specific tool box talks
- Liaising with the local community and local land owners
- Mandatory good site housekeeping
- Daily 10 minute briefings regarding risks, impacts and working methods
- Weekly safety audits and meetings
- Monthly progress meetings with all affected parties
- Monthly safety meetings
- Liaising with the works force (do they know a better and safer way to carry our specific tasks)

Innovative
Our temporary works were crucial to the success of the project as we were only allowed to use cantilevered piling solutions to facilitate the cofferdam design. The existing water had to be removed by dewatering through silt traps before discharging into the river. The temporary piles were so successfully that they were used as permanent works to facilitate the toe line to the concrete apron. The piles were cut off at apron level.

Honest
Throughout construction we investigated ways to add value and reduce costs. The Client was notified of all potential savings and areas where risk items could be managed more effectively. Further cost savings where achieved by incorporating the temporary works as engineering support for the concrete apron.

Collaborative
We secured the services of a third party painting consultant to provide the Client with design best practices and suitability of products. The consultant inspected each phase of our works before signing off to the satisfaction of the client.