



This was a major project for both Clancy and Scottish Water, but by integrating an innovative approach, we were able to deliver a phenomenal result for the client despite its challenges.

Deploying quick and effective strategies to repair a vital wastewater asset in East Kilbride



X3
LARGE GENERATORS PUMPED
OVER 1,200 LITRES PER SECOND



MINIMAL
ENVIRONMENT
DISRUPTION

Background

As water companies look to deliver outstanding services for communities and customers, we've been working with our clients to help ensure that their networks are secure and able to meet expectations.

During what was thought to be a routine blockage clearance, we discovered a significant issue with the network at a site in East Kilbride, which developed into a sinkhole in the immediate vicinity of a 9.5m deep manhole. As a result, the wastewater infrastructure needed to be urgently re-routed, with the outstanding issue permanently fixed.

Solution

The first step of the project was to find a solution that bypassed the damaged pipework. The scale of this was huge and came with its own unique challenges, particularly relating to the local terrain.

The site's thick forestry meant that we needed to strategically remove certain trees to find a path that would allow us to re-route the pipes and avoid ecologically-sensitive areas. We were then able to install a temporary access road approximately 150m long. This facilitated the installation of a temporary, gravity fed pipe to divert the flows away from the damaged infrastructure and into an overpumping facility in a nearby field, which was made possible by the creation of two extensive shafts.

A 300m stretch of 800mm diameter pipework was then established – aided by over 1.2km of trackway that facilitated this temporary infrastructure.

This required each section of pipework, weighing 3.5 tonnes each, to be lifted into position with some sections being buried underground to maintain access. Once in place, three large generators powered the pumping of over 1,200 litres per second – the equivalent of filling an Olympic-sized swimming pool every 26 minutes.

Fixing the issues with the manhole presented other problems with two high-pressure gas mains situated directly underneath. Maintaining health & safety as an absolute priority, we liaised closely with the gas operator and adapted the site to support the transportation of our HGVs by building two roads that would avoid crossing over the mains. Alongside the safety concerns, the network supplies 30,000 homes, so our operatives ensured that work around these mains was closely managed.

Repairing the manhole itself required us to think innovatively. For the excavation, we began by driving long sheet piles into the ground, supported by the Groundforce mega brace system, which allowed us to get closer to the issue. The team then deployed a mini excavator into the manhole site, so that we could more efficiently access the root of the problem. Using this equipment in a confined space can increase the risk posed by diesel fumes, which requires special ventilation to remove. However this excavator was battery-powered, emitting zero fumes and ensuring safe and sustainable operation.

Another challenge faced by the team was the sheer number of power lines that were overhead at the entrance of the site. The height of the lines greatly restricted our ability to bring in the necessary equipment as there was the potential that larger vehicles could damage the infrastructure and disrupt local supply. To mitigate risk, we set up traffic goalposts that prevented large lorries from entering and set up stops so that equipment could be offloaded earlier.

Benefit

The project has successfully re-routed an essential part of East Kilbride's wastewater network – providing an effective and efficient solution in complex circumstances.

We've helped to ensure that the area has faced minimal disruption environmentally too. The team's close engagement with ecological specialists and arboriculturists ensured that tree removal was done incredibly carefully – prioritising the cutting of trees that were either diseased or could easily recover. Operatives also factored in a host of wildlife concerns including installing wildlife cameras on suspected badger sets and inspecting all small cavities in the trees that had the potential to be bat roosts. With this insight, we determined the right over-pumping route that would protect the site's biodiversity in the long term.

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