

Mountfield First Time Waste Water Treatment Works

Client:	Southern Water
Location:	Mountfield, Sussex
Value:	£2.8m
Duration:	96 Weeks

In Brief...

As part of Southern Water's AMP6 Capital Works, Barhale were contracted to build a first time Waste Water Treatment Works (WWTW) for the Village of Mountfield, Sussex. Despite challenging conditions due to the site location, this being in close proximity to residential properties and within a flood plain, Barhale completed the works on time, to the satisfaction of the local community. Close collaboration with Southern Water and the latter's expert input throughout both the design and construction stages played a key role in achieving this outcome. Barhale's established expertise in waste water treatment works, combined with a proactive, innovative, and flexible approach, further facilitated successful delivery.



Screening chamber, SAF unit and humus tank



Preparation for Septic Tank Base Slab

In Brief cont'd...

As a testament to its success, the project was shortlisted for two national WWT Awards, in the Alliancing and Partnership Initiative of the Year and Customer Initiative of the Year categories.

Technical Features...

The full scope of works included provision of the following:

- Inlet pumping station (conversion an existing cess tank), and high-level emergency overflow within the inlet pumping station
- 2 no. septic tanks, each with a volume of 36m³, and a sludge collection chamber for the septic tanks
- Septic tank distribution chamber to evenly distribute flows to the new septic tanks via twin weirs
- Sac screen chamber 2 no. CopaSacs and high level overflow bypass weir downstream of the septic tank outlet and upstream of a Submerged Aeration Filter tank (SAF tank)
- Above ground SAF tank
- Manhole for the septic tanks and SAF tank drainage
- 5m diameter conical humus tank, complete with air lift auto-desludge, manual operated scum removal and recirculation facilities
- Humus desludge and decum chambers
- Washwater sump and washwater booster set
- New final effluent chamber complete with effluent quality monitors and an MCERTS flowmeter
- Outfall headwall connected to the final effluent chamber and emergency overflow chamber outlets
- MCC and GRP kiosk
- Lighting and instrumentation
- Footpaths and landscaping

Due to the site being located within a flood plain and planning restrictions stipulating that the WWTW to be built in the ground, raised particular difficulties in carrying out the works. The water which gathered in the plain made it especially difficult for the concrete works, these works were required to install some of the WWTW units.

At the start of the project, which coincided with a rainy period, Barhale's team needed to tanker water away several times a day. This meant extra-traffic on site, interruptions to the works, which then resulted in delays and knock-on effects with costs.

To address this problem, the Barhale team procured a nursing tank to pump the water into which was located at the entrance of the site, where the water was subsequently tankered away. This innovative solution allowed the works to continue undisturbed, within programme whilst also saving costs incurred by the client.

To mitigate the risk of flooding on site, Barhale and Southern Water worked together to design and install a French drain and attenuation/soakaway tank to direct surface run off from the road and the neighbouring fields away from the treatment works and neighbouring land. This eliminated clean 'surface water' run off being unnecessarily treated by the works, and reduced flooding caused by surface water run off.

Technical Features Cont...

Working collaboratively with the SW project team, the Barhale team devised targeted solutions for ground dewatering, this was to ensure the safe installation of some of the units. The site team drilled 4 14m boreholes and installed 4 individual electric pumps to enable the excavations for the installation of the humus tank. The excavation for the humus tank was 6.5m deep. Additionally, approximately 100m of temporary French drains were installed across site to enable the site team to complete the excavations for the installation of the rising mains, electrical ducts, draw pits and the foundations for all permanent structures.

Exemplary Client and Customer Care...

The team displayed exemplary customer care throughout the project. This was particularly important as the entrance to the site was opposite residential properties. This included having permanent arrangements to clean the roads due to the soil and dust settling from lorries. Dust suppression was used extensively within the compound and on the roads whenever required.

The team kept Southern Water involved and informed at all times. In particular to ensure the design reviews initiated by the client for the works, were well-coordinated with ongoing construction activities and the designs had been approved.

Both the residents and our client repeatedly acknowledged Barhale's team ethos of collaboration and care.

Southern Water's Project Manager commented:

"I've had really positive feedback re the dampening down. The lady has had serious health concerns over the last couple of years, so it means a lot that we listened and acted. Well done, please keep it going."



Septic tank desludge pipework installed and supported

Exemplary Environmental Protection...

Whilst the Barhale team were preparing for the concrete mass fill required to install the humus tank, a Grey Wagtail was spotted flying in and out of the cofferdam.

The team closely monitored the bird throughout the subsequent hours. They located the exact place where it was going and found that it had built a nest inside a temporary works brace and had laid four eggs. Barhale's site manager immediately stopped the works, informed the client and made the necessary protection arrangements. This included a 10m safe area to not disturb the Wagtail. All staff were also briefed about the nesting Grey Wagtail and about the legal protection afforded to all nesting wild birds. In collaboration with Southern Water, camera traps were installed to monitor the birds activity. These revealed that the Grey Wagtail had stopped visiting the nest after a week, and had still not returned two weeks later. Thermal imaging cameras further confirmed that the eggs were cold, and that the nest had been abandoned. Having followed these safeguards, the team removed the nest and recommenced with the works. Although these protective measures had delayed the works, both Barhale and Southern Water agreed that the stringent measures were necessary not only to fulfil their legal obligations to protect the environment, but also the ethical imperative to leave a better world to future generations.