



Client:

Bellway

Location:

Birmingham



Bespoke Water Treatment System Installed During the Construction of a New Housing Development to Protect the Environment and Local Community

Project Overview

Bellway, one of the UK's largest house builders, was undertaking construction work on a new housing development which consisted of 370 new homes. Of these homes, 222 will be for private sale, while the remaining 148 will be available through shared ownership schemes.

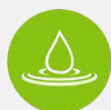
Challenge

After the completion of earthworks, Bellway constructed an attenuation pond at the lowest point of the site. However, an unrecorded water main was discovered within a nearby carriageway. This unexpected discovery obstructed the original route planned for the new outfall pipe.

During this time, the area experienced heavy rainfall and melting snow, causing the ground to become saturated. Water began to collect in the attenuation basin, with no outfall available to discharge it. The attenuation pond had around 600 mm of freeboard remaining and contained significant volumes of silt-contaminated water. If it continued to rain, there was a risk of the pond overflowing, leading to an uncontrolled discharge that would negatively impact the nearby carriageway and cause a pollution incident in the nearby brook. Bellway were keen to prioritise finding a way to reduce the water level in the pond, whilst the new outfall was being created. Otherwise, the impact on the environment and local community could have been severe.

Bellway took immediate action, and reached out to RVT for support.

Featured Product Range:



EnviroHub®
Water Treatment
Solutions



Soundex®
Noise Control



Solution

RVT collected water samples from the site and performed in-house jar tests.

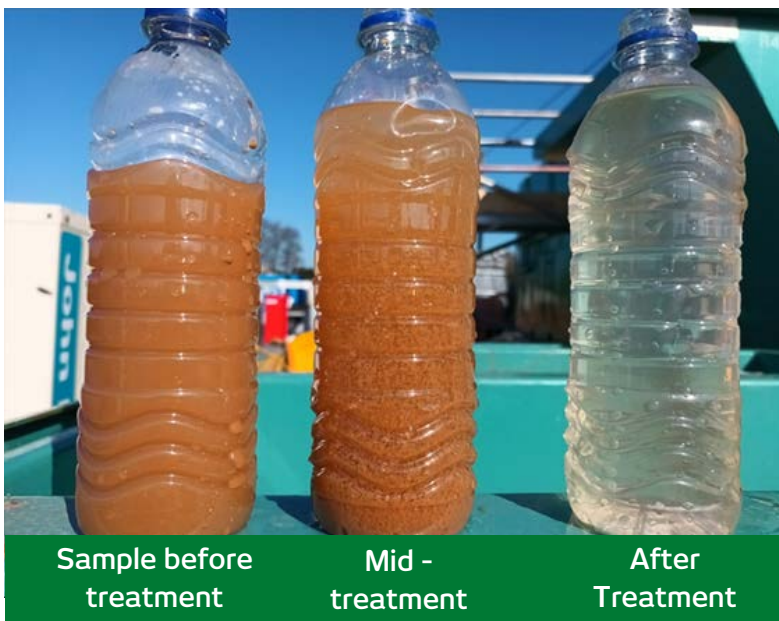
The results showed that the water had a high concentration of colloidal (clay) matter and low alkalinity levels, which is a challenging situation. Adding metallic salt to neutralise the coagulants would decrease the alkalinity and pH levels further. Considering these factors, we swiftly modified our systems and adjusted our conventional chemical dosing method from using a metallic salt and anionic polymer to using a metallic salt and caustic soda. This change helped us maintain suitable pH levels while still achieving adequate flocculation. As a result, we were able to decrease the turbidity readings from 4000Ntu down to 5-10Ntu, which was a significant improvement.



RVT's in-house jar test

RVT proposed a full chemical dosing system with caustic dosing for pH correction, along with real time data monitoring and alarms to ensure treatment efficacy 24/7.

The system reduced the TSS, Turbidity and maintained pH level within the Environmental Quality Standards.



Sample before treatment

Mid - treatment

After Treatment

When carrying out activities on a plot of land, including construction work, the main contractor or landowner is responsible for any water that is to be moved or discharged from the site

EnviroHub® is easy to use, therefore reducing the burden or stress that site managers might feel when managing water on site

The Environment Agency states that contractors must have a plan for the control and disposal of water from site, and must distinguish between excess water due to rainfall and water arising from the construction process

EnviroHub® helps to ensure compliance with environmental regulations, giving you peace of mind that you have protected the environment

EnviroHub® is a fully modular system, allowing RVT to create a tailored set-up for your site. Furthermore, water can be neutralised using CO₂ or chemicals

With RVT, customers are supported throughout every step of the hire, receiving technical support and consultations whenever necessary

RVT can perform in-house jar tests to estimate the minimum coagulant and/or flocculant dose required to achieve adequate water quality

The EnviroHub® Monitoring Unit (MU02) is a simple way to give ultimate reassurance about the compliance of your site water

Bespoke Water Treatment Solution for Bellway

RVT Group supplied a system capable of treating 14 litres/second consisting of:

- EnviroHub TU02 Dosing Skid to automatically add the dose required to achieve adequate water quality
- EnviroHub TT10 Treatment Tank for PAC and Caustic dosing
- EnviroHub HL50 Lamella Plate Settlement Tank for solids separation
- EnviroHub TT03 Treatment Tank – 3m³ Holding Tank, to allow the effluent from the lamella to be pumped to the outfall

RVT also provided

- An EnviroHub Monitoring Unit to monitor the pH, turbidity and flow of water
- Soundex® Curtains to ensure that any noise created by the EnviroHub solutions was kept to a minimum



The EnviroHub TU02 Dosing Skid is used with water treatment tanks to automatically add flocculant and coagulant



Treatment Tanks are designed to pre-treat water with coagulant and flocculent polymer to improve settlement of solids, or for pH correction



The HL50 is RVT's largest settlement tank, designed to remove suspended solid particles from water (50m² volume)



RVT's acoustic curtains are certified to reduce noise by up to 32.9dB and achieve up to 98% noise absorption