Corfe Mullen STW

replacement screens and screenings handling

by
Eddie Pearce HNC

Corfe Mullen STW, in Dorset is approximately five miles from Poole on the south coast. The village has a population of 8,055 and a small amount of commercial and non-residential effluent discharge increases this to a population equivalent of 8,512. The existing screenings equipment had come to the end of its economic life, thus requiring additional maintenance from the site operators to maintain its performance. Screenings were also being passed forward into the treatment process during periods of high flow.

Corfe Mullen - Pre-fabricated inlet works *courtesy Wessex Water*

Existing site

Flows from a series of gravity sewers arrive at the works where they feed into a raised inlet works. This is possible as the works is built on a slope. The existing inlet works comprised a Longwood curved bar screen in the main channel and a hand raked bar screen in a by pass channel. Screenings were fed by a launder channel to a Haigh conditioning tank and on to a Longwood dewaterer. Washwater was currently being provided from the potable water supply.

New inlet works

Wessex Engineering and Construction (WECS), was asked to undertake a scheme to design and construct a new inlet works. The scheme was to provide uprated screens and screenings handling capability on site. To enable the scheme to progress forward quickly a partnership approach was undertaken with Damar Group Ltd., one of Wessex Water's approved contractors, which was engaged to undertake all design and construction work.

Through a collaborative approach between Wessex Water's Operation, WECS and Damar Group Ltd., a design was proposed incorporating Brackett Green 6mm 2 dimensional screens, Haigh screenings handling package and a new final effluent washwater system.

The screens were each sized to take the peak flow of 135 l/s. Bracket Green CF 100/600/300 band screens with 5mm mesh were purchased. The screenings handling equipment was sized taking 0.03m^3 per 1000 population per day with a peaking factor of 20 to cope with storm flows. Haigh recommended its 750 Lisep package.

The new duty/standby screens would not fit in the existing concrete structure, while the existing layout also made adding a further channel impractical. Therefore, a new inlet works structure would be required, although building a new concrete inlet works structure would be extremely awkward, as it would have to be constructed between the existing inlet works and screenings handling equipment, since space was limited.

WECS, Damar and their detailed designers Such Salinger Peters (SSP) developed an idea to build a prefabricated inlet works. A stainless steel inlet works structure was constructed off-site in Damars' workshop with the new screens being delivered and installed there as well. During this time a simple concrete slab was constructed on site to receive the structure. The electrical works and washwater pumping station were also completed as far as possible.

The complete tank unit was then delivered to site, placed on the concrete slab and all electrical and mechanical connections were made. The equipment was then dry tested and on completion of the dry testing the inlet flows were simply diverted to the new inlet works structure and it was commissioned.

The structure also represents a movable asset that could be used on another site if required.■

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