

Wellington Dock Wastewater Treatment Works

Case study

Focus products: Intercrete® 4808, Intercrete 4800, Intercrete 4840

Location: Liverpool, UK

Client: United Utilities

Main contractor: GCA (Joint venture of Galliford Try, Costain and Atkins)

Applicator: Bowercross Construction

Summary: Assuring the design life of a new build extension



Background

The existing Wastewater Treatment Works at Sandon Dock in Liverpool is the second largest in United Utilities' portfolio, but it is no longer capable of handling all the effluent that goes through it. A £200 million scheme was devised to construct a new two-storey Sequential Batch Reactor (SBR) plant in the adjacent disused Wellington Dock, as well as upgrading the existing works at Sandon Dock. Once complete, the new plant will be able to cope with 11,000 litres of waste a second and will serve around 600,000 Liverpool residents, taking away their sewage and treating it to optimum standards, before returning it to the River Mersey.

The SBR plant stands 21m high, and consists of 16 cells on two levels that are effectively chambers through which water passes during the various stages of secondary treatment. The SBR plant has been constructed using in-situ concrete, based on a network of tall, slim, 500 - 600mm square columns and 600mm thick wall panels.

The solution

In order to underpin and assure the design life of the new structure, Intercrete 4808 and 4800 were used. Intercrete 4808 is a single component, cosmetic grade mortar which is supplied in grey and white grades to match the parent concrete. It provides a highly aesthetic, waterproof finish with excellent protection from acid gases, moisture ingress and chlorides. Intercrete 4800 is a low density, high strength, shrinkage compensated, waterproof cementitious mortar which is easily trowellable and can be applied up to thicknesses of 80mm in a single application. Its dense matrix offers low permeability to water, even at 10 bar pressure.

Intercrete 4840, a high performance epoxy and polymer modified cementitious coating, was also used to enhance concrete cover. Intercrete 4840 provides excellent waterproof protection with outstanding chemical and abrasion resistance. In total, over 20 tonnes of Intercrete materials were used for this prestigious project. All three products are CE marked in accordance with the demands of BS EN 1504.