

Bukit Barun Water Treatment Works

Case study

Focus products: Intercrete® 4820, Intercrete® 4841, Intercrete® 4872

Location: Brunei

Client: Water Services Department

Contractor: Ley Choon EWC Sdn Bhd

Distributor: Rigoh Sdn Bhd

Summary: Concrete repair and waterproofing of new construction



Background

Located on the island of Borneo in Southeast Asia, Brunei has adequate water sources but the development of the water supply system has been affected by distance and local conditions. In the 1990's, the Bukit Barun Water Treatment Works was constructed to cater for the increasing water demand in the Brunei-Muara district. The Bukit Barun WTW can supply nearly 80% of water in the area.

For several years, the Water Services Department in Brunei has concentrated on improving the production capacity and robustness of the water supply system. Part of the improvement works involves a £14m extension of Bukit Barun WTW which will increase its capacity to 490 million litres of water daily in order to meet increasing water consumption demand.

The solution

Over 5 tons of Intercrete materials was supplied for this project. A total of four concrete clarifier tanks were newly constructed and Intercrete materials were specified in order to underpin and assure the design life of the structures, and provide a solution to nonconformance with specification. Part of the face of the cast concrete wall in the clarifier tank was found to be defective when

the shuttering was removed and the requirement was for a concrete reinstatement system that would increase the effective cover. The vertical concrete tank walls are 3m in height and the lamella plate clarifiers are made from stainless steel.

After the surface profile of the concrete was levelled with Intercrete 4820, an engineering grade pore filler and thin screed that is approved for use in contact with drinking water, a tropical climate grade of Intercrete 4841 was applied over the entire area. A highly advanced, two component, waterborne cementitious modified polymer coating, Intercrete 4841 provides an effective barrier against the effects of aggressive acid gases, moisture and chlorides, and also has greatly enhanced chemical resistance. It forms a hard, highly alkaline coating, resisting positive and negative pressure under a 100 metre head. It is also approved under Regulation 31(4) (a) and is CE marked in accordance with BS EN 1504. Intercrete 4872, an elastomeric, waterproof reinforcing tape, was also applied between the filter inlet channel and the clarified water channel. WRAS approved, Intercrete 4872 provides an impermeable, highly flexible seal over live cracks and joints. In addition, Intercrete products were used for application to the pre-chlorine flash mixing chamber, in order to protect the concrete structure from chlorine and lime attack.