



Happy Valley Race Course Hong Kong

CUSTOMER

Drainage Services Department

SECTOR

Water

DATE

Nov 2013

PRODUCTS

- Auracast 400
- Auracast R
- Conplast Controller

THE PROJECT

The Drainage Services Department (DSD) has long planned to solve the drainage problem at Happy Valley region on Hong Kong Island. The Happy Valley area is geographically a natural basin with a very large catchment area, each summer the rain water collected by the drains was not discharged quickly enough after heavy rainstorms causing back flow. Therefore, this has always been a top priority on DSD's agenda and this underground stormwater holding facility would solve the flooding issue. The huge underground stormwater tank is situated underneath Hong Kong's most prestige prime location, the Happy Valley racecourse where many international renowned races take place. The design is such that large volume of rain water could be temporarily held in this tank and the pumps inside the tank would be automatically activated when the water level reaches a pre-set datum. The project design has received the "2012 International Water Association Project Innovation Award"

THE SOLUTION

The design consists of a large underground concrete rainwater tank installed underneath the Happy Valley racecourse. With a capacity of 60,000 cubic metres (equivalent to 24 standard swimming pools) it's the largest of its kind in Hong Kong. One of the major challenges of the concrete design was to apply Shrinkage Reducing Agent (SRA) admixture with a very low W/C ratio of roughly 0.38, the cement content being maximum at 400kg. In addition, the requirement for internal temperature rise within the concrete should not exceed 75°C during hydration of the concrete.

Fosroc Hong Kong worked closely with the customer and proposed a high end 4th generation Polycarboxylate superplasticizer together with Fosroc's high performance SRA admixture Conplast Controller. The benefit of the SRA is that it enhances the concrete performance and helps reduces shrinkage such that the concrete would have waterproofing effect. The Fosroc admixture solution gave the customer an ultimate compressive strength close to 80MPa with a high flow ability and long retention required at very low cement content. Further, internal temperature of less than 75°C was also achieved.

THE BENEFITS

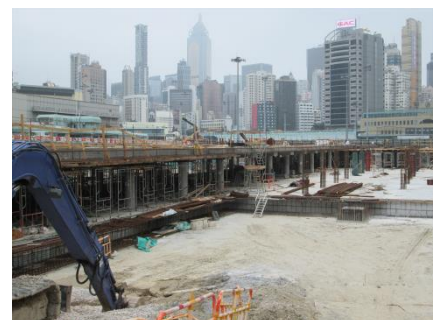
Fosroc admixture solution has proven to be technically advanced offering excellent results, especially for the water retaining structure with a high performance concrete providing the customer satisfaction and confidence. This project bolstered Fosroc's admixture position as an admixture solution provider in Hong Kong.



Excavation from northeast of the recreation ground



Section of top slab of the stormwater tank completed



Excavation in progress for next section