Prince Charles' Poundbury Development

upgraded STW for prestigious scheme

by Frances Clayton BEng (Hons), MICE

The ancient country town of Dorchester, in Dorset, is undergoing redevelopment. It is the home of Prince Charles' prestigious Poundbury Development. Small village communities are being constructed with a very individual feel to them around the old town. The development is in progress and due for completion in 2020. The existing sewage treatment works for Dorchester is traditional and low tech. As well as meeting the needs of the Poundbury Development, the Environment Agency (EA) is looking for Wessex Water to have a tighter ammonia discharge standard, additional storm storage capacity and phosphorus removal plant in operation in Spring 2002.

Dorchester: Filter under construction (*courtesy Morgan EST)*

As an operational site with limited below ground records it was decided that an NEC Option 'C' Contract was most suitable for the AMP3 work at Dorchester STW.

After European advertising and a comprehensive selection procedure, *Morgan EST* (formerly part of the *Miller Water Group)* was awarded the £1.6m contract with design being carried out by their selected partners *Carl Bro.*

The additional treatment capacity was provided by replacing media in two of the original 27.5m diameter filters. The *2H Ltd* media and *Sewaco* distribution system were the first priority of the team and were fully seeded within five months of the start date.

The 420m^3 circular concrete storm tank construction by *Richard Medlin Contracts Ltd,* started slowly as old mass concrete structures were found underground in the excavations. The ground investigation had not identified them, and this led to a four weeks delay.

During this time proposals for repairing the existing storm tanks were agreed and a shotcrete liner was installed by *UKC Specialist Contractors Ltd.* Wessex Water also chose to add to the scope of the *Morgan Water* contract by instructing structural repairs to the primary settlement tanks. These tanks are mass concrete and due to their proximity to the main railway line, vibration has caused the wall and base joint to separate. After a good clean and dowelling, a reinforced concrete beam was cast on the outside of the tanks.

Dorchester storm tank under construction *(courtesy Morgan EST)*

The effect of phosphorus removal dosing had been measured at a number of recently commissioned sites in Wessex Water over the last 12 months. It has been found that picket fence thickeners (PFTs) do not perform their role of sludge thickening well with chemically added sludge. Hence there was a late instruction to change the sludge strategy for the site. A drum thickener has been hired from *Dirk Group* and refurbishment of the PFT has been abandoned. They are now being converted to sludge feed tanks with *Flygt* and *Plenty Mixers*. The mechanical installation of these is being done by *C.D. Bissell Engineering.*

The sludge disposal outlet has also changed. A *Komline Sanderson Belt* thickener has been installed by local sub-contractor *Combined Electrical & Engineering Services.* This will thicken post digestion sludge prior to 14 days batch storage and disposal to agricultural outlet. Additional storage tanks have been procured from *Permastore. Wessex Water have now procured industrial crop outlets, so a recent* decision has been taken to use these.

The existing standby generator has been replaced with a new *Addicott Electrics set.* The electrical installation of this and the *Blackburn Starling Ltd* control panels is by *Field Systems Design.*

The extra work and delays for the concrete repairs and construction of the storm tank are not critical and have been accommodated within the contract programme. The sludge works are on the critical path and these have been delayed, though completion remains on target prior to the EA deadline.

In spite of the number of changes, the compensation events have been well managed with cost changes agreed each time prior to the works being carried out. *Morgan Water's* open accounting system allows visibility to the client, so costs are agreed quickly and forecasts to completion are reliable.

The positive approach from the whole team to dealing with problems will no doubt lead to the successful conclusion of this scheme for Dorchester. ■

Note: *The author of this article, Frances Clayton, is Project Manager with MWH Wessex.*