

Kimble Grove UID

Client	Severn Trent Water (AMP 3 Framework Sewerage Contract)
Engineer	Carl Bro
Value	£1.25m
Period	May—Oct 2005

Kimble Grove was one of a number of UID projects identified in the Birmingham area and from the network study required a shaft tank of approximately 785m³ in addition to a CSO. .

Whilst alternative sites were considered, none proved suitable forcing the CSO, shaft tank and associated chambers / manholes to be constructed within Tyburn Road, a main artery for the M6. Tyburn Road is a twin carriageway with central grassed reservation and within this reservation are a number of services including BT fibre-optic and power cables. To make maximum use of the central reservation and avoid excessive disruption, the shaft tank including its discharge manhole and CSO were positioned within the reservation and south carriageway, thereby diverting the road traffic to the northern carriageway during this phase of construction. Extensive traffic management was required during the course of the work together with continuous liaison with Birmingham City Council highways department.

The 9m dia smooth bore segmental shaft tank was constructed as a jacked caisson to a depth of approx.20m. Ground water from 1m to 13m in sandy strata necessitated the installation of an effective dewatering system during construction of the shaft, CSO and open cut pipework. Pressure relief pipes were installed through the shaft base to ensure the tank would not float in the temporary construction phase, these being capped once the roof structure was in place. The tank is provided with two variable speed submersible transfer pumps (variable speed due to the large variance of static head). Two tank access points are provided and sited within the grass reservation, one for pump extraction and the other a man way. Due predominantly to the physical size of the pumps the specified 'Guardman' cover was replaced with a 'Norinco' cover (larger access, hinged cover, non-framework). A wardrobe type steel kiosk is provided housing the MCC for the transfer pumps and mechanical screen, this is sited adjacent to the shaft, on the central reservation for ease of access.

The 6.7m x 4.8m CSO chamber is designed to current WAPUG standards and provided with a 'Longwood' mechanical screen. To provide access to the screen a 'Savage' eight piece steel cover has been used instead of a 'Guardman' cover. Storm overflow from the chamber passes through the screen and gravitates to the existing storm water sewer. Both the new sewer and manhole are positioned in the central reservation.



Various lengths 1125,750,675 & 450mm diameter pipework were constructed in open cut trench for inlet, bypass and overflow sewers. The main divert manhole was constructed over the existing brick egg sewer and fitted with sluice valve and stop logs. Under normal conditions all flow passes through the CSO chamber.

The project highlighted the benefit gained from allowing the contractor to undertake detailed site investigation, including trial holes prior to agreement of methodology and price, to obtain accurate information on ground conditions and groundwater behaviour. .