

## PROJECT SLOW SAND FILTER REPAIRS



Stonbury were contracted by a framework client to complete ingress repairs to five, 3m deep, slow sand filter wells, at a WTW (Water Treatment Works). One of the wells was a 100 year old structure.

Scaffolding was erected internally to allow access into the first well and works began to remove the glaze from the existing engineering bricks. Due to the tight nature of the structure, a wet grit blast system was used as this limited the quantity of dust created within the small working area. Once preparation to the internal substrate was complete, the well was cleaned using high pressure water jetting. A fast setting, Regulation 31 approved cement mortar was then applied at a 10mm thickness to all internal wall surfaces, to prevent ground water entering the well during wet weather periods. The tank was left to cure whilst works commenced externally.

A 600mm perimeter was excavated around the well to allow access to the surrounding walls and HPWJ was used to remove the remains of previous coatings. The exposed walls were then skimmed with a fast setting repair mortar and the precast roof received an initial coat of cement, using a 'bag rubbing' technique. This method ensured all the open pores were filled, providing a suitable surface to coat over. Hypalon bondage was then used in conjunction with a Regulation 31 approved joint repair system to seal the roof joint.

Two coats of a sprayable waterproofing system were applied to all external walls, followed by the application of non-slip granules.

To complete the external works, kerbs were installed around the perimeter and backfilled with geotextile and 40mm of pea shingle, forming a small soakaway.

The previous processes were repeated on three of the remaining wells, however, inspection of the oldest well proved the structure to be in very poor condition. The operational importance of the well meant it could not be taken out of service and so alternative repairs were required. After discussions with the client, the decision was made to install a temporary scaffold structure over the well to protect it from the elements, ensuring any inclement in the weather would not affect the daily functions of the well or WTW (Water Treatment Works). The well was then excavated to 1m in depth, allowing as much of the structure to be coated as possible.

Concrete was poured into the foot of the trench around the entirety of the excavation, creating a seal and preventing ground water ingress. A waterproof liquid membrane was then applied to the remaining exposed walls of the well and the main body of the trench was back filled. It was decided that a concrete apron would be installed in replace of the small soakaway design used on the previous wells, as this would allow any rainfall to flow away from the structure. This method would also further protect the asset as the full scope of works could not be completed internally.

Once works were complete, the wells were flood tested with no issues and returned to service. A team will return in the spring to topsoil and grass seed the surrounding areas.