

## Case Study



Reverse Osmosis Nano-Filtration



Water Treatment Plant



Dual Vortex Media Filtration



Pumping System & Water Quality Monitorrig

## Major Capital Construction Project

Cornelsen was contracted to provide a temporary water treatment plant for the treatment of suspended solids & metals from groundwater abstracted from a network of dewatering wells across the site prior to the deep dig.

Having designed, built & commissioned a bespoke system within only 12 weeks, Cornelsen was then contracted for a similar system with triple the capacity to treat all abstracted water from the site for deep dig operations.

Subsequent to being contracted by Tier 1 Contractor Kier BAM and latterly Wessex Water, additional works followed including mobile settlement/filtration systems for excavation waters, a groundwater pumping/transfer system and 2.5km of piping and associated mounting infrastructure

### Treatment Processes

- ◆ Solids settlement
- ◆ Filtration
- ◆ Reverse-osmosis
- ◆ Water softening/ion exchange
- ◆ Pumping system & Quality monitoring & datalogging

*"We developed a reputation for being able to implement equipment really quickly and simply on site and that led to additional work with mobile treatment units around site as required and installing pipelines or pipe bridges to the convenience of a Tier 1 Contractor or the Client."*

Matthew Ingram, Engineering Mgr, Cornelsen Ltd.



# Project Stages & Challenges

**Stage 1: Temporary Plant - 2016.** Designed, built and commissioned a bespoke temporary water treatment plant within 12 weeks of instruction to treat all abstracted water from the network of dewatering wells across the site prior to the pit dig.

**Stage 2: Full Scale Plant -2017.** Design & build of an upscaled system with triple the capacity to treat all abstracted water from the site for deep sig operations. From concept to operation in 26 weeks, commencing June 2017 through to Nov. 2019.

**Stage 3: Pumping System, Quality Monitoring & Datalogging.** Supply & operation of a groundwater pumping system to transfer all abstracted groundwater from the peripheral dewatering wells to the outfall tank at the jetty to remain in place to the end of the build when the permanent pressure relief well system is commissioned. The pumping system monitors water quality and records data.

*"It was really good to see how our staff evolved to pull together as a strong team when required and how they and the Client and KierBAM teams interacted routinely to provide rapid and substantial solutions to the many problems that cropped up through the project."*

Matthew Ingram, Engineering Manager, Cornelsen Ltd.

## Stage 4: Concurrent Works

- ◆ Provision of 4 mobile settlement & filtration systems for several locations managing excavation water;
- ◆ Supply & install of 2.5 km of pipes of various diameters & support racking to the decoupling walls. Pipes were welded in-situ & tested in a narrow area with access at each end only, making this highly challenging;
- ◆ Full time weekly operation & maintenance of all pumping and treatment systems by a Cornelsen service technician.

Matt Ingram added: *"The teams collaborated really effectively throughout the project and there was never a problem unresolved as a result. I remain impressed by our staff, but also by the working ethics and professionalism of the Client team in the manner of problem resolution and finding solutions in very short timescales. It was great to have been a part of it."*



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