



# WATER TREATMENT WORKS AT HURLESTON

## PROJECT

Water Treatment Works at Hurleston

## MAIN CONTRACTOR

Balfour Beatty

## KEY BENEFIT

Temporary works successfully installed within 2 weeks



## INTRODUCTION

In 2003, Balfour Beatty Construction were in the process of upgrading Hurleston WTW, located just north of Nantwich off the A51, as part of a £6 million design & build contract. A major part of the contract was the construction of a new Clean Backwash/Interstage Pump/Sump Tank, alongside an existing 2-storey Control Building.

## THE SOLUTION

The decision was made to reduce the water table to below formation level using a well pointing system in order to alleviate some of the forces acting on the cofferdam. MGF designed a temporary cofferdam with a nominal sheet pile toe-in of 1.0m and two levels of frame. The frames were designed to leave as much clear working space as possible, whilst also minimising deflection and movement of the supported soil to protect the integrity of the Control Building. For ease of construction, the upper frame was positioned above commencing level and the design allowed for the lower frame to be removed after the basic slab was cast, thus giving the customer a completely unobstructed working area to construct the RC Tank and Roof.

Prior to any excavation, 7.0m long L601 Sheet piles were pre-driven driven 6.0m by Dew Construction using a leader rig.

The upper frame was installed at 0.3m above commencing level. The frame consisted of MGF Heavy Duty Tank Brace / MGF Titan Brace with Mechanical 54Te Superstruts across the width.

This required the installation of a temporary cofferdam, 25.2m x 14.4m x 5.0m deep. The soil profile was predominantly medium dense sand with a high water table, which, combined with the close proximity of the Control Building (1.75m from the face of the excavation) created extremely high soil pressures.

Once the frame was in position, excavation continued to the underside of the next frame level (approx. 3.7m below existing ground level) in preparation for the next stage.

The lower frame was then installed at 3.4m below commencing level. The frame consisted of MGF Heavy Duty Tank Brace with 5184Te Mechanical Superstruts (as cross struts) and Twin Mechanical 54Te Knee Braces in all four corners.

The frame was supplied with shear stop already welded in place to accommodate the knee braces. Excavation then continued down to formation level, 5.0m below existing ground. The basic slab was poured and the construction the permanent works commenced.

As the slab now took loading from the temporary works, the lower frame could be removed to provide even more clear working room. Once construction of the RC Tank was complete, the rest of the excavation was gradually backfilled and remainder of the shoring equipment removed.

## THE VERDICT

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The MGF scheme enabled the customer to complete the job very quickly with the temporary works being installed in little over 2 weeks. The vast working room provided and quality of service meant that progression with the permanent structure was unhindered.

The RC Tank and roof slab were successfully completed for the required water test to be carried out in time for the deadline of an upcoming shutdown period.