



CASE STUDY

FREE STANDING STAIR TOWER TO ACCESS WATER STORAGE TANK



THE CHALLENGE

Scottish Water commissioned James Aiken Engineering Solutions to manufacture and install a 7.2-metre-high stair tower for engineers and operators to safely access a water storage tank at its Bluehills Service Reservoir in Aberdeen.

The new access stair was to replace an existing stair, which was welded to the water tank and had fallen into disrepair. Once installed it would provide safe access to existing roof manholes.





OLD STAIRWELL



NEW STAIR TOWER BEING LIFTED INTO POSITION



THE SOLUTION

Following a detailed site survey by the James Aiken team, a conceptual design was prepared taking account of all technical requirements - including wind directional loads - in accordance with BS EN 5395, the code of practice for the design of stairs for limited access. The survey also assessed whether the existing tank roof and mid-level circumferential ring bracing could be utilised for attaching new stair steelwork, and if the existing ground level concrete plinth for the stair tower could be used.

Designs were submitted to Scottish Water for approval along with design calculation reports and an assessment on whether existing structural elements were viable to support the proposed structure.

Once the design was approved, fabrication work began in James Aiken's large fabrication and engineering workshops. The new stair tower began to take shape. When the fabrication and welding of steelwork was complete, the structure was blasted, primed and a topcoat applied to give it the finish and protection it would need to withstand the constant use of workmen and weather extremes. Proof load tests were done to assess lifting and tugging points.

With the stair access tower ready to leave the workshop, the James Aiken team set about removing the redundant site steelwork to make way for the new structure.

A large crane and access equipment were brought in for the installation and the stair tower was fixed to the concrete foundation and water tank by James Aiken's on-site team.



THE RESULTS

Design engineering was completed in two weeks and the fabricated steelwork was completed four weeks later.

Site installation took three days, and the new access stair tower provides safe and easy access to the water storage tank for engineers and operatives. If you require bespoke steelwork structures, designed, fabricated and installed, contact James Aiken today on 01224 704842 for a site inspection and quote.

JAMES AIKEN ENGINEERING SOLUTIONS IS A LEADING SUB-CONTRACTOR OF FABRICATED METAL AND PRECISION MACHINED COMPONENTS WITH EXTENSIVE FABRICATION AND MACHINE SHOP FACILITIES UNDER ONE ROOF.



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