

Balfour Beatty

Ground Engineering



NATIONAL INDOOR SPORTS ARENA, GLASGOW

KEY DETAILS

// CLIENT

Sir Robert McAlpine

// JOB SPECIFICATION

The installation of large diameter rotary bored, precast and CFA piling combined with vibro stone columns and dynamic compaction for the new National Indoor Sports Arena and Velodrome in Glasgow

// STRUCTURAL ENGINEERS

Halcrow

The National Indoor Sports Arena and Velodrome will be the main indoor sports facility at the 2014 Commonwealth Games in Glasgow, providing competition venues for track cycling and badminton. The £116m project is being built in the east end of Glasgow, close to Celtic's Parkhead ground.

Balfour Beatty Ground Engineering (BBGE) was awarded the work by main contractor Sir Robert McAlpine, after a value engineered solution utilising dynamic compaction, vibro stone columns, large diameter rotary bored, CFA and driven precast piles was proposed.

One advantage to the client was that all of the required techniques could be provided by BBGE. This meant the programming, communication and coordination required was

Located on brownfield land and requiring five different ground engineering techniques, the complex National Indoor Sports Arena site will be one of the main venues for the 2014 Commonwealth Games.

much simpler when compared to the alternative of appointing different subcontractors for each technique.

The ground improvement works commenced first with dynamic compaction undertaken for the floor slab. The slab is lightly loaded and the granular ground conditions meant the dynamic compaction technique was suitable to achieve a bearing capacity of 15kN/m² in this area.

For the curved design of the Velodrome cycling track 1,287 vibro stone columns (installed using both top and bottom feed methods) are being constructed.

For the higher ground level of the Velodrome a mixture of driven precast and large diameter piles were originally proposed, however getting two rigs and a crane to the top of the hill would present a major challenge. A solution involving larger pile heads for the driven precast piles was therefore proposed, meaning only one rig was required.

For the remainder of the site, large diameter piles with polymer support to depths of 32m, and CFA piles to 32m are being constructed, the deepest yet for BBGE.

FOR FURTHER INFORMATION CONTACT:

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