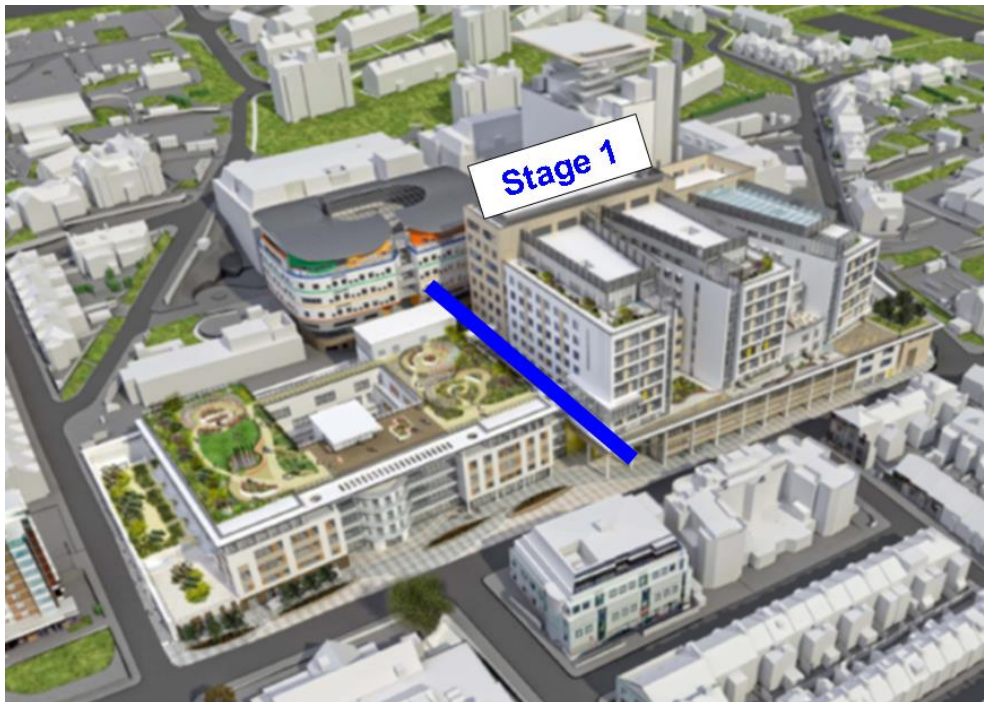


## 3Ts Redevelopment – A short guide to piling

### What is a pile?

A pile is a long cylinder of strong material, such as concrete, that is put into the ground vertically to support a building. The first of the redevelopment's new, permanent buildings, currently called Stage 1, will stand on 413 piles. These have to be set very accurately.



*The Redeveloped hospital, with the Stage 1 Building labelled.*

### How are piles fitted?

To start with the piling area is excavated to a depth of about 1m below the surrounding ground level. The location of each pile is identified and marked on site with a short polystyrene column. These are held in place with a framework. See the picture below.

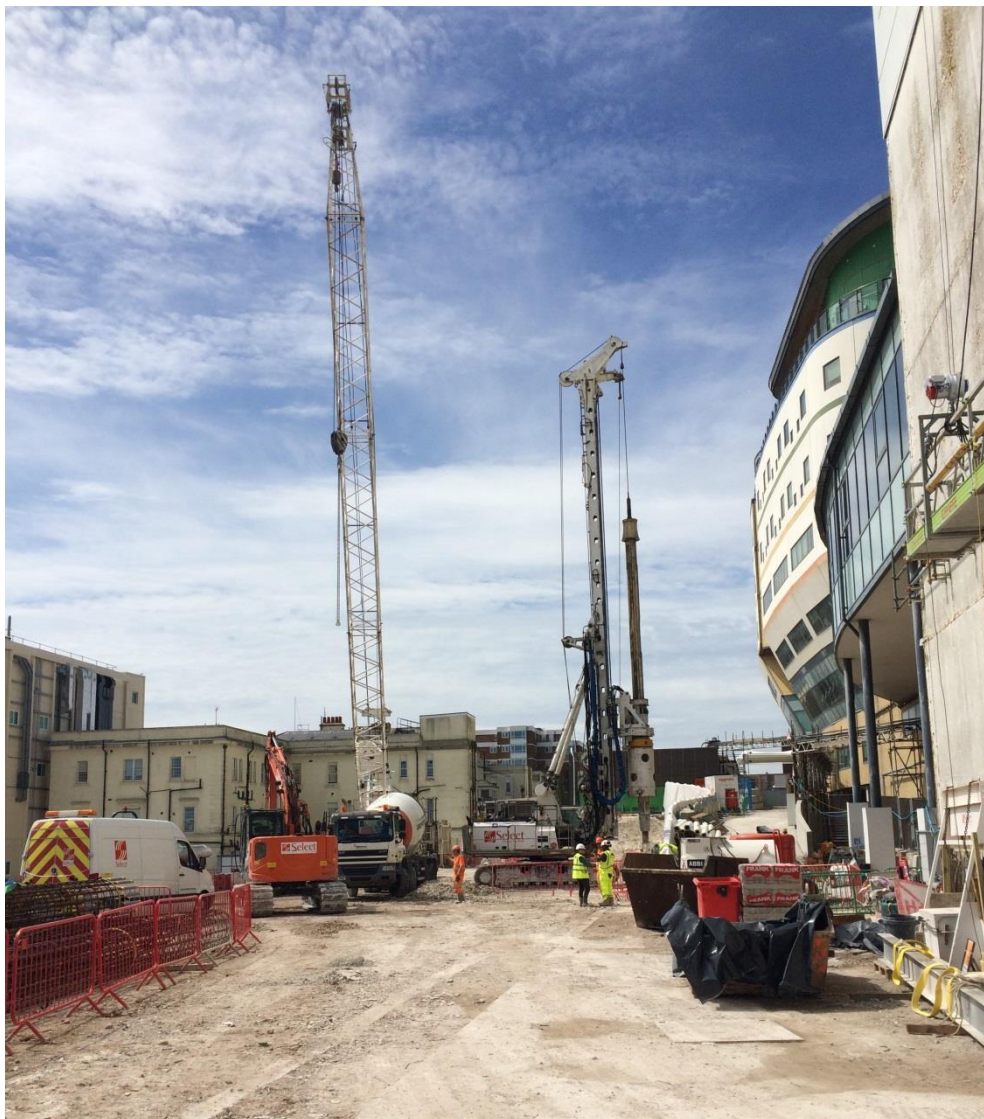


*One of the piling frames with the polystyrene guides in place.*

Concrete is poured into the framework so that it surrounds the caps. When set, the framework is removed and the ground is brought back up to its original level around the concrete. This leaves the top of the polystyrene caps at or just above ground level.

When the time comes to install the pile the polystyrene is dissolved. This leaves a concrete guide hole for each pile. A large metal tube, or stent, is then screwed into the ground inside the guide hole. It goes down past the top soil and into the top of the chalk.

Once the stent is in place an auger (drill bit) drills down inside it to the required depth, varying from 10 metres at the south of the site up to 30 metres at certain points in the north. The blade that runs up the auger is wide so that the earth and chalk (spoil) get caught in it. The auger is then lifted out of the hole and rotated so that the spoil comes off. This is done at low speed.



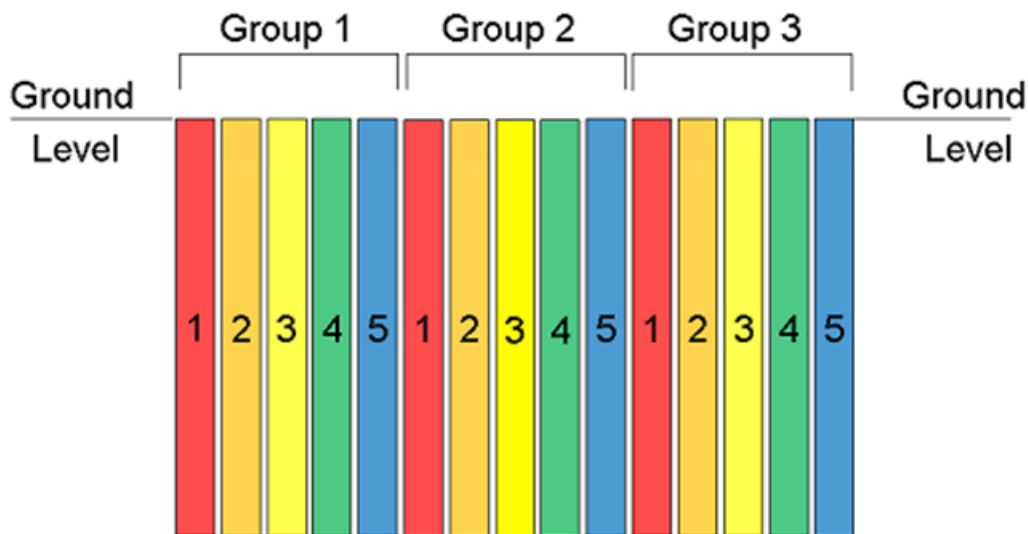
*The piling rig and crane that are used to install piles.*

With the hole dug, a metal reinforcing framework is lowered into it by a crane and then concrete is pumped in. Once this is complete the metal stent at the top is taken out to be reused. All that is left to do then is to cap off the piles and construct an eleven storey, brand new hospital building on top of them.



### Is there an order to how the piles are installed?

To give each pile time to settle they are put in place in groups, with each group normally containing five piles. Up to five groups will be worked on at the same time, although in the diagram below only three groups are shown. The first pile in each group (coloured red in the diagram below) is put in place. Then the second pile in each group (coloured orange), then the third (coloured red) and so on. This leaves enough space and time between the setting of the piles to allow them to stabilise. This is why, over time, the piling rig will progress along an area and then return to cover the same ground again.



### How long will the piling work take?

The piling for Stage 1 will continue through most of 2017 coming to an end in November or December, depending on how well the ground takes the piles. Once the piles in the north of the Stage 1 site are in place the first parts of the main excavation for the site will start, later in the summer of 2017.



An aerial view of the Stage 1 site with the piling rig working at the bottom (north side) of the picture.