

Recycling facility, Reliance Street

Manchester

Suez Recycling & Recovery UK were redeveloping and expanding an existing waste recycling facility in Newton Heath, Manchester.



The project

Keller were brought in to provide a ground treatment solution that could accommodate the existing geotechnical and physical constraints while maximising value engineering opportunities and minimising our environmental impact.

The challenge

To minimise the environmental impact it was decided to provide a rigid inclusion solution where possible as it offered cost and carbon reductions over CFA piles with the added cost-saving bonus of using the same rig for both techniques. The main challenge was delivering a solution that would avoid any surcharge and vibration to a sensitive retaining wall and an adjacent railway line while allowing the existing facility to remain operational. The new facility also straddled a deep backfilled pit with a variation in made ground of circa 7m.

The solution

It was decided to use 22m long 450mm diameter CFA piles for the main recycling facility within the deepest fills inclusive of 900-1050mm diameter flared heads. These were bored into glacial deposits to accommodate axial loadings of up to 1000kN/pile. The enlarged heads reduced the spans and enable significant savings and carbon offset benefits within the substructure design. The estimated CO² saving was 185 tonnes. Elsewhere, 8m long 350mm diameter unreinforced rigid inclusions were installed at 3m centres to allow the use of a ground bearing floor slab, limiting settlements to within 25mm and 1:500 under a uniformly distributed load of 50kN/m².

Project facts

Owner(s)

Suez Recycling & Recovery UK

Keller business unit(s)

Keller UK

Main contractor(s)

I&H Brown

Solutions

Bearing capacity / settlement control

Markets

Industrial

Techniques

Rigid inclusions
CFA piles

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