

# GRANDIDGES QUAY

Birkenhead, Merseyside

**Keller delivered a combined ground improvement and piling approach to support a warehouse build in Birkenhead.**

## The project

The construction of a new headquarters for a specialist wood manufacturer, comprising a 163,000 sq ft 52m clear span warehouse on a brownfield docklands site.

## The challenge

To provide a foundation solution through up to 17m of very low strength Tidal Flat Deposits whilst limiting settlement to <25mm and 1:500. Having originally designed this warehouse on piles, we were asked to offer an alternative that would accelerate the build and cut carbon. We were also asked to provide support to a heavily loaded crane base area which was positioned immediately next to an existing dock wall and through some very coarse backfill.

## Project information

### Application

Bearing Capacity/  
Settlement Control

### Technique

Rigid inclusions (RI)  
CFA piling

### Sector

Commercial

### Client

The Mersey Docks and  
Harbour Company

### Main contractor

Glencar Construction Ltd

### Contract value

£1,500,000

### Keller companies

Keller UK



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## The solution

Keller offered a combination of Rigid Inclusions and CFA piling for this scheme. The Rigid Inclusions were installed to facilitate shallow foundations (200kN/m<sup>2</sup>) and a ground bearing floor slab (53kN/m<sup>2</sup>). For the crane base, 450 and 600mm diameter CFA piles were adopted so as limit load shed and penetrate to depth. Keller was also able to switch between the Rigid Inclusions and CFA tools using the same rigs, which avoided additional mobilisation costs. The works were completed swiftly, with the substructure activities following on immediately behind. This afforded the main contractor the opportunity to accelerate their programme.

## Key achievements

- Offered a fully displacement solution for the warehouse and sprinkler tank areas
- Installed CFA piles for the crane base area next to a sensitive Dock Wall
- Facilitated the adoption of a ground bearing floor slab
- Switched the rigs between Rigid Inclusions and CFA methods to optimise the programme



## Contact us

For more details, contact Rob Herring, Estimating Manager, Ground Improvement

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