

Green Port Hull, United Kingdom



Green Port Hull is collaboration between Hull City Council, East Riding of Yorkshire Council and Associated British Ports (ABP). Its aims are to promote investment and development of the renewable energy sector in the Humber region and to support investors and their supply chains to secure long-term economic growth for the area, together with wealth and employment.

The Port of Hull's prime location in relation to offshore wind opportunities in the North Sea makes the region the perfect location to capitalise on the UK's offshore wind industry and at the same time help regenerate the area through investment, innovation and employment. In addition to the planned off-shore wind turbine grid, Siemens chose Hull as the location to build its world class offshore wind turbine blade manufacturing, assembly and servicing facilities, which will form

the centre piece of Green Port Hull.

BAUER Technologies Limited was awarded the geotechnical works contract by Graham Lagan Joint Venture on behalf of client Siemens. Specifically, Bauer was contracted to carry out ground improvement of fill and underlying soft, compressible alluvial soil, in order to control settlement and improve bearing pressure in an area of approximately 30,000m². This section lies between the existing dock shore and the proposed anchor wall.

The £2million+ project was particularly testing, with works being carried out in close proximity to the River Humber. This meant planning and the works had to account for the many hazards inherent in working in a marine environment, including, on occasion, very high winds. Construction was also carried out with multiple trades working concurrently in close proximity and therefore careful programme management and

sequencing was required to prevent incidents.

The scope of works saw Bauer install 3,252no. stone columns, using a vibro-replacement technique across the entire 30,000m² area, to improve the existing soft and compressible soils. The construction utilised a mixture of top-feed and bottom feed methods. For the top feed, some 2,636no. 'standard' stone columns were installed to a maximum depth of 8.5m in a 3m x 3m treatment area. Two excavator mounted TE1 vibro units were used for the work.

For the bottom feed, 616no. 'extended' stone columns were installed to a maximum depth of 14.5m, where there were existing timber columns in order to mitigate and minimise differential settlement between existing timber piles and treated areas. A single crane-mounted BC1 Vibro unit was used for the installation.

To assist penetration of the vibroflot for these columns, a CFA piling rig was used to locally pre-bore the in situ material.

Bauer also undertook a programme of pre- and post- works testing that comprised of Cone Penetration Testing and 3no. Zone Load Tests in order to validate the treatment and performance.

**Client:**

Siemens

Principal Contractor:

Graham Lagan Joint Venture

Piling Contractor:

BAUER Technologies Limited

Contract Period:

February 2016 to June 2016

Project Value:

£2 million

Equipment Used:

- 2no. TE1 Vibro units
- 2no. 40te 360° Excavators
- 2no. 13te 360° Excavator
- 2no. 2m³ wheel loaders
- 1no. BC1 Vibro unit
- 1no. PK85TT CFA Piling Rig