

CASE STUDY

CLEMENTHORPE, York

Soil Mixing Success For Flood Prevention Scheme At Clementhorpe In York

Environmentally friendly ground improvement solution soil mixing, was used on the essential flood relief work in York recently when Deep Soil Mixing Ltd was contracted by JBA Bentley to assist with their Flood Relief Scheme at Clementhorpe in York for client the Environment Agency.

Employed to work on the Environment Agency's flood relief scheme on the River Ouse, York, Deep Soil Mixing Ltd constructed a 240metre-long soil mixed flood defence wall to protect the 135 homes at risk of flooding in the Clementhorpe area.

Background

The city of York has always been prone to flooding and after more than 620 homes and many businesses were flooded in York in 2015, the government allocated an additional £45million to the Environment Agency to better protect the 2,000 homes in the city.

The work recently completed by Deep Soil Mixing Ltd was part of the wider flood relief scheme and focussed on the Clementhorpe area of York. The project included a cut-off wall constructed with secant columns 5-6metres below ground, adjacent to residential homes.

This phase of the project was known as seepage mitigation as it created a semi-permeable barrier underground to stop the flood waters from seeping through the ground and passing underneath the above-ground flood defences – and preventing low-lying areas beyond the flood defences from flooding.

The Soil Mixing Solution

The soil mixing solution involved mixing a binder into the existing ground using Deep Soil Mixing Ltd's double rotary mixing head mounted onto an ABI TM14/17V rig to create an underground flood defence along Terry Avenue in Clementhorpe, approximately 240 metres long and up to 6 metres deep.

Deep Soil Mixing Ltd's purpose-built double rotary mixing head has twin paddles that move in opposite directions to better distribute the materials as the soil is mixed. This improves the soil mixing process and enables the mix designs to be more finely tuned and accurate,



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increasing both efficiency and costs benefits for the client, more so than using a single auger mixing head.

This bespoke equipment ensured Deep Soil Mixing Ltd was able to achieve the greatest soil distribution for the most effective underground flood defence barrier – and all with minimal disruption to the homes situated on the site.

The project started in August 2021 and was successfully completed at the start of January 2022.

Ben Hughes, of the Environment Agency, said: *"The Clementhorpe section of our York Flood Alleviation Scheme is a once in a lifetime opportunity to reduce the risk of flooding to 135 homes."*

Rob Culledge, contracts manager at JBA Bentley, said, *"Deep Soil Mixing collaboratively consulted during the design phase - and carried out*

numerous site visits in advance of the works - to plan in details of the temporary works, programme of installation and health and safety requirements. The good planning and consultation resulted in the final scheme being delivered ahead of programme and to budget."

"We received great service and found Deep Soil Mixing easy to deal with and accommodating to change, paid good attention to health and safety and really impressed with their involvement to go above and beyond requirements."



ADVANTAGES OF SOIL MIXING

- Reduces construction programme
- No need to excavate and cart away so reducing landfill tax charges
- Zero vibration during construction
- Wide range of soils can be treated compared to other solutions
- Soil can be used as construction material
- No need to bring costly and bulky materials on site
- Environmental – Reduction of Carbon Footprint
- Effective on different soils, including soft soils, flood plains, contaminated land, peat, silts and alluvium etc.
- Increases bearing pressure, controls settlement and reduces permeability

FIND OUT MORE

For further information please contact:

Robert McGall

robert@deepsoilmixing.co.uk

Mobile 07979 533 925

Colin Critchlow

colin@deepsoilmixing.co.uk

Mobile 07977 117180

DEEP SOIL MIXING LTD

Deep Soil Mixing Ltd, Birchwood, Westoning Road,
Greenfield MK45 5BH T 01525 643562

www.deepsoilmixing.co.uk  @DeepSoilMixing